A Group Contingency Plus Self-Management Intervention Targeting At-Risk Secondary

Students' Class-work and Active Responding

By

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Abstract

Incomplete written work and lack of active classroom responding are reported to be obstacles to secondary students' learning. Effective interventions found in meta-analytic reviews of the current research literature include: differential reinforcement of desired behaviors through group contingencies and self-management strategies (Hoagwood et al., 2007; Prout & Prout, 198; Stage & Quiroz, 1997). However, the current studies have mostly focused on elementary school settings. The purpose of the present study is to show that an independent group contingency combined with self-management strategies and randomized-reinforcer components can increase the amount of written work and active classroom responding in high school students. Three remedial reading classes with a total of 15 students participated in this study. Students used self-management strategies during independent reading time to increase the amount of writing in their reading logs. They used self-monitoring strategies to record whether or not they performed expected behaviors in class. A token economy was used to provide positive reinforcement for target responses. The results were analyzed through visual inspection of graphs and effect size computations and showed that the intervention increased the total amount of written words in the students' reading logs and overall classroom academic responding.

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Table of Contents

Introduction

The No Child Left Behind Act (NCLB, 2001) has imposed academic standards for students and schools to ensure that all students are provided with the most conducive learning environments in order to make adequate yearly academic progress. This means that schools must prove that students are showing academic growth (e.g., increase in state test scores) in order for their school to receive federal funds to continue to operate. The "response to intervention" (RTI) model addresses student growth and has been proposed as a way to systematically determine the types of instructional supports that each student needs (Fuchs & Fuchs, 2006). It provides consistent guidelines for academic progress monitoring through the collection of frequent student data in order to make instructional decisions and changes to address academic needs (Brown-Chidsey, 2009). The RTI model has been used to increase academic skills such as prereading (Koutsoftas, Harmon, & Gray, 2009); reading (Allington, 2002; Kamps et al., 2007); and math skills (Fuchs, Compton, Fuchs, Bryant, & Davis, 2006); thereby reducing the number of grade retentions (Murray, Woodruff, & Vaughn, 2010) and special education placements (Burns, Appleton, & Stehouwer, 2005; Wanzek & Vaughn, 2010).

Among the many factors that can be identified to impede student learning, one of the most significant is student problem behavior in the classroom (U.S. Department of Education, National Center for Education Statistics, 2007a). Classroom teachers report pervasive concerns with problem behaviors that impede learning in their classrooms (Algozzine, Christian, Marr, McClanahan, & White, 2008; Molins & Clopton, 2002; U.S. Department of Education, National Center for Education Statistics, 2007b). The Institute of Education Sciences (2008) reports that "an estimated one-third of students fail to learn because of psychosocial problems that interfere with their ability to fully attend to and engage in instructional activities" (p. 5).

Problem behaviors commonly observed in classrooms and reported to be linked to early school dropout include lack of academic work completion and engagement, not paying attention, noncompliance, and aggression (Hammond, Linton, Smink, & Drew, 2007). Between 14 and 19% of all students exhibit at least one moderate to severe problem behavior at school (Bradenburg, Friedman, & Silver, 1987). As stated by Steege and Watson (2009), problematic behaviors prevent teachers from teaching in the classrooms and students with problem behaviors and their peers from learning. These problem behaviors interfere with students' social, emotional, behavioral and/or academic development (Cave & Rossetto-Dickey, 2009; Hennessy & Green-Hennessy, 2000; Stage & Quiroz, 1997). Overall, classroom problem behaviors challenge the time, energy, and resources of schools, social service agencies, and the student's family.

Review of Past and Current Classroom Interventions

To address problem behaviors affecting learning, The Institute of Education Sciences (2008) has published *Reducing Behavior Problems in the Elementary School Classroom*, which summarizes two decades of research on prevention and intervention for student classroom behavior. This document reports that schools have put in place a variety of interventions and that the success of behavior intervention lies on targeting and reinforcing appropriate behavior. The document concludes with the following recommendations to address classroom behavior: (1) identify the specifics of the problem behavior and the conditions that prompt and reinforce it (also known as functional behavior assessment); (2) modify the classroom setting to decrease problem behavior; (3) teach and reinforce new skills to increase appropriate behavior and to maintain a learning classroom climate; (4) collaborate with colleagues and families; and (5) determine if behavior problems warrant the adoption of school-wide behavior strategies that

focus on increasing positive social interaction between students and decreasing problem behaviors.

In order to address the occurrence of problem behaviors at school, teachers and school administrators have implemented a variety of interventions (including group contingencies or GC) that have shown effectiveness. For example, Stage and Quiroz (1997) conducted a meta-analytic study and results showed that school-based interventions from 99 studies were effective at reducing problem classroom behavior (i.e., off-task and out of seat behavior, noise, talking, etc.). The interventions analyzed in this study included behavioral interventions (i.e., group and home-based contingencies through differential reinforcement, teacher social approval, ignoring, and punishment); cognitive-behavioral interventions (i.e., anger-control programs, relaxation training, affective imagery, etc.); individual counseling (i.e., psychotherapy); parent training (i.e., parents providing behavioral management at home through the use of things like differential reinforcement, compliance training, and time out); and multi-modal interventions. The results of this meta-analysis showed that behavior strategies: GC, self-management, and differential reinforcement, when compared to other strategies, were the most effective interventions to reduce classroom problem behavior and increase desirable behaviors. Similar findings have been reported by the reviews from Hoagwood et al. (2007) and Prout and Prout (1998). In these meta-analytic reviews of school-based interventions, the greatest treatment effects were linked to group behavioral strategies.

Self-Management Strategies Used to Change Behavior

Self-management is an evidence-based intervention proven to be effective at changing classroom problem behavior (Stage & Quiroz, 1997). Self-management refers to the application of self-directed behavior strategies in order to change behaviors in a desired way (Cooper,

Heron, & Heward, 2007). It is a process that requires a person to do a variety of things such as: identify a challenging behavior, set goals in order to improve behavior, arrange the environment in order to increase the chance that behavior will change, monitor progress towards goals, evaluate outcomes, and make changes based on these outcomes (Cooper et al., 2007; Lorig & Holman, 2003). It can involve increasing or acquiring a new desirable behavior (e.g., eating healthy food, exercising, etc.) and/or breaking unwanted habits (e.g., drinking or smoking; Cooper et al., 2007).

Self-monitoring is part of this process but refers to a particular set of tasks. It has also been referred as self-recording and requires a person to observe, collect, and/or record self-data linked to the target behavior in order to determine if a criterion was met (Ackerman & Shapiro, 1984; Harris, 1986). Behaviorally speaking, it can serve as a discriminative stimulus (SD) as it signals the availability of reinforcement when a target behavior is emitted and/or reaches a specified criterion (Kirby, Fowler, & Baer, 1991). For example, a person who records daily calories and wants to eat less than 1,200 calories per day will be able to determine if a small treat can be consumed at the end of the day while still meeting the criterion goal (consume no more than 1,200 calories per day). Meeting the daily calorie-goal will signal the availability of a positive reinforcer like praise from friends and delayed positive reinforcer in the form of weight loss. Self-monitoring and self-recording have been used interchangeably in the applied behavior analysis literature.

Self-monitoring as a strategy has been used in a variety of settings including schools. In order to review the current self-monitoring literature, PsycInfo was used as the database engine to search for research focusing on self-monitoring strategies used in schools. A cross-referencing analysis was also completed using the studies found through PsycInfo. In addition,

the Journal of Applied Behavior Analysis (JABA) was searched for studies using self-monitoring and/or self-recording as part of the intervention. This process yielded over 35 studies targeting a variety of responses, 16 of them including participants attending secondary schools (see Appendix A).

Self-monitoring strategies have been used to change behavior by increasing or decreasing it. The literature shows that these strategies have been mostly used to increase a variety of desirable behaviors such as: productivity rate, study behaviors, pool lengths swam, correct punctuation, attention given to appropriate behavior, treatment integrity, and so forth (Ackerman & Shapiro, 1984; Broden, Hall, & Mitts, 1971; Critchfield, 1999; Goddard & Sendi, 2008; Herbert & Baer, 1972, Petscher & Bailey, 2006; Plavnick, Ferreri, & Maupin, 2010). Studies show that self-monitoring strategies are also effective at decreasing target behaviors including: a variety of classroom problem behaviors, nicotine consumption, skin picking, and household electricity consumption (Coogan, Kehle, Bray, & Chafouleas, 2007; Davies & Witte, 2000; Foxx & Brown, 1979; Tiger, Fisher, & Bouxsein, 2009; Winett, Neale, & Grier, 1979).

Limited information is available regarding the effectiveness of self-monitoring strategies to increase versus decrease target behaviors. For example, there are a couple of studies that targeted the increase of one response and decrease of another response. Broden, Hall, and Mitts (1971) successfully used a self-recording strategy to increase study behavior in one student and decrease talk outs of another student. Study behavior increased from 30% during baseline to 78% for the first student when self-monitoring was in place, and talk outs decreased from an average of 1.1 talk outs per min during baseline to 0.65 per min during the self-monitoring phase for the second student. Although no comparisons were made to determine if self-recording was more effective at increasing or decreasing the target behaviors, the authors suggested the use of

self-recording in combination with reinforcers in order to increase desirable classroom behaviors. In a second study, Herbert and Baer (1972) reported that the self-recording strategy used to increase parent attention for appropriate child's behavior and decrease attention for inappropriate child's behavior produced greater changes when it was implemented to increase attention for appropriate behavior. The average attention episodes following appropriate child's behavior increased from 1.6 during baseline to 3 after the intervention was implemented, while the average attention episodes following inappropriate child's behavior decreased from 0.76 during baseline to 0.62 when the self-recording strategy was in place. These results suggest that the self-monitoring strategy used was more effective at increasing attention given to the child for appropriate behavior than it was at decreasing attention for inappropriate behavior.

Self-monitoring strategies are commonly used in combination with a variety of other well-known training approaches and behavioral strategies including: didactic training, prompting, fading, corrective feedback, praise, reinforcers and token economies, differential reinforcement of zero-rate behavior (DRO), and differential reinforcement of alternative behavior (DRA), to name a few (e.g., Ackerman & Shapiro, 1984; Coogan et al., 2007; Davies & Witte, 2000; Dunlap & Dunlap, 1989; Foxx & Brown, 1979; Gajar, Schloss, Schloss, & Thompson, 1984; Knapczik & Livingston, 1973; Petscher & Bailey, 2006; Plavnick et al., 2010).

Self-monitoring strategies have also been successful when used in isolation (e.g., Crabtree, Alber-Morgan, & Konrad, 2010; Goddard & Sendi, 2008; Hagaman & Reid, 2008; Harris, 1986; Herbert & Baer, 1972; Jitendra, Cole, Hoppes, & Wilson, 1998; Nelson, Hay, Hay, & Carstens, 1977). Behavior change in the desired direction linked to self-recording (and no other intervention) has been referred to as reactivity (Nelson et al., 1977). This happens either

because the self-recording response has become its own reinforcer or because the response has come into contact with unknown or unidentified natural reinforcers. (Kirby, Fowler, & Baer, 1991). Accuracy is an important element of self-monitoring in order for reactivity to occur.

With respect to self-monitor's accuracy, a few studies have reported that participants are at least 91% accurate when recording their own behaviors. For example, Ackerman and Shapiro (1984) reported that their participants were 93% accurate at recording their productivity rate when compared to permanent products. Petscher and Bailey (2006) indicated that teacher aides had an average of 92.3% accuracy when reporting target responses such as: telling students to remove points after an instance of problem behavior, delivering bonus points and praise, and prompting appropriate student behavior. Finally, the participant in the Tiger et al., study (2009) had an overall 91% accuracy in the self-monitoring strategy implemented which required him to reset a timer when skin picking occurred, and self-deliver reinforcers when the timer went off if no skin picking occurred.

Self-monitoring strategies have been effective in a variety of settings. At schools, self-monitoring strategies are common and effective approaches for addressing problem behavior and increasing desirable behavior in the classroom (Stage & Quiroz, 1997). A few studies have been conducted targeting on-task behaviors (e.g., eyes on teacher, eyes on work, etc.) and productivity (e.g., percent of correct responses; Harris, 1986; Harris, Graham, Reid, McElroy, & Stern Hamby, 1994; Maag, Reid, & DiGangi, 1993; Rumsey & Ballard, 1985; Shimabukuro, Prater, Jenkins, & Edelen-Smith, 1999). For example, in the study by Shimabukuro and colleagues, three secondary students with learning disabilities self-monitored their accuracy and completion of academic work. Other target behaviors in this study included number of lessons completed per day and accuracy in writing. Students were asked to record these target behaviors daily. The

most improvement was observed in productivity increasing from an average of 45% in baseline to 90% in intervention. Work accuracy improved from a mean of 54% during baseline to a mean of 81% during intervention. The overall results from the above studies showed that self-monitoring on-task behaviors increased these behaviors with little to no effect on productivity, while self-monitoring of productivity increased productivity with little to no effect on on-task behaviors. However, some authors report that self-monitoring of productivity showed greater effects than self-monitoring attention, and that participants reported a preference for self-monitoring productivity (Maag et al., 1993).

With respect to secondary schools, self-monitoring studies have mostly targeted classroom behaviors such as: accuracy of work, completion of class work, and on-task behavior (e.g., Blick & Test, 1987; Goddard & Sendi, 2008; McCallum et al., 2011, etc.) For example, Graham-Day, Gardner, and Hsin (2010) successfully used a self-monitoring technique comprised of audiotaped chimes (verbal prompt for students to complete checklist), a student checklist, and edible reinforcers with three high school students diagnosed with attention deficit hyperactivity disorder (ADHD). Results showed an increase in on-task behavior (e.g., looking at teacher, looking at materials, writing, etc.) by an average of 20% for all three students. Blick and Test (1987) used a self-monitoring strategy to increase the on-task behavior of 12 students with special-education needs. Results showed a clear link between the self-monitoring intervention (students recording their own behavior such as eyes on teacher or work, talking to teacher, writing, etc.), accuracy of students' recordings, and increased on-task behaviors in class.

Mitchem and Young (2001) used a class-wide peer assisted self-management program in three seventh-grade language arts classrooms to increase student on-task behavior. This self-management intervention was described as students receiving instruction on how to record their

own behavior and the rules in place in order to receive points toward reinforcers. Students rated their own behavior and the behavior of an assigned peer (e.g., following directions and appropriately gaining teacher's attention), and received points if their ratings matched. Additional points were given if the ratings surpassed the previous day's ratings. On-task behaviors increased from 1% during baseline to 62% during the first phase of the intervention.

Self-Monitoring Strategies Targeting Reading and Writing in Secondary Schools

Reading and reading-related behaviors are critical to successful school performance during secondary years as experts describe the shift from students "learning to read" in their elementary years to students "reading to learn" in their secondary years (Allington, 2002; Mateos, Martin, Villalon, & Luna, 2008). Reading performance for secondary students has been linked to observable behaviors such as the completion of worksheets showing the use of self-monitoring reading comprehension strategies (Allington, 2006; Kozminsky & Kozminsky, 2001).

Self-monitoring strategies are reported to be a common and effective approach to improve reading comprehension and academic performance at the secondary level (Alfassi, 1998; Jitendra et al., 1998). Some studies have described the use of self-monitoring targeting reading and writing skills. For example, Martin, Konopak, and Martin (1986) provided a two-day workshop for 76 high school students. The students participated in reading comprehension activities that involved using skills taught during the workshop to develop a written document on a selected topic. The strategies taught during the workshop included: organization of written ideas, development of paragraphs, reading of text, and completion of a quiz. The students were then asked to generate ideas based on a topic during the class following the completion of the workshop. Results showed that the classrooms receiving these strategies were found to increase

reading and in-class writing performance as observed in an increase from a mean of 17 to 50 written ideas generated on a topic during baseline and after the workshop, respectively.

Secondary self-monitoring studies report the use of worksheets with visual prompts (e.g., asking questions directly linked to what was read) to increase written output and improve academic skills (Ives, 2007; Ives & Hoy, 2003). Crabtree et al. (2010) used visual supports in the form of a three-prompt self-monitoring strategy to increase the reading performance of three at-risk high school seniors. The students were described to have difficulties completing work and following directions and were receiving daily remedial reading support. The self-monitoring intervention included visual prompts on a worksheet used during independent work time. The worksheet had three sections; each section to be completed after a passage was read ("stop 1", "stop 2", "end"). Students used the worksheet prompts to complete written information about the story read. A multiple baseline across participants design was used. The results showed that the self-monitoring intervention with the use of visual prompts increased the reading comprehension performance of all three students. The number of facts recalled increased from a range of one to five during baseline to a range of 8 to 16 during the self-monitoring intervention. Quiz questions answered correctly increased from a range of one to six during baseline to a range of six to ten during self-monitoring and a range of seven to ten during maintenance. However, some of the limitations reported by the authors included: the limited number of students participating in this study, the individualized instruction provided for the participants, the use of short readings, limited data collected during the maintenance phase, and teacher-directed reading topics.

There are some things that this study failed to focus on or address in order to increase the effectiveness of the intervention implemented. For example, the strategy implemented did not

target writing skills or amount of written responses, which can provide additional information about comprehension and academic performance. Assessing longer reading passages or books can be performed by letting students choose the stories they read, which may increase their willingness to read for extended periods of time. The students were not provided with behavioral supports and/or incentives in order to increase their written output. Finally, the visual prompts used in this study were not readily available to the student in order to use them outside of class, decreasing the chance for possible generalization to other settings.

In sum, self-monitoring strategies have been found effective at changing behavior and increasing academic work in secondary schools. They have been used with positive results alone and in combination with other behavioral interventions. One study was found to use worksheets with visual prompts to improve reading performance. However, this study only included a small number of students that were given short reading passages and individual instruction. It is unknown how effective a self-monitoring strategy with visual prompts can be for skills such as reading and writing in a large classroom-type format.

Group Contingencies in Classrooms

In addition to self-management and self-monitoring strategies, group contingencies are another evidence-based intervention proven to be effective at changing classroom problem behavior (Skiba, Casey, & Center, 1985; Stage & Quiroz, 1997). Group contingency programs refer to a variety of behavioral classroom interventions where one or several specified contingencies are applied to the same behavior from all students in a classroom (Cooper et al., 2007). The teacher often announces that the group contingency has started and this can serve as a discriminatory stimulus that signals the students' opportunity to earn incentives (or loose privileges) when appropriate (or inappropriate) behaviors are displayed. The classroom

contingencies in place for all students' behavior follow the same principles of behavior as they would for a single behavior from one student. That is, a group contingency procedure specifies that a behavior will result in reinforcement or punishment.

For example, an appropriate behavior may result in consequences believed to be desirable with the intention of increasing the frequency of this appropriate behavior. So the behavior may result in positive reinforcement in the form of social praise (e.g., "thank you for raising your hand"); preferred activities (e.g., play basketball, play games, extra recess, etc.); tangibles (e.g., stickers, small toys, etc.); and/or edibles (e.g., snack, drink, candy, etc.). Appropriate behavior can result in the removal of consequences believed to be undesirable with the intention of increasing appropriate behavior. So appropriate behavior may result in negative reinforcement in the form of avoidance and/ or escape of something considered aversive (e.g., "homework pass", "detention pass", etc.). Inappropriate behaviors can result in consequences believed to be aversive as in positive punishment (e.g., extra homework, quiz, extra worksheets to be completed, etc.), or can result in the removal of consequences believed to be desirable as in negative punishment (e.g., losing the chance to engage in a daily fun activity).

Group contingency programs are a particularly effective approach among behavioral classroom management techniques because they efficiently and simultaneously address many students' behaviors (Cashwell, Skinner, & Smith 2001; Embry, 2002; Kamps & Tankersley, 1996; Theodore, Bray, Kehle, & Jensen, 2001; Thorne & Kamps, 2008). The literature defines three different types of GC methods (Litow & Pumroy, 1975; Theodore, Bray, Kehle, & DioGuardi, 2004). The first type is the independent GC method in which students earn incentives based on their individual behavior. A second type, the dependent GC is when a group or team of students earns incentives based on the behavior of one student or a small subgroup

within the team. Finally, interdependent GC is the method that requires all team members to behave in a specified way in order to reach a criterion to earn incentives (Tingstrom, Sterling-Turner, & Wilczynski, 2006).

The "Good Behavior Game" (GBG) developed in 1969 by Barrish, Saunders, and Wolf, was the first interdependent GC approach that gained widespread recognition for its success. Its applicability and usefulness derived from the fact that the game did not interrupt teacher's instruction, so it proved to be practical and efficient (Embry, 2002). In the GBG, the class is divided in teams that (1) received points against the team for problem behaviors, and (2) earned incentives for meeting the goal of less than the specified number of points (Barrish et al., 1969). The main GC components initially proposed by these authors that have remained fairly intact through the years were: identification of target behaviors, specification of criterion for earning incentives, and distribution of incentives to teams that meet criterion (Tankersley, 1995).

Following the GBG format, GC studies have expanded to target a variety of different classroom behaviors. Desirable behaviors have been targeted to increase (e.g., engagement, on task behaviors, etc.), and problem behaviors have been targeted for reduction (e.g., out of seat-behavior, talking-out, bothering classmates; Medland & Stachnik, 1972; Bostow & Geiger, 1976; Davies & Witte, 2000; Christ & Christ, 2006).   Davies and Witte (2000) used GC plus differential reinforcement of low rates of behavior (DRL) to decrease inappropriate verbalizations of four ADHD students in a third grade classroom. This intervention package also consisted of self-management and peer monitoring strategies. The class performance was visually displayed on a board where students could see the number of inappropriate vocalizations the teacher heard per day; the teacher asked students to move a dot when a vocalization happened, and students earned incentives if less than a specified number of vocalizations were

shown on the board at the end of the day. The students' public display of target behaviors (inappropriate vocalizations) was the self-management component of the intervention. Baseline vocalizations for target students decreased from baseline (ranged from 2 to 22) to the initial intervention (ranged from 0 to 4) and the reinstatement of the intervention (ranged from 1 to 3).

Subsequent research has focused on the increase of positive behavior such as work production, academic on-task responses, and following rules while in the classroom (e.g., Darch & Thorpe, 1977; Lannie & McCurdy, 2007; Lohrmann & Talerico, 2004; Webster, 1989; Popkin & Skinner, 2003). Additional behaviors that have been targeted with positive results have included hygiene (Swain, Allard, & Holborn, 1982); drug abstinence (Kirby, Kerwin, Carpenedo, Rosenwasser, & Gardner, 2008); prosocial behavior (Kamps et al., 2008; Kelshaw-Levering, Skinner, Cashwell, & Skinner, 2000; Lloyd, Eberhardt, & Drake, 1996; Sterling-Turner, Henry, & Skinner, 2000); reading fluency (Alric, Bray, Kehle, Chafouleas, & Theodore, 2007; Sharp & Skinner, 2004); exam performance (Carroll & Williams, 2007; Popkin & Skinner, 2003); and transition times between locations (Campbell & Skinner, 2004).

Group contingency strategies have been effective in a variety of school settings. For example, they have been successful at decreasing talk-out behavior in self-contained and special education classrooms (Hegerle, Kesecker, & Couch, 1979; Gresham & Gresham, 1982; Darveaux, 1984). Preschool students have been observed to follow directions more frequently with a GC intervention in place (Swiezy, Matson, & Box, 1992). Gresham and Gresham (1982) used a GC intervention to decrease problem behavior of elementary age students in a special education self-contained classroom. Webster (1989) also used a GC intervention with elementary age students in a special day school to increase appropriate student behaviors such as using a quiet voice, sitting, and completing academic work. In several studies, GC interventions

were effectively implemented in cafeterias (Fabiano et al., 2008). For example, McCurdy, Lannie, and Barnabas (2009) used an interdependent GC that they named "Lunchroom Behavior Game" in order to decrease problem behaviors (e.g., out of seat, play fighting, throwing objects, and physical contact of a peer with force) of 615 students at an elementary school cafeteria. Group contingency approaches have also been used to reduce problem behavior in a school library (Fishbein & Wasik, 1981). Other settings have included physical education classes (Patrick, Ward, & Crouch, 1998); bathrooms (Swain, Allard, & Holborn, 1982); and playgrounds (Franzen & Kamps, 2008; Lewis, Newcomer et al., 2002).

Group contingency programs are often recommended as the method of choice when developing classroom behavioral interventions due to their advantages including: little disruption to the lesson, simultaneously addressing multiple behaviors from several students, and little effort required by the teacher (Algozzine, Daunic, & Smith, 2010; Cheney, Flower, & Templeton, 2008; Hawken, Vincent, & Schumann, 2008; Kamps et al., 2008). Group contingency programs have recently been included as one option within multicomponent and prevention intervention models such as School-wide Positive Behavior Supports (SWPBS; Sugai & Horner, 2002). The SWPBS are programs that focus on the development of positive behavioral expectations, specific methods to teach and train these expectations to students and staff, supervision and monitoring of behaviors including data collection, contingency procedures to reinforce desired behavior, and methods to evaluate outcomes and progress (Anderson & Borgmeier, 2010; Handler et al., 2007). Current educational trends include state level applications of the RTI model (Brown-Chidsey, 2009; Fuchs & Fuchs, 2006) such as the Kansas Multi-Tier System of Supports, MTSS (2010a; Kansas State Department of Education, 2008). This type of tiered support includes whole class instruction and behavioral management provided

by the core teacher (tier I for all students in class), followed by more intensive and individual interventions once results show lack of progress (tier II for small groups, tier III for one or two students; Allen, 2000; Anderson & Borgmeier, 2010; Haager, Klingner, & Vaughn, 2007; Speece et al., 2010).

The Class-wide Function-Related Intervention Teams program (CW-FIT; Kamps et al., 2011; Wills et al., 2010) is an example of a group contingency program that was developed to align with SWPBS and multi-tier systems of support (Association for Positive Behavior Support, 2007). The GC procedures used in this program targeted student behaviors such as following directions, appropriately asking questions, and ignoring peer inappropriate behavior through the use of a point system for students to earn incentives. Students were taught the expectations and rules in a game-type format. Kamps et al. reported that 107 general education students in six elementary classrooms participated in their study. Class teams were comprised of two to five students. A token economy was used to differentially reinforce the target behaviors. In addition to the initial GC intervention, self-management procedures were included in the skills trained to eight students that continued to display behavior problems. The self-management procedures consisted of having these students have individual charts, similar to the team chart that stated the rules to earn points, the daily point goal, and a space for recording individual daily points. At the sound of a timer (set to ring on a 3-min VI), the teacher prompted students to self-assess their behavior and record their points. This self-management procedure occurred while the teacher awarded points to class teams for target behaviors. According to direct observation data, results showed that on-task percentages for all classrooms participating in this CW-FIT intervention package increased from a mean of 46% during baseline (range of 23 to 65%) to a mean of 79.7% (range of 75 to 97%) during the implementation of the intervention. Even though self-

monitoring data was not reported in this study, problem behaviors observed during 10-min

sessions for the eight target students using the additional self-management procedure ranged

from frequencies of 10 to 25 during baseline, to a range of 3 to 9 problem behaviors after CW-

FIT was implemented. Teacher praise also showed favorable results. For example, teacher

praise observed in one of the classrooms increased from 23 during baseline to a mean frequency

of 33 during intervention, decreased to 11 during reversal, and increased to 50 during the second

and final implementation of the intervention. Teacher praise served as a social positive

reinforcement for the students' target behaviors. Teachers were taught to provide descriptive

praise when awarding points to teams. Increasing teacher praise improved treatment fidelity and

provided an opportunity for students to receive social positive reinforcement in the form of

attention for the occurrence of appropriate target behaviors. Wills et al. (2010) showed similar

outcomes using the CW-FIT GC intervention in urban schools serving large numbers of students

from minority and culturally diverse groups in low socioeconomic status (SES) communities.

The authors noted that 25 students with significant behavior problems showed a nearly 50%

reduction in problem behaviors and an increase of 13% to 26% on-task behaviors during 15-min

observations once the CW-FIT intervention was implemented. Teachers and students provided

positive feedback and reported satisfaction with the procedures used.

Group Contingencies Used in Secondary Schools

Jenson (1978) conducted a review of school interventions and recommended the use of

GC to address classroom behavior at the secondary level through the use of token economies

with tangible rewards and contingency contracting. Despite this recommendation, most GC

research since his publication has focused on student behavior observed in elementary

classrooms (e.g., Embry, 2002; Tingstrom et al., 2006; Tankersley, 1995). Jenson (1978)

indicates that GC is not widely used in secondary schools possibly because secondary students have the tendency to seek reinforcers not available in school settings (e.g., tangibles such as IPods, activities such as social gatherings), and current secondary environmental arrangements (i.e., most secondary schools operate on a six- to eight-period class schedule). For example, students typically have a different teacher per class period (for a total of 6 teachers per day) making it difficult to implement and monitor class-wide interventions across the day (Schanding & Sterling-Turner, 2010).

PsycInfo was used as the database engine to search for research focusing on GC strategies in secondary schools using the following keywords: "group contingencies", "secondary schools", "secondary classrooms", "high school", "junior high school", and "middle school." A cross-referencing analysis was also completed using the studies found through PsycInfo. This process yielded 21 GC studies through 2011 (see Appendix B). Many of these studies targeted the reduction of problem behaviors (e.g., Christ & Christ, 2006; Hansen & Lignugaris/Kraft, 2005; Page & Edwards, 1978; Phillips & Christie, 1986; Schanding & Sterling-Turner, 2010). Some studies targeted the improvement of classroom skills and performance (e.g., Malone & McLaughlin, 1997; Popkin & Skinner, 2003; Vidoni & Ward, 2006; Waltzer, 1984). The group contingencies were implemented in a variety of school settings. A feature found in many of the GC interventions in secondary schools was the use of component randomization (e.g., randomizing GC components such as reinforcers, target behavior, type of GC used, etc.). A brief review of GC studies in secondary schools follows with a synthesis of what is yet to be determined.

Common target behaviors at the secondary level. The GC literature has focused on the reduction of problem behaviors such as disruptions. For example, Christ and Christ (2006)

defined one of their target behaviors as "disruptive vocalizations" when implementing an interdependent GC intervention using an automated feedback device in three high school classrooms. Phillips and Christie (1986) defined problem behavior as "off task and disruptive behaviors" and successfully showed a decrease in behaviors when they implemented an interdependent GC strategy with 28 at-risk students in a middle school. Schanding and Sterling-Turner (2010) provided more descriptive details in the problematic behaviors targeted (e.g., off task, out of seat, and inappropriate vocalizations).

In their secondary school study, Theodore, Bray, and Kehle (2004) targeted problem behaviors such as obscene words, failure to follow directions, talking to other students, inappropriate comments, and looking away from the teacher. Three students in a self-contained classroom participated. Independent, interdependent, and dependent GC strategies were implemented and compared against each other. The teacher randomly chose the reinforcers to be used for the day (e.g., pass to come late to class, pass to get out of detention, soda, candy, chips, etc.). The teacher wrote the names of the reinforcers in pieces of paper placed in a jar and randomly picked one piece of paper per day. Students received a mark when the targeted problem behaviors were observed. The independent GC involved having students earn reinforcers based on their own behavior (the criterion was to have no more than five marks per class); the interdependent GC involved all students getting five or less marks in order for the class to earn a reinforcer for that day; the dependent GC involved randomly choosing a student whose marks determined if the class earned a reinforcer (students unaware of which student was the chosen one). The results showed that all three GC strategies were effective at reducing problem behaviors. Problem behaviors decreased from a mean of 32 during baseline to a mean of 2.47 during the interdependent GC, 0.97 during the dependent GC, and 1.64 during the

independent GC strategy. In addition to the problem behaviors mentioned above, Theodore et al. (2001) included "loud music from earphones" and "touching peers" as part of their problem behavior definition. The teacher randomly chose the criteria and the reinforcers to be used for the day. For example, the criteria options included interdependent GC (e.g., total number of problem behaviors for the whole group, average of problem behaviors), and dependent GC (e.g., student with the most number of problem behaviors, student with the least number of problem behaviors, number of problem behaviors for a specific student chosen). A DRL procedure was in place; the criterion or number of target behaviors was five so if the particular chosen student had five or fewer checks then the whole group was rewarded. Problem behaviors decreased from a mean of 43 during baseline to a mean of 3.5 during the initial implementation of the intervention. They increased again to a mean of 33 during the reversal condition and decreased again to a mean of 3.7 during the reintroduction of the intervention.

Group Contingency studies in secondary schools have also focused on increasing appropriate behaviors and performance. Williamson et al. (2009), for example, used a random dependent contingency intervention to increase the on-task behavior of six African American students in a special education classroom. A "mystery student" (unknown to the students) was randomly selected to reach the criterion goal and earn a reinforcer for the whole class. A reversal design was used and results showed that on-task behaviors increased with the implementation of the GC intervention (e.g., from 43% in baseline to 83% during intervention). Christ and Christ (2006) identified passive and active classroom engagement as behaviors targeted for improvement and showed that the GC intervention implemented increased the levels of both types of engagement in class. Hansen and Lignugaris-Kraft (2006) saw improvements in positive verbal interactions between students. Collaborative skills and social skills such as

sharing ideas, keeping the group focused, asking questions, and praising others were identified and targeted for change by Lew, Mesch, Johnson, and Johnson (1986) and Mesch, Lew, Johnson, and Johnson (1986) with successful results. Group contingencies have been implemented in several secondary schools to improve test scores with favorable results. For example, Malone and McLaughlin (1997) paired a reciprocal peer tutoring program (e.g., students working in pairs on vocabulary activities) with an interdependent GC intervention to increase vocabulary scores of 32 seventh and eighth graders in a private middle school. Finally, Popkin and Skinner (2003) showed an increase in accuracy in spelling, math, and English assignments and quiz scores using an interdependent GC with randomly selected criterion and reinforcers.

Group contingency procedures. With respect to procedures, 16 GC studies in secondary schools used the interdependent approach (Alexander, Corbett, & Smigel, 1976; Caldwell, 2009; Christ & Christ, 2006; Coogan et al., 2007; Foley & Epstein, 1993; Lew et al., 1986; Malone & McLaughlin, 1997; Mesch et al., 1988; Mesch et al., 1986; Nevin, Johnson, & Johnson, 1982; Page & Edwards, 1978; Popkin & Skinner, 2003; Schanding & Sterling-Tuner, 2010; Theodore et al., 2001; Theodore et al., 2004; Waltzer 1984). Nine studies reported the use of a dependent GC approach and indicated that the identity of the student chosen to reach criterion was not shared with the classroom (Caldwell, 2009; Coogan et al., 2007; Hansen & Lignugaris-Kraft, 2005; Lloyd et al., 1996; Phillips & Christie, 1986; Theodore et al., 2001; Theodore et al., 2004; Vidoni & Ward, 2006; Williamson et al., 2009).

Seven secondary GC studies reported the use of independent GC interventions (Alexander et al., 1976; Caldwell, 2009; Lloyd et al., 1996; Mesch et al., 1988; Nevin et al., 1982; Page & Edwards, 1978; Theodore et al., 2004). Six of these studies compared the effectiveness of independent GC against interdependent and/or dependent contingencies

(Alexander et al., 1976; Lloyd et al., 1996; Mesch et al., 1988; Nevin et al., 1982; Page & Edwards, 1978; Theodore et al., 2004). For example, Mesch et al. (1988) used and compared independent and interdependent strategies. The interventions implemented successfully increased quiz scores in two classrooms with a total of 54 students. Results showed no obvious benefit from using one GC approach over the other. Theodore et al. (2004) had similar results when independent, interdependent, and dependent GC were compared for three severely and emotionally disturbed students in a self-contained classroom. Results showed that problem behavior decreased with all three types of contingencies used. However, less problem behaviors were observed for two students with the use of dependent GC whereas the third student responded marginally better to the independent GC approach. The authors concluded that any of these approaches is appropriate and that a choice must be made based on the needs of the teacher (e.g., teacher may be more concerned about increasing overall class performance so an interdependent GC may be more appropriate), classroom (e.g., smaller number of students in a classroom may suggest the use of an independent GC), and specific students (e.g., students not responding to a specific GC strategy may benefit from a different type).

Randomization of contingencies. Recent GC studies implemented at the secondary level have focused on randomizing components (e.g., randomly choosing the daily criterion, target behavior, reinforcers, etc.); some focusing on keeping some criteria of the components a mystery; that is, unknown to the students (e.g., Schanding & Sterling-turner, 2010). In their dependent GC intervention, Hansen and Lignugaris-Kraft (2005) randomly chose the target student used to determine if a reinforcer for the class was earned, and the student's identity was not revealed to the class. Results showed that negative verbal interactions decreased from a rate of 0.15 per min during baseline to a rate of 0.03 per min during the intervention. Popkin and

Skinner (2003) used an interdependent GC with randomly selected components for five at-risk students in a regular education classroom to increase work and assignment completion. The randomly selected components included: criterion for reinforcer (e.g., class average of 90% or better), the subject area that the criterion was applied to (English, math, or spelling), and the group reward. The choices were written in index cards in three different boxes and the teacher picked one choice from each of the boxes (first box had the criterion, second box had the subject, and the third box had the reinforcer). The class' accuracy increased from 62%, 66%, and 85% during baseline to 96%, 86%, and 93% during the intervention in spelling, math, and English, respectively. Schanding and Sterling-Turner (2010) used a "mystery motivator" as the reinforcer from a variety of incentives (e.g., candy, homework passes, participation points, free day, etc.) The reinforcer was not revealed to the class until the end of the period in order to increase the students' desire to achieve the criterion imposed and decrease the chance that some students could behave in a way that would jeopardize the class' chance to earn a reinforcer (e.g., if student was not particularly interested in that reinforcer). Theodore et al., (2004) randomized reinforcers during the dependent GC phase of their intervention. Theodore et al. (2001) randomized the contingencies used for reinforcement (interdependent and dependent GC) to decrease problem behavior observed in five at-risk secondary students.

One study was found to combine peer feedback, self-monitoring, and a GC intervention with students in a secondary school. Coogan et al. (2007) used a package intervention consisting of a GC procedure, peer feedback, and self-monitoring of problem behaviors (e.g., inappropriate touching, inappropriate vocalizations, physical aggression, playing instead of working, making noises, out of seat, etc.). Five middle-school students participated, three of them received special education services. Several components were randomized every time the intervention was

implemented: the procedure in place (dependent or interdependent contingency), student selected if the dependent contingency was in effect, and potential reinforcers. Any student displaying the target problem behaviors after the teacher provided a warning was asked to move a pin on a board and record a tally in an individual sheet. If the student did not move the pin or recorded the behavior on the sheet then the teacher did so. A DRL procedure was used to reinforce students for displaying no more than a specified criterion of problem behaviors. Teams and/or students with four or less problem behaviors marked on the board and sheet were eligible to participate in the randomized reinforcer procedure at the end of the class. Using a partial interval recording method of observation, the percentage of intervals observed to have problem behaviors decreased from 31% during baseline to 5% during the initial implementation of the intervention, and from 23% during the withdrawal of the intervention to 8% during the reintroduction of the intervention.

There are several strengths found in this study. This was the first study to provide a package that included several components known to be effective at decreasing classroom problem behavior (i.e., GC, randomized components, peer feedback, and self-monitoring; Stage & Quiroz, 1997). An intervention package with a variety of effective components has a greater response effectiveness for teachers. This was also the first study to use a GC and self-monitoring strategy in a secondary school with participants from a wide variety of backgrounds (e.g., special education, English as a second language, etc.). The intervention was implemented in a reversal design providing evidence of a change in target behaviors when the intervention was implemented and removed (many GC studies in high schools used an AB, multiple baseline, or group design). Finally, the authors reported effect sizes for each student that were greater than the ones previously reported in studies using either GC or self-monitoring alone.

Some questions that remain from this study and weaknesses found are linked to procedural issues. For example, only one classroom and five students participated in this study, which limits the generalization of the findings to other classrooms and students. The students that participated in the study were 12 years old so it is unknown if, or how effective the procedures implemented can be with older students (i.e., 16 and 17 year old students). The self-monitoring component was actually a procedure where the teacher prompted the student to mark the problem behavior every time it was observed so it was not independently completed by the students. The teacher proceeded to mark the problem behavior if the student was reluctant to do so. No positive or negative consequences were provided for students to comply with such request. The students were not provided feedback regarding their self-rating accuracy since the ratings were prompted by the teacher. Finally, all the target behaviors focused on inappropriate responses. A lack of focus on positive or appropriate behaviors was a criticism given to the initial GBG developed by Barrish et al. (1969; Embry, 2002). The study failed to include key behaviors linked to academic success and high school completion such as academic work completion and active responding (Hammond et al., 2007).

Summary, What Is Yet to Be Determined

In spite of positive outcomes, there is limited information regarding the use and effectiveness of GC interventions at the secondary level. While independent GC strategies have been found to be as effective as interdependent and/or dependent GC (e.g., Lynch, Theodore, Bray, & Kehle, 2009; Page & Edwards, 1978; Pigott & Heggie, 1986), limited information is available regarding the use of independent GC in secondary classrooms. Self-management strategies, including self-monitoring, have been reported to be effective interventions at increasing classroom academic performance and academic responses such as: reading

performance, amount of completed written work, and other active classroom behaviors. Limited information is available regarding the use of self-management, including self-monitoring, and GC strategies as an intervention package in secondary classrooms in order to increase desirable classroom behaviors.

Purpose of this Study

The purpose of this study was to use an intervention package consisting of an independent GC paired with self-management strategies to increase the amount of written work and class active responding. The purpose was also to experimentally demonstrate the relationship between the intervention package, student written work, and class active responding. The study answers the following questions: 1. To what extent does the intervention package change amount of written work in independent reading logs? 2. To what extent does the intervention package change the class' active responding during independent reading time? 3. To what extent does the intervention package change the independent reading log rubric scores earned by students? 4. To what extent does the intervention package change the students' work completion?

Method

Setting

The present study was conducted in three course sections of a reading class at a high school in a small Midwestern university town. The school's 2009-2010 demographics were as follows: the total student population was 1,250. Seventy-four percent of the student population was White, 10% African American, 1.7% Hispanic, and 13% was reported to be of "other" minority status. English Language Learner (ELL) students comprised 5.8% of the population,

0.1% were reported to have a migrant status, and 19.6% were classified as students with disabilities. The attendance rate was 87%, graduation rate was 80%, and dropout rate was 7%.

The intervention package was implemented in three sections of a reading course called "literacy workshop." This course was a Tier II (Kansas Multi-Tier Systems of Supports, 2010), remedial reading class that was designed to use best practices for students reading at least two grade levels behind their current grade when compared to national norms. For example, the literacy workshop class was offered to high school students whose reading skills fell below grade level as determined by: the Rasch unIT score (RIT) they obtained in the reading portion of the Measures of Academic Progress (MAP; Cronin, Dahlin, Durant, & Xiang, 2010; Hauser, 2003), and the score obtained in the Scholastic Reading Inventory (SRI; Knutson, 2002, 2008).

The MAP RIT is a curriculum scale that uses the individual item difficulty values to estimate student achievement. Advantages to the RIT Scale are that it can relate the numbers on the scale directly to the difficulty of items on the tests and it is equal interval. Each score falls in an equal interval so that the difference between scores is the same regardless of whether a student is at the top, bottom or middle of the RIT scale. Each score has the same meaning regardless of grade level (Cronin et al., 2010; Hauser, 2003).

A MAP RIT of 220 or below (one standard deviation below the ninth grade mean) and/or an SRI Lexile score of 1000 (which is considered to be minimum proficiency at the ninth grade level) or below were the enrollment criteria for this course. Table 1 shows the RIT median and standard deviation for the school district and national sample. Table 2 shows the SRI national proficiency Lexile ranges.

Students were enrolled in this course for a full school year and continued to attend in subsequent years if their current reading scores continued to meet the enrollment criteria. The

Table 1

MAP Rash Unit (RIT) Scores Reading Guideline

Grade Level	9th	10th	11th	12th
School District's Median	233	235	239	NA
National Grade Level Norm Median	222	226	227	NA
One Standard Deviation Below District's Mean	220	220.4	224.8	NA
Two Standard Deviation Below District's Mean	207	205.8	210.6	NA

Note. NA= Not administered. RIT scores range from 100 to 300.

Table 2

SRI Lexile Proficiency Ranges

9th Grade	10th Grade	11th Grade	12th Grade
1000-1200	1025-1250	1050-1300	1050-1300

Note. Lexile scores range from 200 to 1700.

course sections were typically comprised of five to 15 students. The instruction provided by the

teacher focused on metacognitive reading strategies (e.g., predicting what will happen next in a

story, linking events in a story to common factor, relating prior knowledge to text read; Allen,

2000; Harvey & Goudvis, 2000); study skills (e.g., prompting students to write summaries of

what was read); vocabulary development (e.g., identifying unknown words and finding

definitions in a dictionary); and writing skills (e.g., using worksheets to ask questions about the

text read, writing a draft about what the student thinks about a topic after a passage is read, etc.).

The class format included a combination of activities including: daily activities overview,

independent seat work consisting of vocabulary and reading comprehension activities, time to

check upcoming assignment deadlines, teacher reading aloud, students reading silently, class

discussion on passages read, independent completion of worksheets, and completion of tests. The last 20 min of class consisted of independent silent reading. Each student read a book selected from a choice of books at his or her independent reading level. The teacher assisted students with their selection. Students were given some flexibility to increase their course interest. For example, they were given a choice of book and/or readings used for independent reading, and were able to choose a location to sit during silent reading time in class. The teacher evaluated the students' book reading progress based on the students' daily and weekly completion of a reading log (Allen, 2000). The reading log was a worksheet that included a template to write information about the passage read.

The teacher gave a total of 1,500 possible points throughout the semester for completed student assignments to determine their final course grade. The activities that comprised the biggest portion of the final grade (points) were related to the completion of independent reading logs. Students could earn as many as 600 points (39% of the final grade) by completing: (1) weekly reading logs (400 points, 25 points per log for each week, or 26% of the final grade) and (2) reading at least four books when the reading logs were completed (200 points, 50 per book, or 13% of the grade). Completion of worksheets and quizzes comprised the second largest portion of the final course grade, 430 points (28% of the final grade), followed by points for completing the daily planner (250 points or 16% of the final grade), final exam (worth 100 points, 6.6% of the final grade), participation in guided reading groups (90 points or 6% of the final grade), and writing essays (30 points or 2% of the grade).

Participants

Twenty-two high school students, thirteen females and nine males, enrolled in literacy workshop from three different classrooms were initially recruited to participate in this study.

However, seven students (six males and one female) had problems with truancy and were not included in the study. The large number of absences precluded sufficient data collection to adequately monitor the intervention effects. As a result, fifteen students, twelve females and three males, participated in the current study (five students in each class). Students were in grades 10 and 11. Eleven had a diagnosis of learning disability, and four had no special-education diagnosis. Student demographic information is provided in Table 3.

The teacher was a Caucasian female licensed as a reading specialist and English teacher with seven years of experience as an educator, five of those years as a literacy workshop teacher in this particular high school.

Primary Dependent Variables

There were two primary variables of interest, total words written in reading logs and active responding.

Total words written (TWW). Students' TWW in reading logs, including words written on sticky notes as part of their reading logs, (Allen, 2000; Harvey & Goudvis, 2000) was the first primary dependent variable. The teacher created the reading logs, which were worksheets that students used to write information about the book read. The reading logs were completed both during silent reading time in class and as homework at home. The log had sections for students to write the date the entry was made, the title and author of the book read, page numbers read, and narrative information based on what they read using metacognitive strategies prompted with sentence starters such as "I'm wondering about X, I think that…" and "I remember a time when Y, this tells me…" (Allen, 2000; Harvey & Goudvis, 2000). A blank reading log is found in Appendix C. The researcher scored the narrative portion of the reading logs, using the TWW

Table 3

Student Demographic Information

Class	Student	Grade	Gender	Race	Special Ed. Exceptionality	MAP RIT	SRI Lexile
2nd	1 Ashley	10	F	W	LD	214	937
	2 Melanie	10	F	W	LD	202	780
	3 Dustin	10	M	Bi AA W	LD	215	833
	4 Kelly	10	F	H	LD	212	905
	5 Crystal	10	F	W	NA	216	963
3rd	6 Tom	10	M	AA	LD	198	834
	7 Carlos	10	M	Na Am	NA	219	934
	8 Bonnie	10	F	W	LD	202	999
	9 Laura	10	F	W	LD	211	926
	10 Sally	10	F	W	NA	215	940
6th	11 Tammy	10	F	AA	NA	220	1076
	12 Alexandra	10	F	AA	LD	205	569
	13 Julie	11	F	AA	LD	206	856
	14 Karla	11	F	AA	LD SL	212	866
	15 Roxanne	11	F	AA	LD SL	202	906

Note. The participant names shown above are not the actual student names in order to protect their identity. M= male; F= female; W= White; AA= African American; H= Hispanic; Na Am= Native American; Bi= Biracial; LD= Learning Disability; NA= Not Applicable; SL= Speech Language Impairment.

procedures and format described by Powell-Smith and Shinn (2004). For example, any letter or group of letters separated by a space was considered a word regardless of correct spelling (e.g., "the flowar is pinck"; TWW=4). Hyphenated words were counted as separate words if the morpheme could be understood if it stood alone (e.g., "mother-in-law"; TWW=3).

Abbreviations were counted as one word (e.g., "TV"; TWW=1); numbers spelled, dates, and currency were counted as words (e.g., "today is March 24, 2011"; TWW=5).

Active responding. Active responding was the second primary dependent variable. It was defined as reading aloud, writing information that was related to what the teacher was presenting in class, silent reading when the teacher asked the students to read (when it was observed that students were visually tracking written text and turning pages at a steady pace of about one page every two min), answering questions that were related to what the teacher was presenting in class, and talking about the topic the teacher presented in class. Absence of active responding was defined as passively attending to tasks (e.g., listening, looking at the teacher or students during lesson, locating materials, etc.); and problem behaviors (e.g., disruptive, off-task behaviors, and off-topic comments).

Active responding was measured using a 30-s momentary time sampling interval procedure. Each student's behavior was coded as active responding "+" or no active responding "-" at the end of every 30-s interval consecutively for 15 minutes total in order to obtain the student's active responding percent for that session. The session's class mean was then computed by averaging the percentage of active responding from the students observed.

Secondary Dependent Variable

Reading log rubric score. The teacher used a rubric to score the reading logs. Points were given based on the student's ability to use reading comprehension metacognitive strategies designed to make inferences and interpretations of materials read and relate the information read in the book with their background and prior knowledge (Allen, 2000; Allington, 2006; Harvey & Goudvis, 2000; Pressley, 2002). The sentence starters displayed on the students' weekly reading log worksheet provided visual prompts of metacognitive tasks: visualization (mental picture of

what is read), making connections (linking two different events by a common factor), and asking questions (related to the story read), making/confirming/altering predictions (based on the story read; Harvey & Goudvis, 2000). A total of 25 points were possible for completing the entire reading log each week, zero to five points per row or reading entry, and five rows included in every weekly reading log. The teacher read all the books available in her classroom for students to read. The teacher reread sections of them once per week to ensure she was able to remember main ideas and score the students reading logs. The reading log rubric consisted of the following criteria:

Five points were given for log entries that demonstrated comprehension by (1) showing the use of two or more metacognitive strategies shown in the response guide, and (2) by writing a minimum of three different sentences. Students were prompted to use metacognitive strategies in the reading logs through the visual display of four sentence starters: "I'm wondering about X, I think that Y"; "I remember a time when X, this tells me Y"; "I feel sorry for X because Y"; "I think X will happen because Y." In order to receive five points, students needed to write several sentences within the same reading log entry that showed the use of at least two sentence starters. For example, a five-point entry was: "I'm wondering if Steve is innocent. I think so because he disagreed with his friends' plans. I don't think he was to blame. I feel sorry for Steve if others blame him; Steve communicates poorly with others." In addition, the teacher checked that the number of pages that the student reported to read was similar to the number reported in previous logs.

Four points were given for log entries that demonstrated comprehension by showing the use of one of the metacognitive strategies in the response guide and writing two different sentences from one of the sentence starter examples. For example, one sentence in a four-point

entry was: "I'm wondering if Steve is innocent. I think that he is because he kept saying how he wanted nothing to do with their plans." In addition, the teacher checked that the number of pages that the student reported to read was similar to the number reported in previous logs.

Three points were given for log entries that demonstrated comprehension by showing the beginning of a strategy and writing one sentence from the sentence starter metacognitive strategies. The partial use of a sentence starter would not show the two sections that comprised a full sentence starter (e.g.,"I'm wondering about X", "I feel sorry for Y", etc.) For example, a three-point sentence entry was: "This reminds me of a time I went to a basketball game." In addition, the teacher checked that the number of pages that the student reported to read was similar to the number reported in previous logs.

Two points were given for log entries that demonstrated comprehension through the use of multiple sentences not included as sentence starter samples in the metacognitive strategies shown in the reading log. The sentences written did not demonstrate that the student was trying to visualize, make connections, ask questions, make, confirm, and/or alter predictions from the story read. These entries comprised sentences that summarized story facts and lacked information on how the student could relate what was read with his or her own past personal experiences. Summaries included in these entries showed several details congruent with the story facts read. For example, a two-point sentence entry was: "The beginning of the book focused on little red riding hood and her journey through the woods. She gathered several food items to deliver to grandmother later that day." In addition, the teacher checked that the number of pages that the student reported to read was similar to the number reported in previous logs.

One point was given for log entries that did not demonstrate comprehension and used a single sentence not included as a sample of a reading comprehension strategy in the response

guide.   The sentence written did not demonstrate that the student was trying to visualize, make connections, ask questions, make, confirm, and/or alter predictions from the story read. These entries were comprised of a single sentence summarizing story facts and lacked information on how the student could relate what was read with his or her own past personal experiences. The summary included in these entries provided a single detail congruent with the story facts. For example, a one-point sentence entry was: "The book's conclusion was sad and full of mystery." In addition, the teacher checked the number of pages that the student reported to read and found that it was different from the number reported in previous logs and/or commonly observed in students with a similar reading rate.

Zero points were given to statements that made no sense or that lacked information in order to show that the book was read. These entries did not demonstrate comprehension and mostly were comprised of a single sentence not included as a sample of a reading comprehension strategy in the response guide.   The sentence written did not demonstrate that the student was trying to visualize, make connections, ask questions, make, confirm, and/or alter predictions from the story read. These entries were comprised of a single complete or incomplete sentence and lacked information on how the student could relate what was read with his or her own past personal experiences. The summary included in these entries did not provide details congruent with the story facts read. An example of a zero-point sentence was: "Wow, this book is funny (sad, boring, or exciting)" or "I don't like this book at all." In addition, the teacher checked the number of pages that the student reported to read and found that it was different from the number reported in previous logs and/or commonly observed in students with a similar reading rate.

A good example of a completed reading log that earned five points per entry is included in Appendix D. The teacher gave a total of 400 points for reading logs completed during the

semester (26% of the final grade), 16 weeks of reading logs worth 25 points per week for a total of 80 reading logs per semester.

Data Collection, Response Measurement and Interobserver Agreement (IOA).

The researcher made copies of the reading logs, and sticky notes on reading logs, and counted TWW using the procedures described previously. Each reading log entry was counted separately so a weekly reading log had up to five TWW scores. The scores obtained were written on the reading log copies with a colored marker. All reading logs completed during the spring semester were scored and recorded.

Two graduate students were trained to score TWW. Training included verbal and written instructions regarding TWW definitions and data scoring and recording. The training continued until the reliability between the primary and secondary scorers was at least 90% or higher for at least three TWW scores. The primary and reliability observers reviewed the TWW operational definitions prior to scoring reading logs. Scoring occurred at separate times and reliability scorers did not have access to the scores obtained by the primary scorer.

For TWW, interobserver agreement (IOA) was calculated by dividing the number of scoring agreements between primary and secondary scorers by the number of agreements plus disagreements, and multiplying by 100 (Repp, Deitz, Boles, Deitz, & Repp, 1976). The average IOA obtained for all students was 99.26%. A reliability scorer was available to score TWW for an average of 40% of the reading log entries per student collected throughout the study.

An observation sheet was used to collect student active responding behavior. It included rows for each student and columns indicating the 30-s momentary time sampling interval procedure used. Behaviors were coded as active responding or not active responding (see definitions previously described under the primary dependent variables section). At every 30-s

interval, the raters observed each student separately for two to three seconds (e.g., student one observed for three seconds, next was student two observed for three seconds, etc.) and in the same order (e.g., student one first, student two second, etc.). The raters used a "+" sign to indicate that a specific student was observed to be actively responding. Raters used a "-" sign to indicate that a student was observed to be not actively responding. Raters observed each student for two to three seconds, recorded a "+" or "-" for that student and then proceeded to observe the next student for two to three seconds.

Other information recorded on the observation sheet included the type of classroom activity observed such as: large or small group, independent work, and transition time. Large group was coded when all students in class participated in an activity led by the teacher. Small group activity was coded when less than the total number of students in class participated in an activity. Individual or independent work was coded when students worked independently. Transition time was coded when students transitioned from one activity to the next, students were marked "-" during this time if they were not displaying the target academic responding behaviors. Observers also noted the interventions that were in place during the observations such as: the use of the reading log/sticky notes during independent silent reading, cashing tickets for reinforcers during the GC intervention, and self-monitoring done through the completion of the ticket sheet (see Procedures section). Observation sessions were 15 min in duration, and data obtained from students who were not present for at least 12 min during the observation were discarded. So if one of the participating students was absent for longer than three minutes during the observation, his/her data were not included for the session. The observation sheet is included in Appendix E.

The observers recorded student behaviors while the teacher conducted the regular reading lesson for that class. Classroom observations included data from up to seven or eight students observed within the same observation sheet. Observations were not conducted if the teacher was absent and a substitute teacher was leading class. Three 15-min data sessions were recorded during each class period (each class period lasted approximately 50 min). The focus of the study was on independent work time so only observations that included independent work for at least 70% of the total duration of the observation (e.g., 10 out of the 15 min of the total observation time) were included in the data analysis.

Four graduate students were trained to conduct active responding observations prior to baseline. Training included verbal and written instructions regarding behavior definitions and data collection procedures. The training continued until the reliability between the primary and secondary observers was at least 90% or higher for at least three data sessions. The primary and reliability observers reviewed the operational definition for target behavior, active responding, prior to each reliability session. Both observers viewed the classroom from the same position, but with data sheets out of view from each other. The primary observer quietly prompted the reliability person at each 30-s interval by starting with student number one (saying "one"), pausing for two seconds to observe and record a "+" or "-" then saying the next student's assigned number in the observation sheet (e.g., "two", "three", etc.), pausing for two seconds to observe and record a "+" or "-" and so on. Each student was given an assigned number (e.g., one, two, three, etc.) so students were observed in the same order at every 30-s interval.

Each student (e.g., student one, student two, etc.) had 30 cells in the observation row for 30 possible data points in the 15-min observation sheet (see Appendix E). Reliability was computed by using the "point by point" agreement method (Kennedy, 2005). That is, the

observer calculating reliability looked at each cell independently (primary and secondary observer) in order to determine if there was an agreement (e.g., both observers coded "+" or "-" for the same cell) or disagreement (e.g., one observer coded "+" while the other observer coded "-"). Interobserver agreement (IOA) was calculated by dividing the number of scoring agreements by the number of agreements plus disagreements, and multiplying by 100 (Repp et al., 1976). The average IOA obtained for all three classrooms was 98.4% (range of 98.11 to 98.61%). A second (reliability) observer was available for an average of 56% of all the observation sessions completed throughout all phases of the study.

Consumer Satisfaction

The teacher and students completed consumer satisfaction surveys to gather information regarding the extent to which the intervention was perceived as valuable and effective in the classroom (Horner et al., 2005; Wolf, 1978). The teacher survey included three open-ended questions regarding the components of the intervention that she liked and disliked as well as suggestions for future implementation. It also included 16 items answered using a five-point Likert scale (1=no familiarity/unacceptable/difficult/not very effective, 5=high familiarity/acceptable/easy/effective). For example, some of the items included were: "how familiar were you with the components of this intervention before using them in the classroom?", "how familiar are you with the components of this intervention now?", "how satisfied are you with the training received?", "how satisfied are you with the support received?", "to what extent were the procedures easy to learn?", "to what extent was this intervention easy to implement?", "how effective do you feel the intervention was?", "to what extent did the students work completion improve?", and so forth. The teacher satisfaction questionnaire is in Appendix F.

The student questionnaire included 12 items using a three-point Likert scale (1=yes/a lot, 2= okay/alright, 3= no/not at all). It asked students to rate statements such as: "I liked earning points and tickets in my classroom", "I liked the self-management strategy using the timers during reading logs", "It was easy to learn the rules to earn tickets", "It was easy to do what I needed to do in order to earn tickets and reinforcers", "I liked earning reinforcers", "I felt motivated to stay on-task", "I felt motivated to complete my work", and so forth. The student satisfaction questionnaire is included in Appendix G.

Procedures

Baseline. Prior to collecting data, the researcher met with the teacher to gather information about her classroom concerns, expectations and routines, use of corrective feedback, and current interventions in place to increase academic performance. A semi-structured interview was completed (see Appendix H) asking the teacher questions regarding the course content and materials, instructional strategies used, most common assignments given to students, etc. The information gathered was used to identify the target behaviors for the primary dependent variables, amount of writing, and classroom active responding.

The researcher gathered and reviewed samples of reading logs in order to identify the students' written responses that were the most concerning to the teacher. Classroom observations were also completed to identify and operationally define additional behavior concerns reported by the teacher. The initial classroom observations were conducted focusing on a variety of behaviors such as: unnecessary movement in the class, vocal interruptions when the teacher was talking, and physical contact with other students. Target responses were identified by eliminating listed behaviors that were not observed. A total of four 30-min meetings between

the researcher and the teacher, and five one-hr classroom observations were completed to gather information.

During the baseline condition, the classroom was not altered in any way and was considered "business as usual." Students were given a variety of assignments. They participated in large and small group activities as well as independent written assignments (e.g., vocabulary development, reading instructional level materials, completing reading logs, etc.). The classroom teacher required students to pick up their binders at the start of class and follow the instructions placed on a board. The teacher then provided instruction through a lesson in a lecture-type format followed by group and individual work. Apart from verbal praise, no programmed incentives or other behavioral consequences were provided if the students followed expectations. The teacher typically walked around the classroom. The teacher verbally prompted students to start working if they did not do so immediately after instructions were given. The teacher asked students to step outside the classroom for a private talk and/or sent students to the main office if they were non-compliant with directions, nonresponsive to the verbal prompts, and/or disruptive (e.g., yelling, throwing materials to the table or floor, using foul language, etc.). Table 6 provides a brief description of the antecedents, target behaviors, and consequences during baseline, and differences when compared to those observed when the GC plus self-management strategy was implemented.

Once target behaviors were identified, observations were conducted throughout all three classes of the literacy workshop course during baseline. The teacher was informed when the observers were scheduled to watch the classroom to collect data on the students' behaviors. Baseline data collection continued until the data indicated that class-wide active responding and reading log TWW were relatively stable or moving in the opposite direction of what was

expected from intervention. The observations were only included for the study when independent work was observed for at least 70% of the total duration of the observation. A maximum of three observations per class section were collected during baseline (each class period lasted approximately 50 min and each observation lasted 15 min).

Class-wide GC plus self-management intervention. The first component of the intervention was the class-wide independent GC strategy. Each student earned points (exchanged for tickets) for completion of the following tasks: (1) retrieving the student binder and filling out the daily planner within the first 3 min of class, (2) writing notes and completing assignments during the first half of the class, (3) writing notes and completing assignments during the second half of the class, (4) reading and completing a reading log entry in class, and (5) completing a full weekly reading log with five different entries. The classroom had a poster on the wall listing these target behaviors. Each student was also given a sheet for their binder with these target behaviors. The teacher identified these target behaviors as the most problematic ones affecting students' grades (e.g., failure to complete reading logs could result in a 26% decrease in the student's final grade). Each student was able to earn points exchanged for tickets during class.

The students had a weekly ticket sheet that listed the expected tasks or target behaviors. Points were recorded as tallies on the ticket sheet. Each day of the week was displayed in a different column, with a total of four days per week (maximum number of classes a student attended per week). A completed weekly ticket sheet is found in Appendix I.

Tickets were exchanged for rewards based on individual student performance. The students and teacher developed a list of possible rewards or prizes. The teacher chose the amount of tickets needed in order to earn these rewards. Five tickets were needed for a small

reward (e.g., bag of chips, candy bar, Gatorade, etc.); 10 tickets for a medium reward (e.g., a bag of chips plus a Gatorade); and 12 tickets were needed for a large reward (e.g., three small reward or a fast-food restaurant coupon). Students had the choice of cashing their tickets for a reward at the end of class or "banking" the tickets for a larger reward at a later date. For example, a student earning five tickets could choose to receive a small reward such as a candy bar or save the tickets to be able to earn a larger reward (e.g., save 10 tickets to exchange for a medium reward like a candy bar plus a drink, save 12 tickets for a large reward like a fast-food restaurant coupon, etc.) The complete list of rewards and the amount of tickets needed to obtain them are included in Appendix J.   Students were able to trade points for tickets during the last 10 min of class. All students were eligible to use their tickets for rewards as soon as they had enough tickets to cash them for the type of reward they chose (e.g., small, medium, or large).

 As part of the independent GC strategy mentioned above (e.g., students earning tickets exchangeable for rewards when emitting target behaviors), the teacher used a lottery system to raffle additional rewards. For example, the names of the students that were earning tickets for that particular day were entered in the lottery by placing their names on pieces of paper in a plastic container. The teacher randomly chose pieces of paper with names of students from this container to earn additional rewards. The teacher raffled one of each during the day when the raffle took place: a small reward such as a candy bar, a medium reward such as a bag of chips plus a Gatorade, and a large reward such as a $5 gift certificate to McDonald's. The winning names for that particular day were taken out of the container so that other names could be chosen for the remaining raffles. This lottery system was available only to students who had earned at least one ticket for that particular class period. The teacher used this lottery system to raffle three prizes during the day that the raffle took place for a total of five different days in each

course section chosen randomly throughout the semester (e.g., one raffle every week or every other week). The raffle occurred during the last 10 min of class time.

The second component of the intervention was the use of a <u>self-monitoring strategy</u> through the students' completion of the ticket sheet. Throughout each class period, students recorded a point (e.g., tally) on their individual ticket sheet as each of the five tasks listed was completed. This self-recording procedure was included as a self-monitoring feature to the GC intervention. The teacher verified points and approved tickets for each point earned. This happened during the last 10 min of class. The teacher verified the completion of the tasks through permanent products (e.g., student wrote on the planner, notes were taken during class, reading logs were completed, etc.). The primary investigator trained the teacher to show no emotional reaction and provide clear and brief behavioral information when the teacher disagreed with the student's points (e.g., when the student recorded the completion of a task that was not actually completed). The weekly ticket sheet was placed in each of the student's binder. The students' binders were kept in the classroom during and after class.

The third and final component of the intervention was the use of <u>self-management supports in the form of visualization notes and silent timers</u>. These supports were also put in place in order to increase the amount of writing in the reading logs during independent silent reading. These supports occurred concurrently with the independent GC and self-monitoring procedures. During the 20-min independent reading time, each student set a silent timer to vibrate every six minutes (e.g., timer was set three times for a total of 18 min of silent reading). As the timer vibrated, the student had to write information from the book read during the last 6 min on sticky notes or in the designated section of their reading log (e.g., "stop 1", "stop 2", or "end"; see Appendices C and D). Table 4 provides a brief description of the antecedents, target

Table 4

Interventions Used Before and During GC Plus Self-Management Intervention

	Baseline	**GC plus self-management**
Antecedents	Teacher provides verbal prompts to complete target behaviors	
		Students have a ticket sheet (visual prompt) to remind them to complete target behaviors
		Poster is placed on the wall (visual prompt) to remind them to complete target behaviors
	Students have original reading logs (do not include "stop 1", "stop 2", "end") available to use after reading for 20 min	
		Students have the new modified reading logs that have 3 visual prompts "stop 1", "stop 2", "end" available to use after reading for 20 min
	Teacher provides infrequent prompts to use sticky notes when reading book to write information about the book as they read	Students have sticky notes available when reading a book in order to write information about the book as they read
		Students have timers set to vibrate at the end of 6 min to prompt students to write in modified reading log
Target Behaviors	Collect binder and fill out planner, complete notes, read book, and complete reading log	
		Students tally target behaviors in ticket sheet
		Student asks teacher to verify ticket sheet in order to earn tickets
Consequences	Teacher randomly provides verbal praise when students are observed to complete tasks	
	Teacher asks student to step outside the classroom if student is noncompliant after teacher provided verbal prompts	

	Baseline	**GC plus self-management**
Consequences	Teacher asks student to go to the office after student is noncompliant with verbal prompts and subsequent requests to step outside the classroom	Teacher verifies that student completed target behaviors in order to earn tickets Students earn tickets for target behaviors Tickets exchanged for rewards (5 tickets for small, 10 for medium, 12 for large rewards) Raffle: Students that earned tickets on a randomly chosen day were included on a raffle for one of each: small, medium, and large reward (raffle conducted approx. once per month)

behaviors, and consequences during the GC plus self-management intervention, and differences when compared to those observed during baseline.

Training procedures. The primary investigator met with the teacher in the teacher's classroom for 45 min during the teacher's planning time to discuss the main components of the present study. The teacher received information about the target behaviors identified for improvement (i.e., active responding and written products) as well as the interventions to be introduced in the classrooms: self-management and independent GC. They discussed the materials needed for the intervention, including the use of timers and visual supports to ensure that students increased their written work. The primary investigator provided the teacher with verbal and written information regarding the intervention, the experimental design, and the procedures in place in order to implement and withdraw the interventions (see Appendix K).

The teacher had the opportunity to ask questions throughout this meeting, the teacher only asked questions of clarification.

After baseline data were collected, the primary investigator and teacher met with the students during class time to introduce the intervention package. The teacher explained that students would receive tickets for completing expected tasks during each class period. The expected tasks were described as: collecting the binder and filling out the planner within the first 3 min of class, completing notes during the first half of the class, completing notes during the second half of the class, reading for 20 min and completing the daily reading log row, and turning in a completed weekly reading log. The teacher gave the students the reading logs and explained the rules and expectations in order to earn five points per entry. They discussed examples of good reading logs. The teacher also explained and demonstrated the use of timers to remind students to stop reading when the timer vibrated and start writing in reading logs. The students practiced using the timers. The teacher introduced the ticket sheet and explained to the students that points tallied were exchanged for reinforcers. Students were told that they were expected to monitor their own behavior throughout the class period, making a tally each time a task was completed. The students were told that the teacher would verify the accuracy of the points that each student awarded to him/herself by signing on the sheet and, if accurate, exchanging the tallies for tickets to be exchanged for reinforcers. The teacher discussed the use of reinforcers and the number of tickets required to earn them. The students had the opportunity to ask questions and provide suggestions for possible reinforcers to be used. A script was used to guide the teacher when explaining the procedures to students (see Appendix L).

Procedural Fidelity

An 11-item procedural checklist was used to measure the GC procedural fidelity (see Appendix M). Fidelity data were taken on the implementation of the GC intervention to identify the extent to which its components were implemented as designed. The checklist addressed items related to the intervention. Items included: target behavior definitions were visually displayed for students to see, students were giving themselves points contingent on target behaviors emitted, points were recorded in weekly ticket sheet, points were tallied and verified by teacher, reinforcers were given when sufficient points for tickets were earned, the timer was set at 6-min intervals and used during silent reading, and visualization notes were used to complete the reading logs during silent reading. The last two items addressed the use of the self-management components for the reading logs activities (use of the timer and visualization notes to prompt writing). These items were scored "yes" or "no." The procedural checklist score was calculated by dividing the number of "yes" items by the total number of items. For example, five "yes" items divided by the total of 10 items equaled a score of 50%. The primary investigator met with the teacher two times per week for five minutes to discuss and ensure that procedural fidelity was no less than 90% during the implementation of the intervention and no more than 0% during baseline and when the intervention was removed during withdrawal. Procedural fidelity was recorded for an average of 73% of all the classroom observations completed. The average procedural fidelity scores obtained were 0%, 100%, 0%, and 99.51% for baseline, initial introduction of the intervention, withdrawal, and reintroduction of the intervention, respectively.

Experimental Design

The present study used an ABAB/withdrawal design in order to make comparisons between baseline and the class-wide independent GC plus self-management intervention (Kennedy, 2005; Shadish, Cook, & Campbell, 2002). Two dependent variables were measured: individual student's TWW on reading logs and percentage of class-wide active responding. The primary investigator analyzed TWW scores data from all students in order to make decisions on when the experimental conditions needed to change. The TWW data was chosen for these experimental condition decisions as it showed greater stability across students over time.

The ABAB/withdrawal design was chosen in order to compare baseline and the class-wide independent GC plus self-management intervention because it addresses a variety of internal validity threats. For example, this design provides a replication of the intervention effects by consistently showing behavior change when the intervention is repeatedly implemented and withdrawn, which increases experimental control. This consistent change provides evidence of a functional relation between the intervention and target behaviors and increases the probability that the results obtained can be directly linked to the intervention implemented and not to other extraneous variables (Kennedy, 2005; Shadish et al., 2002). In addition, the implementation of the intervention using a reversal design in each of the three participating classrooms provides multiple demonstrations of the effects and increases the likelihood that the procedures and outcomes can be generalized to other students in other classrooms.

Data Analysis

The primary method of data analysis was visual inspection of the data plotted on graphs. During and after the study, the data were analyzed within and between conditions. Within phase

patterns were analyzed to identify changes in level, trend, and variability patterns. Immediacy of effect and any data overlap were visually analyzed from one condition to another to determine the effect of the intervention.

In the reversal design baseline data are first compared to intervention data. Experimental control is demonstrated if the target behaviors (i.e., total words written in reading logs and active responding) increase when the intervention is initially implemented, decrease when the intervention is withdrawn, and increase again when the intervention is reintroduced.

Effect sizes were calculated as a secondary method of data analysis to also demonstrate changes in scores obtained in the baseline and intervention conditions.

Results

The GC plus self-management intervention implemented in this study increased the students' amount of written work completed in independent reading logs and the class active responding during independent reading time. Effects were variable for the students' rubric scores in independent reading logs. Findings for each outcome are presented in the following sections.

Total Words Written

Reading log TWW results were depicted numerically in Table 5 and graphically in Figures 1 through 6. These TWW results were based on data from completed reading logs (students gave the reading logs to the teacher). The data showed no zero scores because the students did not give the teacher "blank" reading logs (reading logs with no writing from the student on them). The TWW scores for all three classes went from a mean of 24.19 during baseline (range of 8 to 62), to a mean of 55.34 (range of 22 to 106) during the initial implementation of the intervention. The TWW scores mean decreased to 21.8 (range of 8 to 40) when the implementation was withdrawn but increased to a mean of 57.82 (range of 28 to 89)

Table 5

TWW Scores per Student

Hour	Student	Baseline M (range) SD	Intervention M (range) SD	Withdrawal M (range) SD	Intervention M (range) SD
2nd	Ashley	31.7 (17-53) 8	58.9 (33-84) 12.9	21.2 (12-28) 6.7	62.3 (38-84) 17.4
	Melanie	21.4 (15-31) 4.8	51.8 (35-64) 7.6	17 (17-17) 0	50 (44-61) 6.4
	Dustin	17.7 (9-30) 4.5	37.7 (26-53) 6.6	17 (16-20) 2	40 (36-44) 3
	Kelly	28.1 (16-47) 7.7	68.6 (30-101) 12.6	23.2 (18-28) 4.2	62.1 (34-82) 16
	Crystal	13.5 (8-29) 5.2	39 (27-56) 9.3	14 (8-22) 7.2	38.4 (28-58) 13.7
3rd	Tom	38.8 (21-62) 10.1	82.6 (61-106) 11.8	30.5 (28-35) 4.7	83.5 (78-89) 7.7
	Carlos	19.7 (9-31) 5.8	43.6 (29-59) 9.6	13.6 (13-15) 1.1	42 (39-45) 4.2
	Bonnie	21.2 (12-34) 4.7	45.7 (34-70) 8.9	15.2 (12-17) 1.9	58.4 (48-71) 8.3
	Laura	22.2 (13-37) 5.7	47.2 (25-81) 13.1	20.2 (18-22) 2	61 (34-77) 16.5
	Sally	20.5 (13-32) 4.7	53.1 (29-68) 10.9	15.3 (14-17) 1.5	41.8 (31-51) 7.4
6th	Tammy	20.2 (11-28) 5.1	56.1 (22-77) 16.7	21.4 (14-29) 6.8	47.5 (26-69) 30.4
	Alexandra	28.5 (17-40) 7.6	59.2 (40-77) 10	34 (26-40) 5.5	77 (77-77) NA
	Julie	30.6 (19-50) 8	65.6 (44-95) 11.8	32.2 (26-40) 7.1	71.2 (59-84) 8.8
	Karla	24.9 (12-35) 6	60.1 (39-77) 11.1	30.4 (22-36) 5.5	66.2 (58-76) 7.4

(continued)

Hour	Student	Baseline M (range) SD	Intervention M (range) SD	Withdrawal M (range) SD	Intervention M (range) SD
	Roxanne	23.2 (12-37) 6.3	60.3 (35-81) 17.2	21.6 (12-28) 6	65.8 (54-80) 9.4

Note. *M*= Mean, *SD*= Standard Deviation, *NA*= Not Available (only one score obtained).

when the intervention was reinstated. The class hour with the greatest TWW gains based on the difference between the class' mean during baseline and the initial implementation of the intervention was sixth hour (34.79), followed by third hour (29.96), and second hour class (28.7). The class hour with the greatest TWW gains based on the difference between the class' mean during intervention withdrawal and intervention reimplementation was third hour (38.35), followed by sixth hour (37.64), and second hour class (32.09). Finally, the class hour with the greatest TWW loss based on the difference between the class' mean during the initial intervention and withdrawal from the intervention was third hour (35.47), followed by second hour (32.75), and sixth hour class (32.4).

Visual inspection of the graphic data also revealed that students' TWW scores increased while the intervention was in place and decreased when it was removed. For example, Figure 1 showed data collected for Ashley in second hour. Her TWW mean during baseline was 31 with a range of 17 to 53. Her TWW increased to a mean of 58 (range of 33 to 84) when the GC plus self-management intervention was implemented. The withdrawal of the intervention produced decreases in her TWW mean to 21 (range of 12 to 28), and a reintroduction to the intervention increased TWW to a mean of 62 (range of 28 to 84). Bonnie, a student from third hour (Figure 3), showed similar results. Her TWW mean during baseline was 21 (range of 12 to 34), which increased to a mean of 45 (range of 34 to 70) during the first introduction of the GC plus self-management intervention, decreased to a mean of 15 (range of 12 to 17) during withdrawal, and

increased again to a mean of 58 (range of 48 to 71) during the reintroduction of the intervention.

Finally, Julie from sixth hour (Figure 5) had a TWW mean score of 30 (range of 19 to 50) during

baseline, which increased to a mean of 65 (range of 44 to 95) during the first intervention,

decreased to a mean of 32 (range of 26 to 40) during withdrawal, and increased again to 71

(range of 59 to 84) during the second and last intervention implementation.
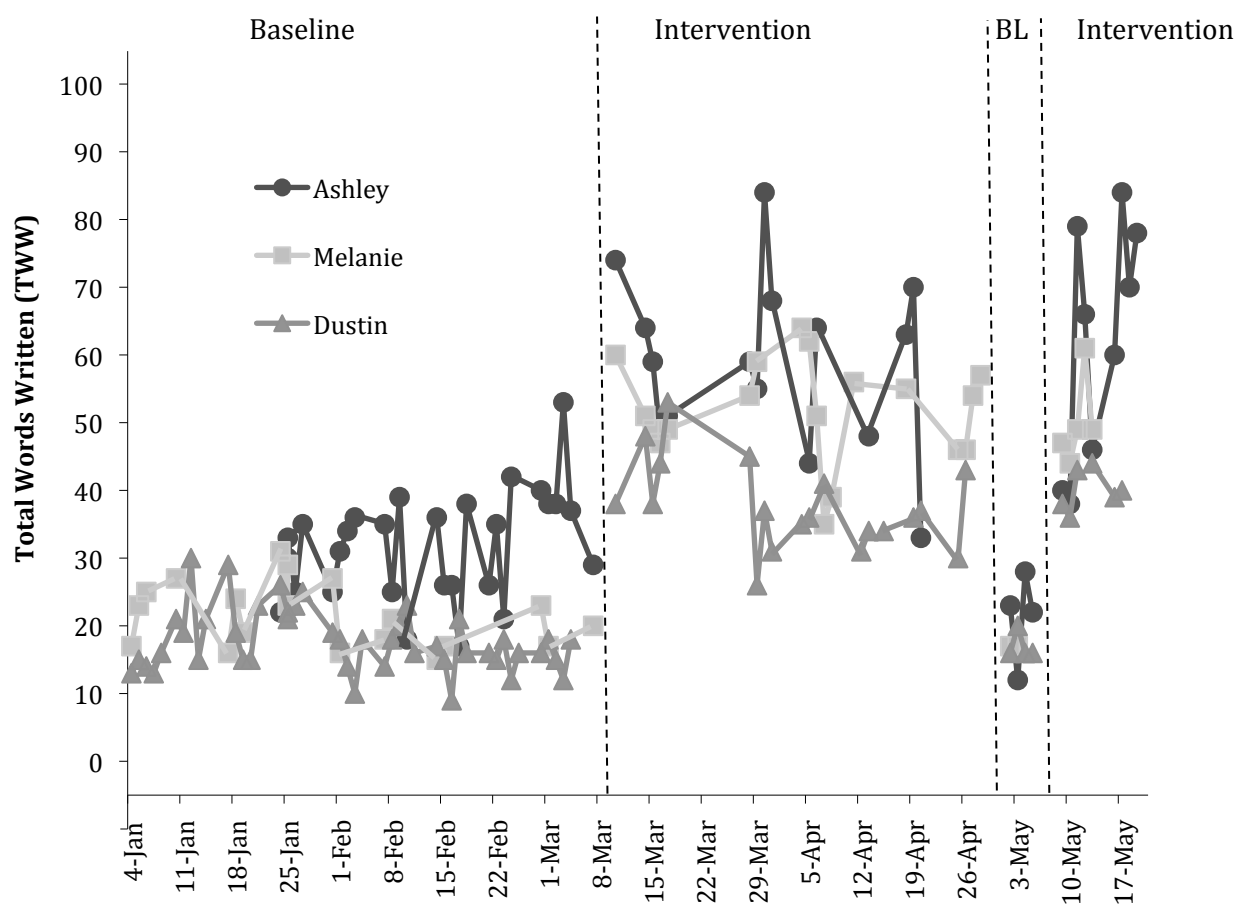
Figure 1. TWW Scores for Second Hour: Ashley, Melanie, and Dustin Across Conditions

Figure 2. TWW Scores for Second Hour: Kelly and Crystal Across Conditions

Figure 3. TWW Scores for Third Hour: Tom, Carlos, and Bonnie Across Conditions

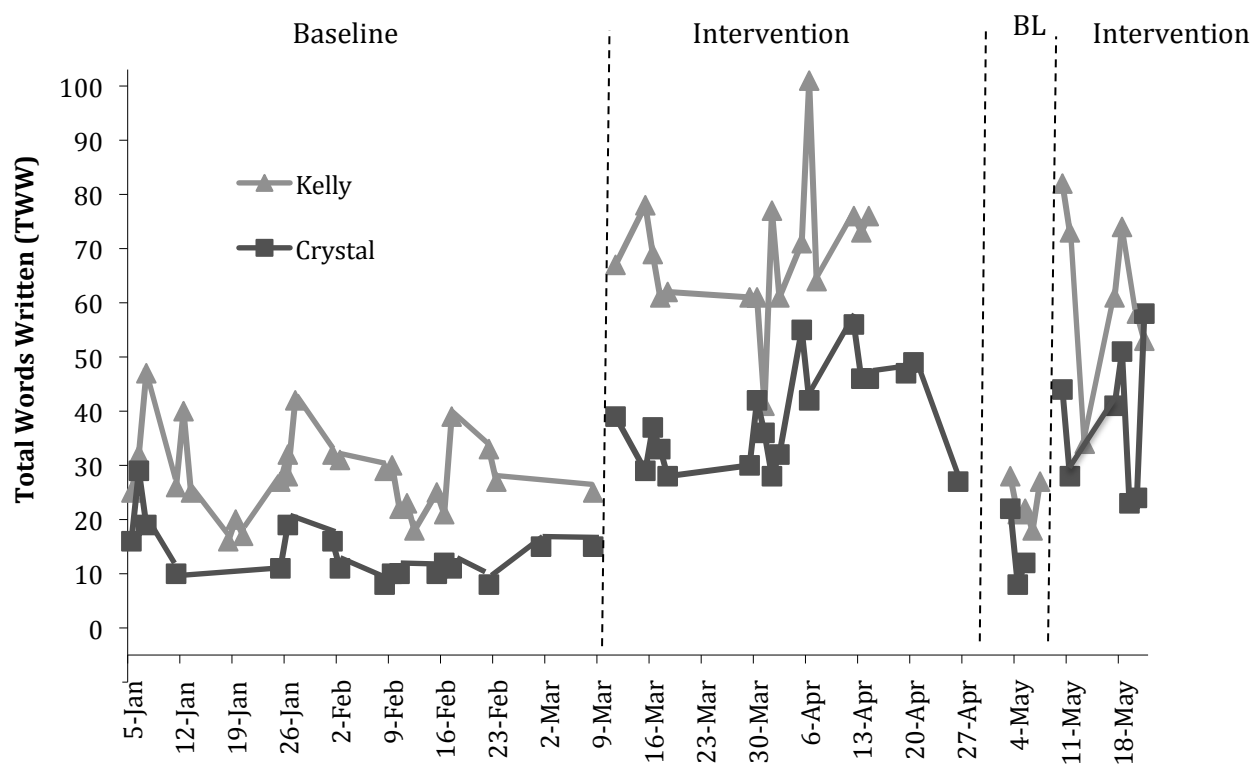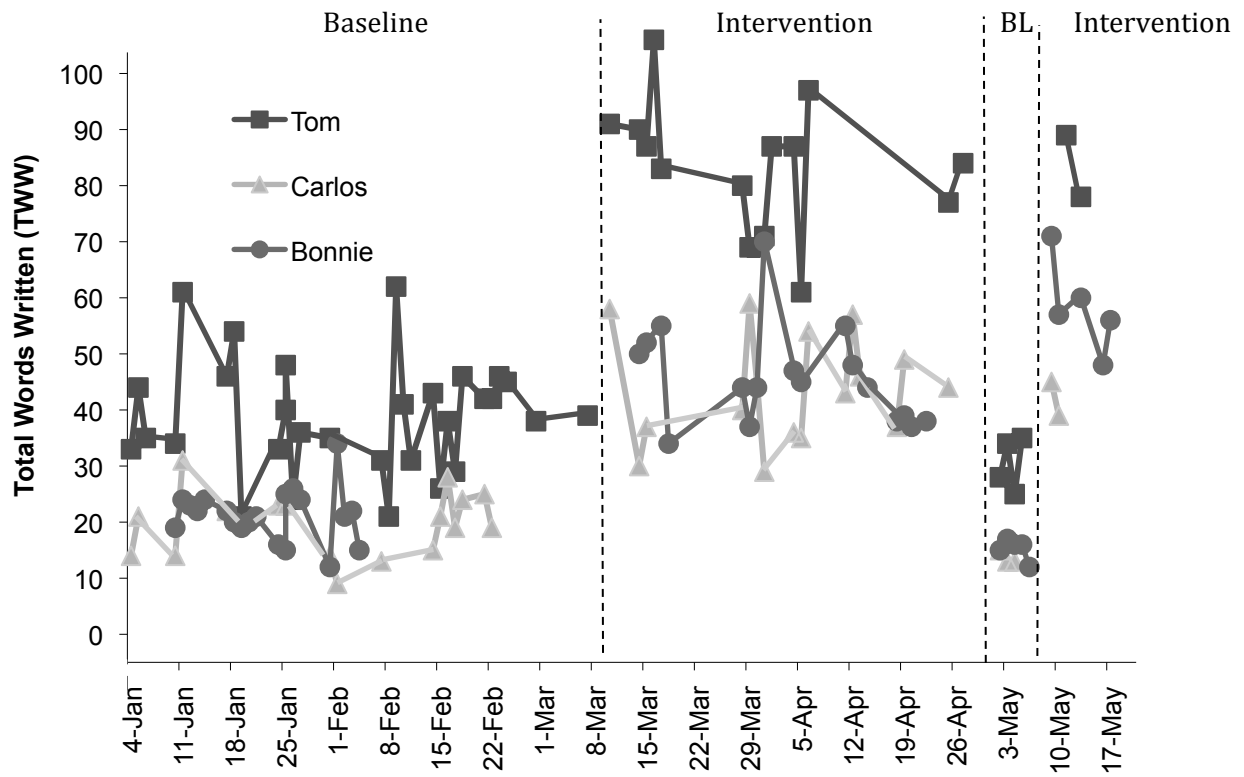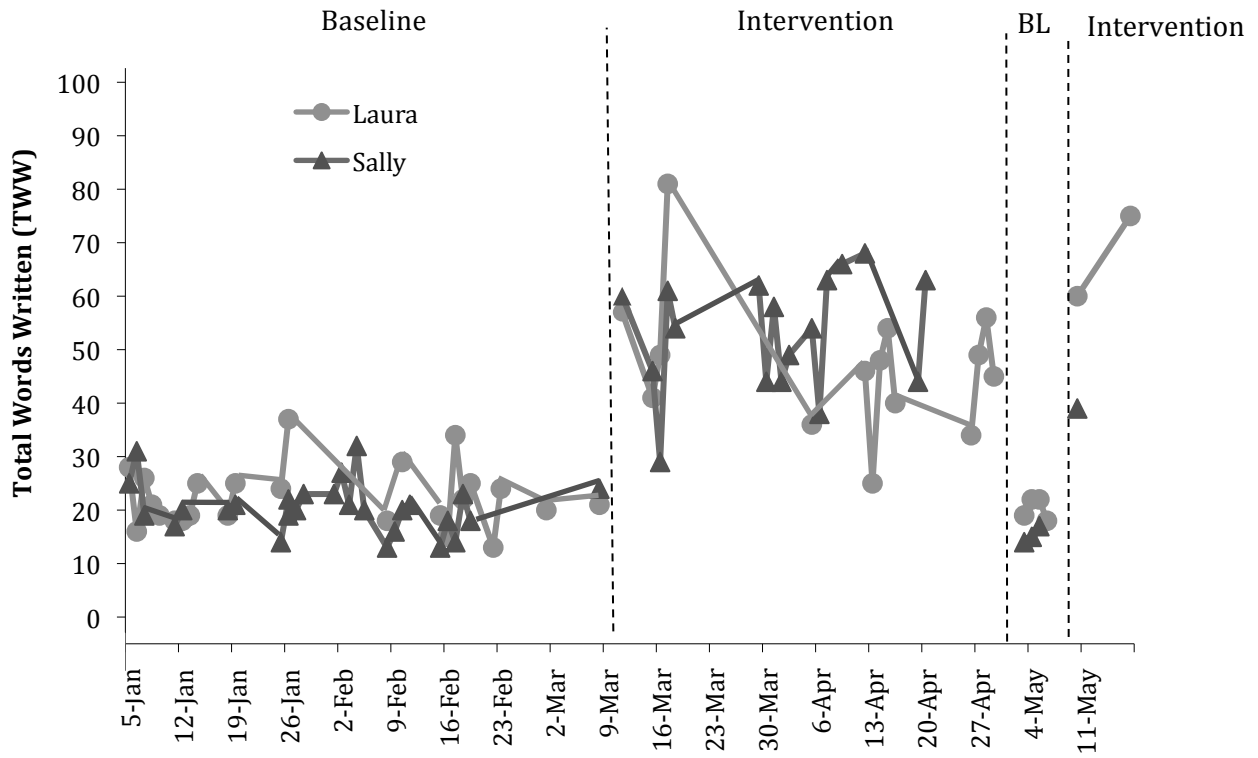*Figure 4.* TWW Scores for Third Hour: Laura and Sally Across Conditions
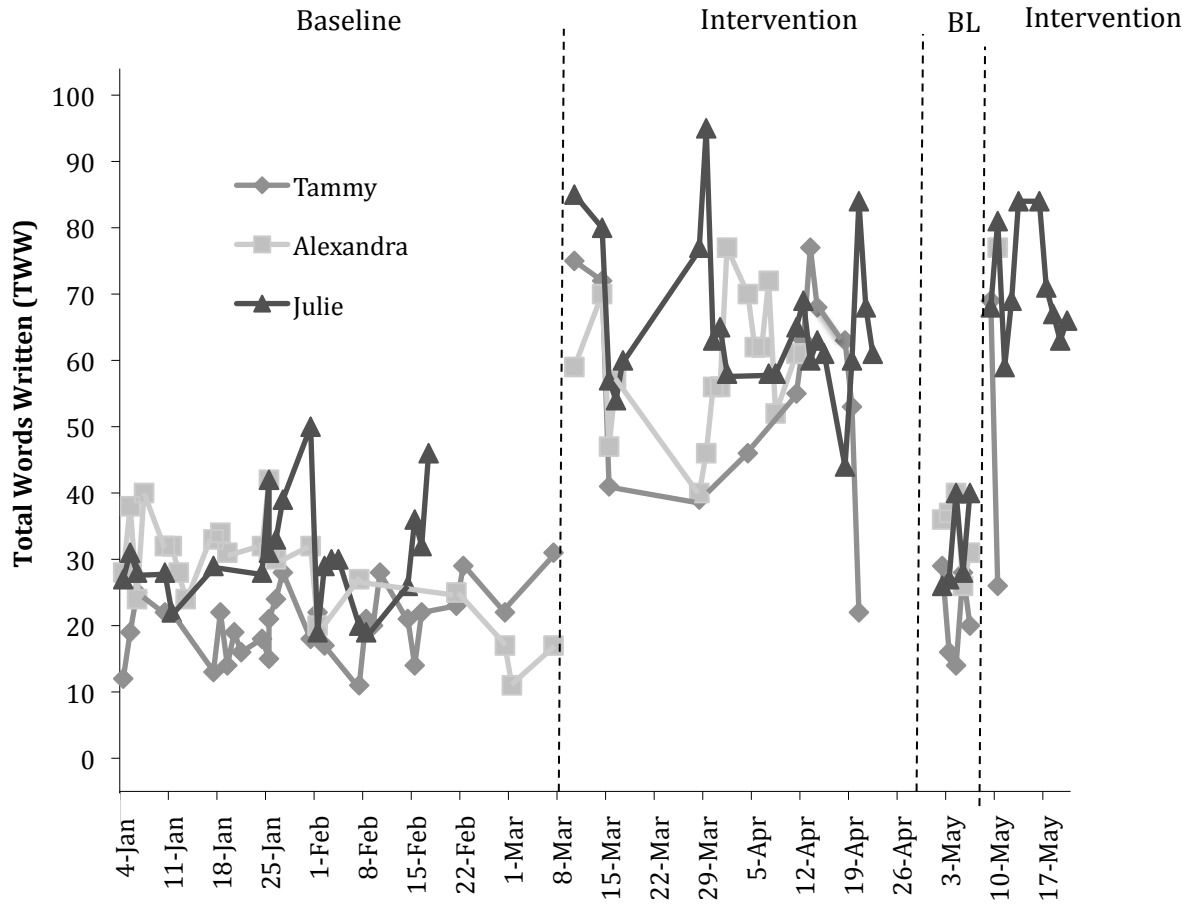
Figure 5. TWW Scores for Sixth Hour: Tammy, Alexandra, and Julie Across Conditions
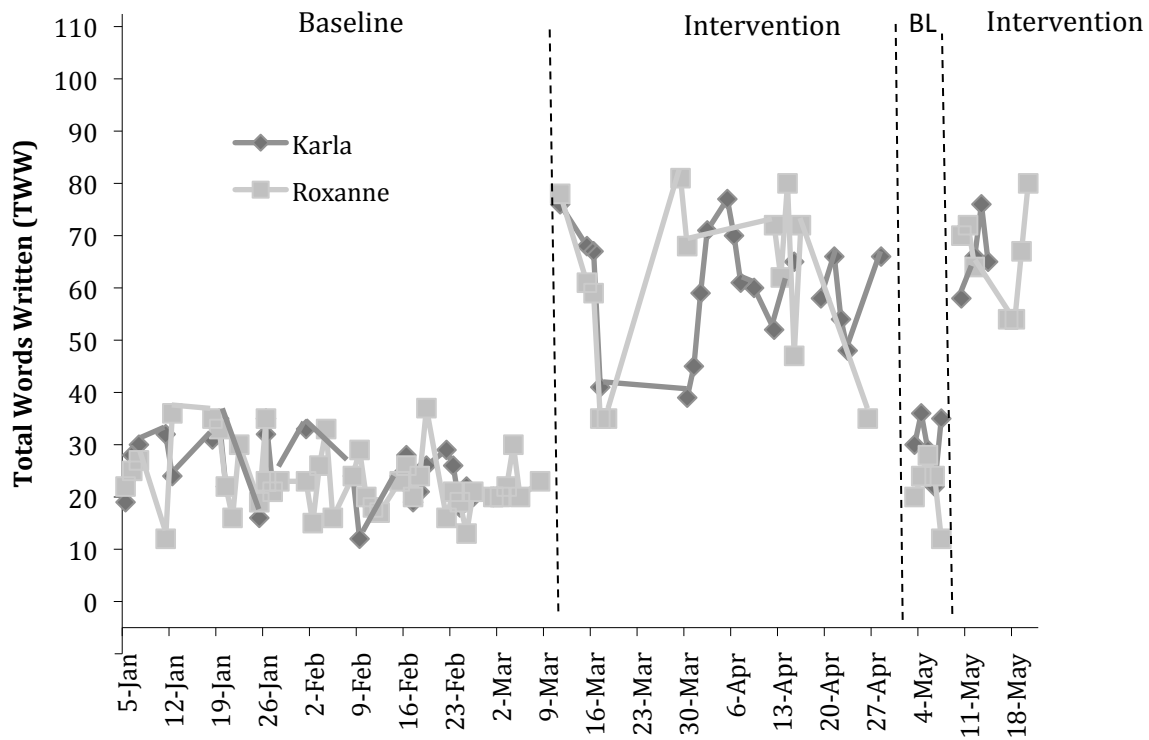
Figure 6. TWW Scores for Sixth Hour: Karla and Roxanne Across Conditions

Effect sizes were calculated for each student's TWW scores using the "Approach One: No Assumptions" model from Busk and Serlin (1992); the average of the two intervention means was subtracted from the average of the two baseline means and the difference was divided by the standard deviation of the initial baseline (Dunst, Hamby, & Trivette, 2004; Olive & Smith, 2005). Effect sizes based on TWW scores are depicted in Table 6. All students showed large effect sizes, with the greatest scores noted for Bonnie and Roxanne (7.1 and 6.41, respectively).

Further interpretation of the findings was made by comparing these effect sizes to the ones reported in previous studies. For example, using a variety of statistical methods, Stage and Quiroz (1997) meta-analytic study reported an average effect size of 0.9 for all studies analyzed, including the ones that provided a combination of interventions. Davies and Witte (2000) also used a different method for calculating effect sizes and reported an effect size of 2.16 in their peer feedback plus self-management interdependent GC study. In their randomized GC studies and using the same approach as the one presented in this study, Theodore et al., (2004) reported an effect size of 2.13, and Theodore et al., (2001) reported an effect size of 4.1. Coogan et al., (2007) also used the same "Approach One: No Assumptions" method (Busk & Serlin, 1991) and reported an average of 1.808 effect size for the 5 participants in their study. The large effect sizes obtained in the current study offered strong support for the GC plus self-management intervention implemented.

Active Responding

Active responding was presented in Figures 7, 8, and 9. Visual inspection of the data revealed increasingly higher active responding for all three classrooms when the intervention was in place when compared to the baseline and withdrawal conditions. For example, the second hour class' active responding mean was 67% during baseline (range of 38 to 88%), increasing to

Table 6

Effect Sizes Based on Student TWW scores

Hour	Student	Effect Size
2nd	Ashley	4.22
	Melanie	6.58
	Dustin	4.71
	Kelly	5.14
	Crystal	4.71
3rd	Tom	4.77
	Carlos	4.44
	Bonnie	7.1
	Laura	5.71
	Sally	6.21
6th	Tammy	5.97
	Alexandra	4.84
	Julie	4.58
	Karla	5.84
	Roxanne	6.41

a mean of 84% (range of 61 to 99%) during the initial introduction of the intervention,

decreasing to 62% (range of 33 to 86%) during the withdrawal of the intervention, and increasing

again to 80% (range of 31 to 100%) during the reintroduction of the intervention. Third hour

class' active responding mean was 64% during baseline (range of 63 to 65%), increasing to a

mean of 87% (range of 60 to 100%) during the initial introduction of the intervention, decreasing
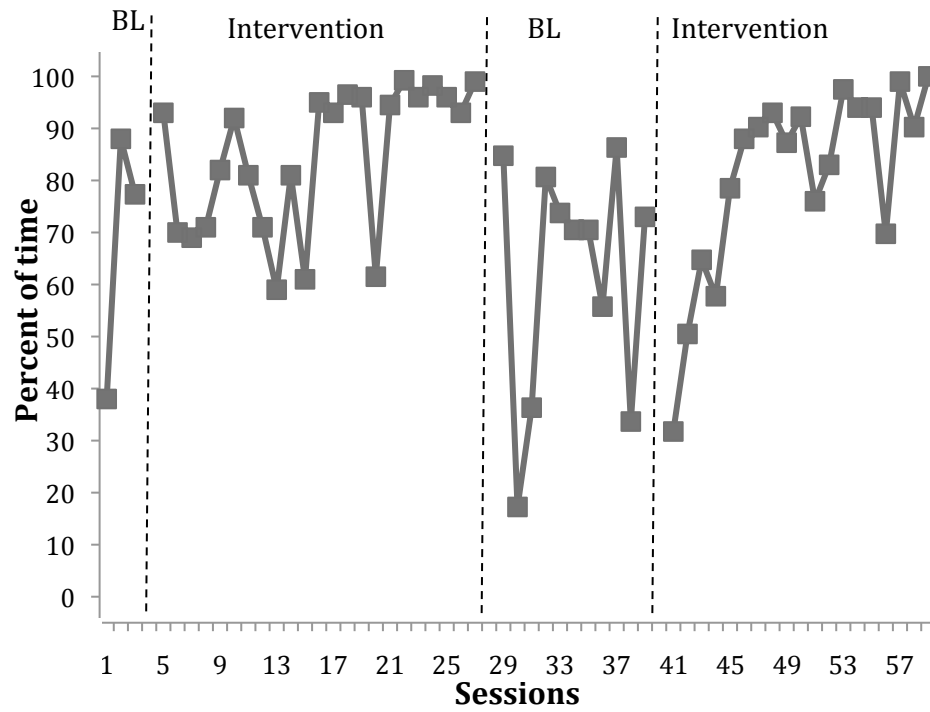
Figure 7. Mean percentage of Active Responding for the Second Hour Class Across Conditions
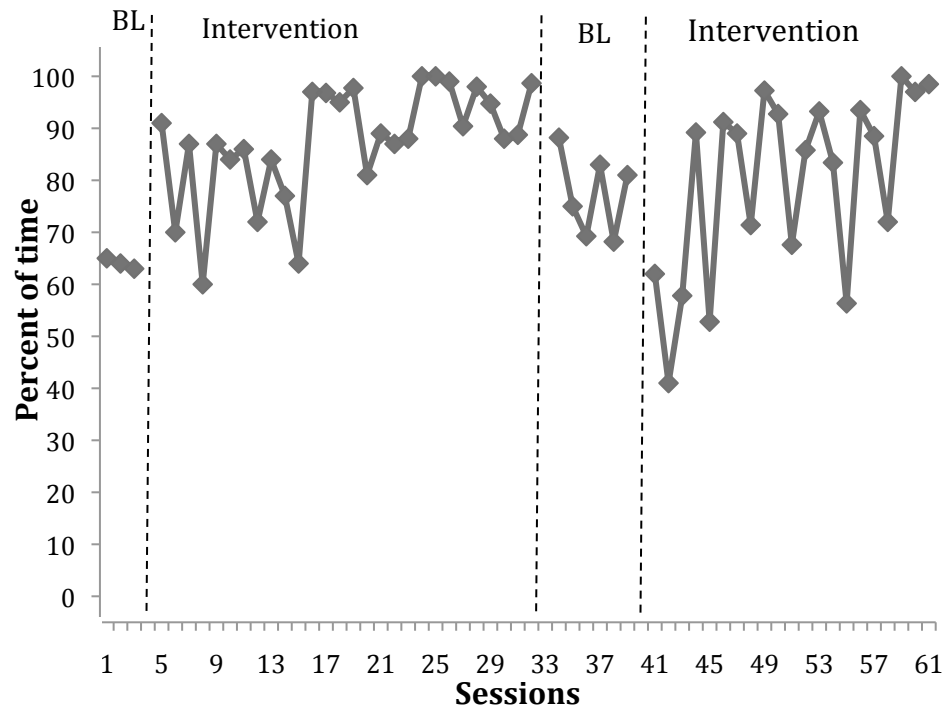
Figure 8. Mean percentage of Active Responding for the Third Hour Class Across Conditions
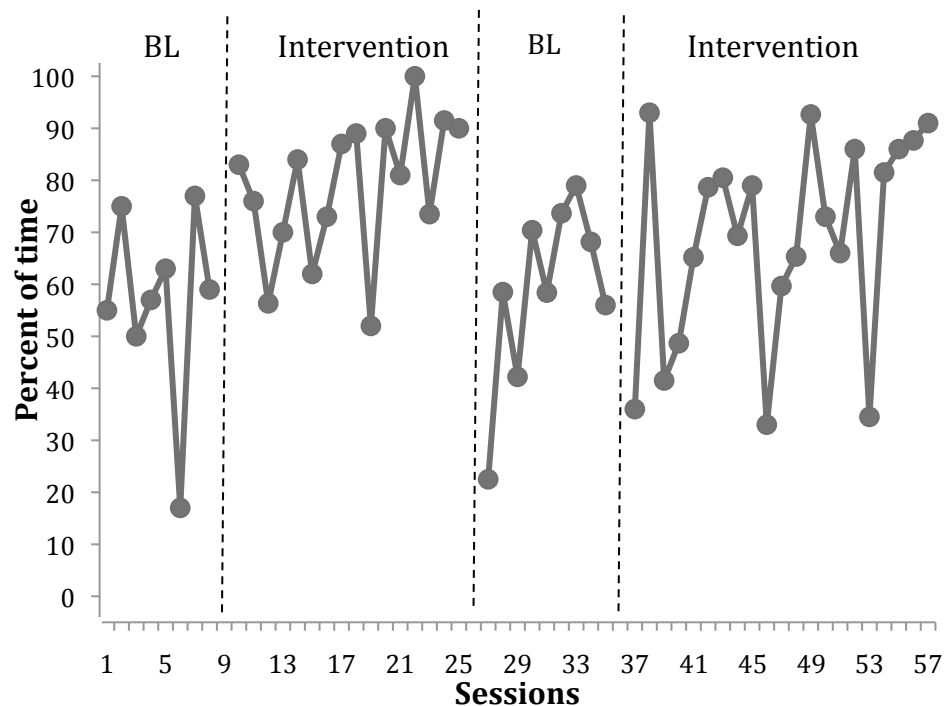
Figure 9. Mean percentage of Active Responding for the Sixth Hour Class Across Conditions

to 77% (range of 68 to 88%) during withdrawal, and increasing again to 80% (range of 41 to 100%) during the reintroduction of the intervention. Finally, sixth hour class' active responding mean was 56% during baseline (range of 17 to 77%), increasing to a mean of 78% (range of 52 to 100%) during the initial introduction of the intervention, decreasing to 58% (range of 22 to 79%) during withdrawal, and increasing again to 68% (range of 33 to 93%) during the second and final reintroduction of the intervention.

Effect sizes calculated using the same procedure as TWW scores (Busk & Serlin, 1992) were 0.67, 13.05, and 0.86 for second, third, and sixth hours, respectively. The inflated effect size score obtained from third hour was directly caused by the lack of active responding scores' variability during the initial baseline (scores of 65, 64, and 63%; SD=1) when compared to the

highly variable scores obtained for second hour (SD= 26.33) and sixth hour (SD= 18.57). When compared to similar studies, the current findings support the effectiveness of the GC plus self-management intervention had on active responding. For example, Kamps et al., (2011) reported increases in on-task behavior and an effect size of 0.93 after a GC strategy was implemented.

Reading Log Points

Four hundred points, twenty-five per week, were possible for the reading logs for each semester. Students were expected to complete reading logs for 16 weeks (five per week); a total of 80 reading logs were possible during the semester (see measures). Results obtained from the secondary variable, reading log points, are depicted in Table 9. Seven of the 15 students show missing points for at least one condition (Melanie, Kelly, Crystal, Tom, Sally, Tammy, and Alexandra). Six of the 15 students showed an increase in percentage of reading log points from the initial baseline to the initial implementation of the intervention, with the highest increase in percentage points observed for Carlos (18 points) followed by Laura (11 points). Four students did not show a difference in percentage of points and five students showed a decrease in percentage of points (Dustin, Tom, Bonnie, Julie, and Roxanne). Only two students showed a decrease in percentage of points from the initial implementation of the intervention to the withdrawal condition, Laura and Tammy; while seven students show an increase in percentage of points (Dustin, Carlos, Bonnie, Alexandra, Julie, Karla, and Roxanne). Only one student increased her percentage points (Laura) while three students decreased their percentage points (Dusting, Roxanne, and Karla) from the withdrawal of the intervention to the reimplementation of the intervention. Four students showed no change in points, remaining at 100% during withdrawal and reimplementation of the intervention (Ashley, Carlos, Bonnie, and Julie).

Table 9

Students' Percentage of Reading Log Points

Hour	Student	BL %	Interv. %	BL %	Interv. %
2	Ashley	100	100	100	100
	Melanie	100	100	100	NA
	Dustin	97	95	100	88
	Kelly	96	100	NA	NA
	Crystal	72	80	80	NA
3	Tom	95	93	NA	80
	Carlos	81	99	100	100
	Bonnie	96	94	100	100
	Laura	84	95	86	92
	Sally	100	100	NA	96
6	Tammy	91	100	92	NA
	Alexandra	95	96	100	NA
	Julie	87	80	100	100
	Karla	98	98	100	84
	Roxanne	98	94	100	93

Note. BL= Baseline; Interv.= Intervention; NA= Not available.

Consumer Satisfaction

Results from the teacher satisfaction questionnaire showed that the teacher was not familiar with the components of the intervention (e.g., group contingency plus self-management) before using it in the classroom, but reported high familiarity with the components of the intervention at the conclusion of the study. She was satisfied with the training and support she received. She indicated the intervention was neither hard nor easy to implement, and that the procedures were very easy to learn. The intervention required little preparation time and very little time during instruction. She felt the intervention was effective, and that that students frequently increased their on-task behavior and improved their work completion and reading skills during the intervention. The teacher reported that she is very likely to use the different components of the intervention on an individual basis in the future and she is also likely to recommend the intervention to a colleague. The things she liked the most about the intervention

included: the students' responsibility to track their own behaviors, use of timers, the immediate

feedback students received when they were recording their own behaviors in order to earn

tickets, and the teacher's ability to verify points and award tickets. She indicated that it was a

time consuming process as points were checked and incentives were awarded while in class and

the time used for the intervention could have been used for instruction. Also, she indicated she

would have liked to have something in place in order to "transfer students from external to

internal motivation." Finally, she indicated this was a great start for her as it gave her some tools

to use with more difficult students. She stated her interest in using incentives such as the ones

provided in the intervention with a few individual students, and "weaning" students off the

external incentives as she reported that this was not "sustainable nor does it produce

independently-motivated adults in its current form."

Overall, students reported satisfaction with the intervention implemented and felt like

their academic performance increased as a result of it. All students reported they liked earning

tickets, with 64% of them indicating they liked it "a lot." All students also indicated that it was

easy to learn the rules, do what was needed in order to earn tickets, liked earning rewards

through the tickets, and felt motivated to improve their reading skills and stay on task. Ninety-

three percent of the students reported to feel motivated to complete work. Ninety-two percent

reported that they followed more directions, stayed on-task more, and completed more work

when tickets were awarded. Eighty-three percent of students reported that their writing increased

when the "stop 1", "stop 2", and "end" self-management strategy was in place during the 6-min

reading log intervals. Finally, 79% of the students reported that they liked the self-management

strategy used during the 6-min reading log intervals. Table 10 showed the results gathered from

the student satisfaction questionnaire.

Table 10

Post Intervention Student Questionnaire

	Yes/ A lot	Okay/ Alright	No/ Not at all
1) I liked earning tickets in my classroom	64%	36%	
2) I liked the self-management strategy used during the 6-min intervals in the reading logs	36%	43%	21.43%
3) It was easy to learn the rules in order to earn tickets	86%	14%	
4) It was easy to do what I needed to do in order to earn tickets and rewards	79%	21%	
5) I liked earning rewards/ prizes	86%	14%	
6) I felt motivated to stay on-task	43%	57%	
7) I felt motivated to complete my work	43%	50%	7%
8) I felt motivated to improve my reading skills	57%	43%	
9) I followed more directions when tickets were awarded	42%	50%	8%
10) I stayed on-task more when tickets were awarded	42%	50%	8%
11) I completed more work when tickets were awarded	42%	50%	8%
12) I increased my writing when the self-management strategy ("stop 1", "stop 2", "end") during the 6-min intervals were used in my reading logs	50%	33%	17%

Discussion

The current GC plus self-monitoring intervention package increased the target primary dependent variables, the TWW in reading logs and the overall class active responding. The intervention package included a variety of self-management strategies including the student's use of a timer and visual prompts to increase writing during the 20-min reading time. Students were able to provide more frequent responses with the use of these strategies as they were given the opportunity to provide written answers linked to the story read a total of three times ("stop 1", "stop 2", "end") instead of the one-time opportunity they had prior to the intervention. Dividing tasks into smaller chunks for quick and frequent responding has been documented as an effective strategy to increase response proficiency and skill acquisition (e.g., Porritt, Van Wagner, & Poling, 2009; Rhymer, Skinner, Henington, D'Reaux, & Sims, 1998). It has also been documented in the reading comprehension literature in order to increase students' use of study strategies, comprehension of text, and test scores in content areas (e.g., Belfiore, Skinner, & Ferkis, 1995; Eckert, Ardoin, Daly, & Martens, 2002; Duke & Pearson, 2002; Harvey & Goudvis, 2000; Skinner, Cooper, & Cole, 1997; Williams, 2002; Worsdell et al., 2005).

The package also included a self-monitoring component. Students reported whether they performed specific responses outlined in their weekly ticket sheet. These responses were discrete behaviors such as collecting their binder, writing in their planner, writing notes, and writing in their reading logs. The teacher was trained in order to verify if the behaviors were completed and how to respond when discrepancies arose between the student's report and teacher's observations. Accuracy of student responding was not documented and analyzed in the current study, however past studies have indicated that participants are fairly accurate when reporting discrete behaviors (e.g., Ackerman & Shapiro, 1984; Tiger et al., 2009). A limited

number of studies report the use of rating scales and rubrics that participants are asked to use to monitor their own behavior. It is unclear whether these studies used a method to measure participant accuracy or not (e.g., Foley & Epstein, 1993; Mitchem & Young, 2001, 2006; Mitchem, Young, West, & Benyo, 2001; Peterson, Young, West, & Peterson, 1999). Future studies should continue to focus on discrete and observable behaviors and should report accuracy of self-monitoring. Self-monitoring accuracy can be manipulated and analyzed in order to determine if it has an effect on target responses such as active responding or amount of writing.

Student Reading Log Writing

TWW increased when the intervention was initially introduced and reintroduced when compared to baseline and the withdrawal of the intervention, respectively. A review of studies that have used TWW was completed in order to determine to what extent the TWW scores showed significant increases. However, the TWW scoring method reported in these studies required the use of timed written samples (e.g., Gansle, Noell, VanDerHeyden, Naquin, & Slider, 2002; Gansle et al., 2004; Jewel & Malecki, 2005; Malecki & Jewell, 2003). As a result, effect sizes were calculated for both TWW scores and class active responding in order to determine the degree of the intervention package's effectiveness. The scores calculated from the TWW data in the current study were greater than the ones obtained in previous studies (e.g., Coogan et al., 2007; Theodore, 2001). The active responding effect size scores were similar to previous findings (Kamps et al., 2011).

Active Responding

Percentage of active responding was observed to increase when the intervention was initially implemented, decrease when it was withdrawn, then increased again when the intervention was reintroduced. However, the mean percentage of active responding during the

reintroduction of the intervention did not reach the scores initially obtained during the initial intervention condition. For example, second hour's mean percentage of active responding was 84% during the initial intervention and 80% during the reintroduction of the intervention; sixth hour's was 78% during the initial intervention and 68% during the reintroduction. One possible explanation for this phenomenon can be as follows: students were aware that a "new procedure" was going to be introduced as the teacher presented the ticket system to them right before the initial intervention was implemented. Students were observed to ask about the tickets and make comments about how pleased they were that incentives were being offered. In contrast, by the time the intervention was removed and reinstated, students were observed to comment on demands from other classes and were not observed to make as many positive comments about the incentives and prizes provided through the intervention as they did initially. It is unknown if this explanation is valid as no formal data was collected to identify and control for extraneous variables such as these ones that could have had an impact on the second introduction of the intervention. So future studies should try to control for novelty versus familiarity of an intervention and/or incentives in place as well as time-based variables (e.g., other classes' demands, approaching a major holiday or end of semester, etc.).

Secondary Variable

The results gathered for the secondary variable, reading log points, showed only modest gains with less consistency. The teacher reported that students were expected to complete the reading logs in and outside of the classroom. So if students were absent they had the opportunity to work at home to earn points. Attendance was not a variable that was controlled in the current study so it is unknown if students with more absences earned the same number of points

completing work at home than students with better attendance completing the same work in class.

Results from reading log points could potentially be linked to factors that were informally observed such as students' grade awareness. Students were provided with written updates of their final class grade. The students were informed if they were already passing the class even if they chose to stop working altogether while in class. The teacher reported to this investigator that some students were satisfied with their grade as it was showing at that time and before the semester was over to the point that some refused to do any other work even if that meant that they could raise their grade. This is only a speculation as grade awareness was not a variable that was manipulated in the current study. Future studies may focus on students' class grade awareness in order to determine the potential impact on class work production.

Limitations and Future Research

The current study used an intervention package consisting of a variety of procedures (e.g., self-recording, differential reinforcement, etc.) that are well documented to be effective at changing behaviors at schools. A limitation of this study is that the strategies used were presented as a package. It is unknown to what extent did the different components of the intervention: the self-management, self-monitoring, and GC strategies, including the randomization of reinforcers (raffles) had, in combination or isolation, on the target behaviors analyzed (e.g., words written in reading logs, active responding, work completion, etc.). For example, some self-monitoring studies report reactive effects that change behavior in the desired direction and without the manipulation of consequences such as access to reinforcers (e.g., Critchfield, 1999; Harris, 1986; Kirby et al., 1991; Nelson et al., 1977). Future studies should pursue a component analysis by isolating the intervention components used in the current study

in order to determine if the same results can be obtained with fewer components. If the same results can be attained with fewer strategies in place, then the intervention package will become more attractive for teachers due to its ease of use and increased practicality.

Past GC studies completed in secondary schools have reported increases in desirable behaviors when GC components and/or reinforcers are randomized (e.g., Popkin & Skinner, 2003; Schandling & Sterling-Turner, 2010; Theodore et al., 2001). The current study did not randomize the type of procedure used because past literature has reported that all GC types (e.g., independent, interdependent, and dependent) have been effective at increasing desirable behaviors and/or decreasing problem classroom behaviors (Mesch, et al., 1988; Theodore et al., 2004). In the current study, reinforcers were not randomized on a daily basis. Instead, students had the ability to choose what individual reinforcers to access based on the tickets/points they had earned and saved. Five raffles were conducted per classroom throughout the study to provide additional opportunities for all students to earn reinforcers. This raffle procedure was randomized as students did not know if they were going to be picked to earn an additional reinforcer. No formal comparisons were made between the data gathered during the days when students were earning tickets and points and the days when they were exposed to the raffle procedures. Future studies should manipulate reinforcer randomization versus nonrandomization in order to determine which one produces the greatest changes in target behaviors. Students and teachers can be asked to complete satisfaction questionnaires to find out which one is the most practical and convenient to implement.

When analyzing the reinforcers used, a limitation of the current study is the lack of reinforcer variety. All reinforcers used in the present study included edibles (e.g., drinks, candy, snacks, coupons for food, etc.) that were reported to be highly preferred. Prior to the start of the

study, the students were asked for input in an informal way (students were asked what kind of snacks and drinks they preferred) without following any systematic methods to complete a preference assessment.   But even though the students were asked for input in order to identify these reinforcers, other types of incentives were not considered for inclusion. This was because the teacher was not interested in pursuing activity based reinforcers as they were believed to take time away from class instruction. The teacher was also not interested in considering "escape from activities" things like "homework pass" and "classwork pass" because she reported that she wanted all students to have the opportunity to complete class work. It is possible that some students would have chosen activity related reinforcers or activities such as a "homework pass" that provide a temporary escape from academic demands. Future studies should include a systematic preference assessment completed at periodic times throughout the length of the study and that includes a variety of different reinforcer types and categories. This can be an additional variable to manipulate in order to determine if a preference assessment with additional reinforcers produces a greater increase in target behaviors when compared to more informal methods for selecting desired reinforcers.

Also related to reinforcers is the fact that students who earned tickets and points had the ability to bank them and could choose when to cash them in order to receive reinforcers. Informal observations completed during the last day when the intervention was in place in the current study showed that a few students were not cashing tickets and points on a regular basis but rather cashed them all at the last day. This means that the students were not receiving the identified reinforcers and that the tickets and points were potentially acting as conditioned reinforcers that produced the increases in the target responses: writing in reading logs and classroom active responding. Future studies should manipulate the students' ability to cash

versus save points that the student earned in order to immediately access reinforcers. Results gathered can be used to make decisions on how often reinforcers must be delivered to students in order to produce desired response changes. A less dense schedule of reinforcer delivery may be perceived more favorably by teachers due to less effort required from the teacher, and less frequency of classroom distractions and interruptions while instruction is in place.

An additional limitation was the variability in outcomes for reading logs (percent of points earned). One possible reason is that the intervention did not provide monitoring or reinforcement for increased number of points on the reading log. The reading log rubric scoring was a subjective measure created and used by the teacher. The self-monitoring procedures were designed to increase writing/number of words written in the logs. Future research may want to add features of self-management for quality and work completion or productivity for all assignments in the class. A potential contributing variable was that additional academic demands from the ones typically observed in class were in place during the final phase of the study and not present at the beginning, such as state assessments, final projects due, and final exams. These factors could have had an impact on the amount of work the students were completing in and outside of class. Future studies may want to manipulate the intervention package by increasing the frequency and delivering and withdrawing the intervention for shorter periods of time in order to better control for variables that tend to be present at a predetermined time in the school year.

Overall, the sixth hour class showed the most modest gains (e.g., students showed loss in reading log points when expected to have increase in points). This is a class where a total of 11 students were enrolled, only five students participated and six had to be dropped out of the current study due to chronic absences that caused insufficient data to be collected. The sixth

hour class' modest gains, when compared to the second and third hour classes, can also be attributed to group size as reported in the current Tier II literature. Current Tier II publications report that small group instruction (e.g., groups of four or five) produces the greatest gains when compared to larger group instruction (e.g., groups of ten or above; Allen, 2000). In addition, future research may need to address Tier III or more individualized intervention for students for whom the initial intervention is less effective.

Conclusion

In sum, the GC plus self-management intervention package, including the use of self-management and randomization of reinforcers (during the raffles), increased the amount of written work observed in reading logs for a total of fifteen students in three different remedial reading classrooms. This intervention package also increased the classroom average active responding for all three classes. Students were able to increase the frequency of writing through the use of a variety of strategies included in the package, including self-management techniques such as timers and visual prompts. Students were also able to monitor their own behavior by completing a weekly ticket sheet that showed the discrete behaviors required in order to earn reinforcers.

Future studies should conduct a component analysis to determine which strategies are the most effective and necessary to produce student behavior change. Ease of implementation should be considered to ensure that effective interventions, such as the one presented in the current study, are sustained in the long-term by classroom teachers. Future research should also introduce reinforcers that are free or less costly for teachers to be able to access and implement, such as activity-based reinforcers, as well as opportunities to escape academic demands that will not impede skills acquisition or mastery. The students' ability to access reinforcers immediately

or save them for a later date should be further analyzed to determine if a "banking" procedure is more effective at changing students' behaviors. Finally, other areas to further pursue include class attendance, student's grade awareness, additional academic demands present at different times of the school year while interventions are implemented, and group size.

The current study extended previous findings by developing an effective intervention package for increasing secondary students' active responding and written work linked to reading comprehension activities. Unlike previous research, the current study was able to implement an independent GC plus self-management intervention using a single-subject design for a large number of students in three different classrooms. Students increased the amount and frequency of their writing and the three classrooms showed an increase in active responding during independent reading time.

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Appendix A

Self-Monitoring Literature Review

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
1984 Ackerman & Shapiro	Intellectually deficient adults (n=12)	Productivity rate (number of packages completed per minute)	Self-monitoring, praise, prompting	Multiple baseline design	Baseline rage: 1.1 per min Intervention: 1.8 per min Self-recording data compared to permanent products and found to be 93% accurate
* 1998 Alfassi	9th grade students in remedial reading classes from 2 high schools (n=75)	Scores on reading comprehension assessments	Strategy instruction (basic skills- main ideas, summarizing, making inferences, organizing sequential details, recognizing structural word components), reciprocal teaching and self-monitoring of comprehension (summary, questioning, prediction, clarification)	Group design Intervention group= reciprocal teaching with self-monitoring of comprehension Control group= strategy instruction	Reading assessment score average for intervention group was 78, control group was 68 Follow up scores for intervention group was 79, control group was 72
* 1987 Blick & Test	Four special education high school students in 3 classrooms (n=12)	On-task performance (look at teacher, talk to teacher, read, write)	Self-monitoring (with, and later without tape to cue when to rate behavior)	Multiple baseline across classrooms	Classroom 1 On task 29, 59, 79% (intervention, SM with cue, SM no cue, respectively) Classroom 2 On task 40, 73, 75% Classroom 3 On task 48, 86, 89%
*1971 Broden, Hall, & Mitts	Two eighth grade students (n=2)	Study behavior (look at teacher or work, academic talk) for one participant, talk out (non academic talk) for the other participant	Self-recording sheet completed when participant chose to complete it (random times), teacher praise	ABABCDA for one participant, ABCDAD design for second participant	Participant one: Baseline 30% of study behavior Self-recording 78% Self-recording plus praise 88% Participant two: Baseline: 1.1 talk outs per min Self-recording in 2 classes: 0.65 per min

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
* 2007 Coogan, Kehle, Bray, & Chafouleas	12-year old students reported to exhibit disruptive behaviors in one classroom (n=5)	Inappropriate behavior (e.g., touching, vocalizing, aggression, playing, making noise, disorienting, out of seat)	Self-monitoring with randomized dependent GC intervention	Reversal design	Student 1: disruptive behavior observed in 25% of observed intervals during baseline to 3% during intervention Student 2: disruptive behavior in 30% of intervals in baseline to 5% during intervention Student 3: 30% to 6% Student 4: 38% to 5% Student 5: 34% to 3%
* 2010 Crabtree, Alber-Morgan, & Konrad	High schools students with learning disabilities (n=3)	Story facts and answers in reading comprehension test	Self-monitoring - answering comprehension questions (stop 1, stop 2, end) and active responding	Multiple baseline across participants	Number of facts recalled increased from 1 to 5 during baseline to 8-16 during self-monitoring intervention Maintenance showed facts recalled from 10 to 20 Quiz questions answered correctly during baseline ranged from 1 to 6 and 6 to 10 during self-monitoring, and 7 to 10 during maintenance
1999 Critchfield	Elementary age swimmers (n=2)	Number of pool lengths swam	Instruction: "swim as many lengths as you can", self-monitoring per 10-min training session at every 2 (SM2) , 4 lengths (SM4), and at the end of session (SME)	Multiple baseline across participants and conditions	Results displayed in graphs Swimmer 1: Approx. 2 lengths, 10, 10, 10, 17, and 12 swam (baseline, instruction, SM2, SM4, SME, instruction conditions, respectively) Swimmer 2: Approx. 1 length, 15, 13, 13, 17, baseline, instructions, SM2, SM4, SME, respectively)
2000 Davies & Witte	3rd grade students in a classroom, 4 target students with ADHD (n=4)	Inappropriate verbalizations (any verbalization without teacher permission during lesson or work time)	Self-management and peer monitoring strategies (using a board to move dot when vocalization happened) combined with a dependent GC intervention	Reversal design in addition to a group design (classroom with intervention compared to a control classroom)	Baseline vocalizations for target students ranged from 2 to 22, intervention vocalizations ranged from 0 to 4 during 1st intervention and 1 to 3 during reinstatement of intervention

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
1989 Dunlap & Dunlap	Students with learning disabilities (n=3)	Percent of accurate answers in subtraction problems	Didactic training, didactic training plus points, self-monitoring checklist (based on error analysis of previous performance)	Multiple baseline design	Scores not reported, graphs displayed Student 1: approx. 35%, 37%, 80% (didactic, didactic plus points, self-monitoring, respectively) Student 2: approx. 50%, 50%, 90% Student 3: approx. 35%, 60%, 80%
* 1993 Foley & Epstein	Middle school students with behavioral disorders in 11 self-contained special education classrooms (n=42)	Modified school survival skills (attend class, be on time, bring materials, use assignment book, being on-task, following directions, answering/ asking questions) categorized into interest in school, organizational skills, task completion, independence, interpersonal skills, and school rules 26-	Self-monitoring (review of previous week, next week, contract is agreed upon) Group contingencies with reinforcements were reported as an intervention but not described in the methods section nor results were reported from its use	AB pretest posttest group design with control classrooms	Mean scores in interest in school 7.86 to 8.64, control 7.14 to 7.32 (for pretest and posttest, respectively); organizational skills 7.14 to 8.07, control 7.25 to 7.46 (pretest and posttest respectively); task completion 18.07 to 19.14, control 16.82 to 16.89 (pretest and posttest); independence 5.36 to 5.64, control 4.79 to 5.21 (pretest and posttest); interpersonal skills 22.29 to 23.93, control 20.86 to 20.84 (pretest and posttest); school rules 18.71 to 19, control 17.29 to 17.21 (pretest and posttest); and total score 79.36 to 84.43, control 74.14 to 74.93 (pretest and posttest) Analysis of covariance found significant difference in interest in school, interpersonal skills, and total score
1979 Foxx & Brown	Adult smokers (n=40)	Nicotine consumption	Nicotine fading (NF), self-monitoring (SM), NF plus SM, American Cancer Society program (ACS)	AB Group design	Mean percentage reductions from baseline in cigarette consumption ACS: 80% NF plus SM: 73% NF: 70% SM 51%
1984 Gajar, Schloss, Schloss, & Thompson	Young adults with head trauma (n=2)	Topic-related statements during a group session	Feedback, self-monitoring	ABCACB design plus comparison with control group	Baseline: Scores one standard deviation below group comparison's mean (at 40% or below) Intervention: Increase to a mean of 52%

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
2008 Goddard, & Sendi	4th grade students with learning disabilities (n=4)	Quality (e.g., punctuation, capitalization, indenting, topic sentence, supporting sentence, concluding sentence) using a 7 trait rubric and quantity (word count) of creative writing	Self-monitoring of quality and quantity of writing, using story starters that were either narrative or expository in nature	AB design	Baseline word count ranged from 60 to 70 words Intervention word count ranged from 90 to 160 words Three students showed gains in their written quality. Baseline rubric score ranged from 4.5 to 10.5. Intervention rubric score ranged from 8 to 10
* 2010 Graham-Day, Gardner, & Hsin	10th grade students with ADHD and an IEP (n=3)	On-task behavior (eyes on teacher or work, sitting, academic talk) and grades	Self-monitoring = SM (yes/no checklist), self-monitoring plus reinforcement for accuracy of responding (audiotaped chimes signaling the use of checklist)	Alternating treatment design	Student 1 On task 51, 92, 93% (baseline, SM, and SM plus reinforcement, respectively) Student 2 On task 46, 75, 97% Student 3 On task 47, 64, 96% Grades failed to improve in a consistent manner
* 2008 Hagaman & Reid	6th grade students (n=3)	Scores in reading comprehension tests	Self-monitoring (self-regulated strategy) plus Read, Ask myself and put into own words (RAP) paraphrasing	Multiple baseline across participants	Student 1: 9, 59% (baseline, intervention) Student 2: 24, 47 Student 3: 10, 85
1986 Harris	Students with learning disabilities (n=4)	On-task behavior (ex. Eyes on work) and productivity (percent of correct spelled words)	Self-monitoring attention (SMA), self-monitoring productivity (SMP)	Multiple baseline across participants	Student 1: 57%, 91% (on task baseline, SMA respectively); 22, 44, 47 (productivity baseline, SMA, SMP respectively) Student 2: 32%, 77%; 20, 30, 78 Student 3: 44%, 90%; 14, 27, 77 Student 4: 52%, 91%; 32, 43, 75

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
1994 Harris, Graham, Reid, McElroy, & Stern Hamby	Study 1: 4th and 5th grade students with learning disabilities in a self-contained classroom (n=4) Study 2: 5th and 6th grade students in same classroom (n=4)	Study 1: On-task behavior (eyes on teacher or work, writing, academic talk) Number words spelled correctly Study 2: On-task and Length (number of words written) and quality of writing (teacher rubric)	Self-monitoring strategies for attention (answer question "was I paying attention" after hearing a tone and spelling (graphing correct responses)	Multiple baseline design across participants	Study 1: On task baseline for students was 24, 34, 23, and 49% respectively and 67, 79, 83, and 87% during self-monitoring for attention; 74, 97, 85, and 86% for self-monitoring of spelling performance Study 2: On task baseline 56, 66, 59, and 28%; 83, 90, 95, and 55 during self-monitoring for attention and 82, 85, 82, and 66 during self-monitoring of writing Words written were 46, 72, 47, 36 during baseline; 76, 111, 162, and 69 during self-monitoring attention; 102, 137, 126, and 72 self-monitoring of writing
1972 Herbert & Baer	Two mothers of children with behavior problems	Mother's attention to appropriate child behavior, mother's attention to inappropriate child's behavior	Self-recording using a wrist counter	ABACBA design	Baseline: Average of 1.6 attention episodes following appropriate behavior Average of 0.76 attention episodes following inappropriate behavior Intervention: Average of 3 attention episodes following appropriate behavior Average of 0.62 attention episodes following inappropriate behavior
* 1998 Jitendra, Cole, Hoppes, & Wilson	6th grade students with learning disabilities (n=4)	Scores in reading comprehension test using narrative passages	Main idea instruction and self-monitoring of summarization strategies	Reported: Multiple probe design used for 3 students, 4th student was used as a control in a group design Actual: ABC design	Student 1: 33, 79, and 93% (baseline, main idea instruction, self-monitoring) Student 2: 25, 42, 83% Student 3: 35, 54, 83%

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
1991 Kirby, Fowler, & Baer	Elementary students (n=7)	Correct math answers, correct alphabet answers	Study1: Self-recording, goal-specific self-recording ("try to beat your best score") Study 2: Goal-specific self-recording, token economy, instructed to talk about math and not alphabet, instructed to talk about alphabet and not math	Study 1: ABC multi element design Study 2: ABCDC design	Study 1: Results shown in graph Scores did not change from baseline to self-recording but increased when goal-specific self-recording was introduced Verbalizations increased with goal-specific self-monitoring Study 2: Results shown in graph Variable results, some students show increase in math and alphabet correct answers when self-recording was implemented, decrease in correct answers when other academic talk was facilitated, increase in scores when self-recording plus topic-related academic discussion was facilitated plus token economy
*1973 Knapczik & Livingston	7th, 8th, and 9th grade special ed students (n=13)	Correct answers in reading assignment	Token system, self-recording, and student-teacher recording	ABABCBDECD design	Baseline: 69% accuracy Token and self-recording: 82% Token, self-recording, and student teacher: 84% Token: 82% Token and student teacher: 79%
* 2001 Kozminsky & Kozminsky	9th grade students in 4 subgroups, learning disabled, vocational, semi-academic and academic (n=205)	Scores in 4 tests: General word-knowledge test, reading strategies ability test and 2 reading comprehension tests	NA	Descriptive study using MANOVA, ANCOVA, and Pearson correlations	Four reading strategies (summary, self-questioning, clarification, prediction) found to correlate with reading comprehension scores in the 4 tests given for all 4 subgroups
1989 Lloyd, Bateman, Landrum, & Hallahan	Special education students (n=5)	On-task/ correct movements (ex. looking at work or teacher)	At the sound of a tone (45-s VI): Self-recording of productivity, self-recording of attention	AB design Multiple baseline across participants (for 3 out of 5 participants)	Baseline: correct movements mean of all 5 students 73% Self-recording of attention: correct movements mean of all 5 students 88% Self-recording of productivity: correct movements mean of all 5 students 90% Percentage of on-task shown in graphs showed an increase from approx. 50% during baseline to approx. 75% during intervention across students

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
1993 Maag, Reid, & DiGangi	Elementary students with learning disabilities (n=6)	On-task behavior, academic productivity (number of problems completed), percent correct answers	Self-monitoring attention, self-monitoring productivity, self-monitoring accuracy	A combined multiple schedule design and multiple baseline across participants	Results shown in graph Conclusions from authors: self-monitoring attention, productivity and/or accuracy does not show to differentially affect on-task behavior; self-monitoring increases productivity and/or accuracy; self-monitoring productivity and/or accuracy is more effective at increasing productivity and accuracy than self-monitoring attention; students prefer to self-monitor productivity and accuracy over attention
* 2011 McCallum, Krohn, Skinner, Hilton-Prillhart, Hopkins, Waller, & Polite	At Risk students from 2 high schools attending a summer program (n=115)	Correct answers in 10 comprehension questions	2 interventions: Ask, Read, Tell exercise (ART) ART + peer discussion	Group design using repeated MANOVA	Significantly higher scores found in the ART plus peer discussion group when compared to control and ART groups
* 2001 Mitchem & Young	3 classes of 7th grade language arts students plus 10 target at risk students (n=107)	On-task behavior Self- and peer recording of Social Skills (following directions and gaining teacher's attention appropriately) Teacher's procedural fidelity during implementation	Class-wide peer assisted self-management program (marking cards regarding self-behavior and peer behavior, reporting matches with peer and earning points, winning if points surpassed previous day's performance, and random selection of a student pair to match with teacher)	Multiple baseline across classes design was reported. However, a group design was used to compare against a control classroom and conditions described indicated that an ABCBDEC design was actually in place	On task increased from 1% to 62% during the first implementation of the intervention, fading of intervention components yielded scores of 83% of on-task behavior during the last condition of the study ("no prompts" or C) Teacher completed 98% of the procedural items correctly

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
* 2001 Mitchem, Young, West, & Benyo	3 classes of 7th grade language arts students plus 10 target at risk students (n=107)	On-task behavior Self- and peer recording of Social Skills (following directions and gaining teacher's attention appropriately)	Class-wide peer assisted self-management program (marking cards regarding self-behavior and peer behavior, reporting matches with peer and earning points, winning if points surpassed previous day's performance, and random selection of a student pair to match with teacher)	Multiple baseline across classes design	On-task improved from near 0.7% to almost 68.9% for the entire class, target students on-task increased from 35% to 80% (average) Instruction following went from 52% to 85%. Getting attention from teacher in appropriate way went from 47% to 85%
1977 Nelson, Hay, Hay, & Carstens	Elementary teachers (n=6)	Positive and negative verbal responses toward students, instructions to increase or decrease responses	Self-recording	ABAC design	Positive responses Baseline: 0.7 daily responses Self-recording: 6.05 daily responses Negative responses Baseline: 4.9 daily responses Self-recording: 1.1 daily responses Self-recording more effective at increasing positive responses than decreasing negative responses. Although some variability shown, self-monitoring plus instruction was more effective at increasing positive responses than self-recording alone
* 2006 Peterson, Young, Salzberg, West, & Hill	Middle school students (n=5)	4 Social skills behaviors (following directions, accepting "no" for answer, accepting feedback, appropriately getting teacher attention) Off task behaviors	Self-monitoring and student/teacher matching intervention (student and teacher agree on rating)	Multiple-probe across participants and settings	Increases in social skills and decrease in off-task behaviors observed in a variety of settings, shown in graphs, variable performance observed during baseline while relatively more stable performance observed during intervention

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
* 1999 Peterson, Young West, & Peterson	At risk 7th and 8th grade middle school students (n=29)	Meeting teacher expectations in a rubric (e.g., on time for class, greeted teacher, on-task, followed instruction, completed work, raised hand, accepted "no" for answer, accepted feedback	Social Skills Training and self-monitoring with teacher matching (student and teacher agree on rating)	AB Design (baseline data not collected)	Students behaved according to teacher expectations (rubric) in 96% of the classes while intervention was in place, in 6 different class settings
2006 Petscher & Bailey	Teacher aides (n=3)	Managing difficult behavior (tell student to remove point after an instance of disruptive behavior), delivering bonus points and praise, prompt appropriate behavior	Training (didactic), Prompting (pager vibrated to let staff know they needed to respond to client) plus self-monitoring, self-monitoring form (rating own behavior based on percentage of time displayed during a session), self-monitoring accuracy feedback	Moving-treatments multiple baseline across behaviors design	Results shown in graph All 3 staff: variable responses during baseline majority 0%, didactic training produced minimal positive effects (mostly below 50%), Prompting plus self-monitoring produced 100% of correct responses, self-monitoring produced 100% of correct responses except for one occasion (Teacher aide 3, Nicole) Accuracy of self-monitoring: 95%, 92%, and 90%, teacher aide 1, 2, and 3, respectively
2010 Plavnick, Ferreri, & Maupin	Special education staff (n=3)	Correctly implemented token economy components	Didactic training, post-training token economy implementation, self-monitoring checklist	Multiple baseline across participants design	Percentage of token economy steps implemented correctly across participants 0%, 70%, 45%, 84% (pre-training, training, implementation, self-monitoring, respectively)
1988 Richman, Riordan, Reiss, Pyles, & Bailey	Staff members in residential facilities for intellectually deficient clients divided in 2 groups (n=10)	On-schedule behavior (doing assigned activity based on posted schedule), on-task behavior (ex. Prompting a client, cleaning, etc.)	In service, self-monitoring, self-monitoring plus feedback	Multiple baseline across groups	Group 1: 50%, 50%, 80%, 94%(on-schedule baseline, in service, self-monitoring, self-monitoring plus feedback, respectively) 28%, 36%, 72%, 88% (on-task baseline, in service, self-monitoring, self-monitoring plus feedback, respectively) Group 2: 39%, 39%, 75%, 81% (on-schedule) 28%, 28%, 77%, 80% (on-task)

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
1985 Rumsey & Ballard	Elementary students with behavior difficulties (n=7)	On-task behavior Number of words written	Self-monitoring of work behaviors (cued with a signal on a Variable Interval schedule 1 to 5 min.) "say-do" correspondence training (individual session with staff to go over self-monitoring procedures for the following day)	Reversal design	Mean on-task behavior went from 38 to 66% during the first implementation of self-recording Mean on-task was 56% when self-monitoring was reinstated and went to 74% when the say-do training was put in place Number of words written was 48, 140, 60, 71, and 116 during baseline, self-recording, baseline, self-recording, and say-do training, respectively
* 1994 Seabaugh & Schumaker	Students in an alternative high school (n=11)	Number of self-instructional lessons in math, reading, and writing completed per day	Self-regulation training (behavior contracting, self-recording, self-monitoring, and self-reinforcement)	Multiple baseline design across students and conditions	Number of lessons completed per week during baseline ranged from 0 to 2.5 (mean of 0.86), increasing to a range of 8 to 31 (mean 21) during intervention Number of lessons completed per day during baseline ranged from 0 to 0.5 (mean of 0.17), increasing to a range of 1.6 to 6.2 (mean 4.2) during intervention
* 1999 Shimabukuro, Prater, Jenkins, & Edelen-Smith	6th and 7th grade male students with learning disabilities in a self-contained classroom (n=3)	On-task behavior (eyes on teacher or work, seating, asking relevant questions) Academic Percentage of academic productivity (relative to the number of items assigned) and accuracy	Self-monitoring of academic performance (accuracy and productivity) in reading comprehension, math, and writing	Multiple baseline design across conditions	Productivity in reading comprehension and math were on average 45% during baseline and reached 90% during intervention, 80% for writing during intervention Accuracy ranged from 47 to 57% for writing in baseline and 61 to 67% in math to a range of 71 to 89% during intervention. On-task behavior ranged from 30 to 60% during baseline and 75 to 100% during intervention

Self-Monitoring Literature Review (cont.)

Year Author(s)	Participants	Dependent Variable (s)	Independent Variable (s)	Design	Results
2009 Tiger, Fisher, & Bouxsein	19-year old with Asperger Syndrome (n=1)	Skin picking (closing thumb and other finger around any portion of the body, rubbing hands or fingers against skin, inserting finger in nose)	Awareness training, competing response training, 5-min therapist monitored (TM) DRO, 10-min TM DRO, self-monitored (SM) 15-min DRO, token economy, self-monitoring (client setting timer and giving tickets to himself)	ABABC design	Skin picking occurred on 56%, 0%, 39%, 0.2%, and 0.2% of intervals (baseline, TM 5-min DRO, baseline, TM 10-min DRO, SM 15-min DRO, respectively) Accuracy: Client implemented procedure with 91% accuracy
1979 Winett, Neale, & Grier	Families living in townhouses (n=71)	Daily household electricity consumption	Daily written feedback, self-monitoring	AB Group design	When compared to baseline Daily written feedback group: 13% reduction Self-monitoring group: 7% reduction
2000 Wolfe, Heron, & Goddard	9-year old male students with learning disabilities (n=4)	On-task behavior (eyes on teacher or work, academic talk) And number of words written in a 10 min. period	Self-monitoring (on-task behavior and words written) using a checklist when a signal went off (every 60 seconds) Changing criterion with public posting (teacher set daily goals, stars placed when criterion reached)	ABABAC design	Student 1: On task behavior was 16% during baseline, 72% during 1st intervention and 83% 2nd intervention, 98% during criterion change intervention Writing 12 words during baseline to 16 during 1st and 2nd interventions and 22 during criterion change Student 2 On task 37, 80%, 88%, and 90% Writing 28, 27, 49, 38 Student 3 On task 44, 98, 98, 95% Writing 39, 66, 48, 82 Student 4 On task 48, 78, 92, 97 Writing 28, 26, 22, 54

Note. * participants attended secondary school.

Appendix B

Secondary GC Studies

Year/ Authors	Participants	Dependent Variable (s)	Independent Variable (s)	Reinforcer (s)	Design	Results
1976 Alexander, Corbett, & Smigel	Experiment 1: Predelinquent male high school students (n=7) Experiment 2: Predelinquent female high school students (n=8)	Experiment 1: Teacher signature on attendance card Experiment 2: Minutes late from curfew's time	Experiment 1: Independent and interdependent GC Experiment 2: Independent and interdependent GC with response cost	Experiment 1: $1 lunch money daily Experiment 2: Regular curfew time (response cost 1-15 min late resulted in curfew the next night that was 15 min earlier than regular time)	Experiment 1: ABACAC design Experiment 2: ABAB design (A= independent GC with response cost; B= interdependent GC with response cost)	Experiment 1: Percentage of class attendance was 51% during baseline, 80% during independent GC, 57% during withdrawal, 94% during interdependent GC, 60% during withdrawal, and 94% during reintroduction of interdependent GC Experiment 2: minutes late went from a mean of 61 min (independent GC) to a mean of 12.2 min (interdependent GC), 55.2 min (back to independent GC), to 2.6 min (interdependent GC)
2009 Caldwell	7th and 8th grade students (n=7)	Student, teacher, parent scores in a behavior rating scale, number of school suspensions	Social skills training package that included independent, dependent, and interdependent GC (details unknown)	Unknown	Group design/ paired sample t-test	Behavior rating scale scores for negative behaviors from student, teacher and parent significantly decreased from pre to postintervention
2006 Christ & Christ	Students in 3 HS classrooms 10th biology (n=23) 9th English (n=27) 9th Science (n=32)	Active engagement Passive engagement Disruptive verbalization Teacher Correction of disruptive behavior Teacher directed instruction	Interdependent GC Automated feedback device- giving positive feedback and interrupted when undesirable behaviors observed	Free time	Concurrent multiple baseline design with reversals	Teacher correction of disruptive behavior declined Active Engagement improved Disruptive verbalizations decreased
2007 Coogan, Kehle, Bray, & Chafouleas	Middle school special ed. Male students (n=5)	Inappropriate behavior (e.g., touching, vocalizing, aggression, etc.)	Dependent and interdependent GC (chosen randomly) plus self-monitoring (use of pins on a board)	Randomly chosen every time the intervention was put into place. Free time, edibles (candy), tangibles (pencils, stickers, etc.)	ABAB design	Average percentage of disruptive intervals went from 31% during baseline to 4.98% during the first intervention, up to 23.78% during withdrawal, and down to 8.07% during intervention reimplementation

Secondary GC Studies (cont.)

Year/ Authors	Participants	Dependent Variable (s)	Independent Variable (s)	Reinforcer (s)	Design	Results
1993 Foley & Epstein	Junior high and middle school students with behavioral disorders (n=42)	7 school survival skills rated by teacher in a rubric (e.g., interpersonal skills, school rules, etc.)	Interdependent GC	Fast food coupons	Group design (ANCOVA)	Significant differences between experimental and control groups found in pretest "interest in school", "interpersonal skills", and "school rules"; posttest "interest in school" and "interpersonal skills"
2005 Hansen & Lignugaris/Kraft	9th grade (n=4) 8th grade (n=2) 7th grade (n=7) All ED self-contained during math class	Positive verbal interactions Negative verbal interactions	Dependent GC after social skills instruction, target students chosen randomly, not revealed to class	20 tangible, edible, natural rewards- $5 bill, soda or rest time	reversal design; ABAC B- social skills training C- GC GC faded using interval method – 3 days chosen randomly to play game, and random ration (rolling a die to see if reward was obtained for the day)	Positive verbal interactions tripled, negative verbal interactions decreased from 0.15 to 0.03 per minute during GC, negative verbal interactions did not show a decrease during social skills training
1986 Lew, Mesch, Johnson, & Johnson	6th grade at risk students in reading class (n=4)	Achievement (80% in vocab quiz), interpersonal attraction (amount of interaction and survey) and collaborative skills (sharing ideas, keeping group on-task, asking questions, praising, and checking that others understood)	Positive Goal Interdependence (PGI) student believes he can achieve goals only if others in group achieve them; GC/ Positive Reward Interdependence (PRI) each student receives same reward for completing a joint task Academic GC Academic and collaborative skills GC	2 bonus points in quiz grade if all score 80% or higher; 2 bonus points if each member observed engaging in collaborative skills	ABCDCA design, repeated measures ANOVA and t-test used for analysis	Academic and collaborative-skills GC intervention increased achievement

Secondary GC Studies (cont.)

Year/ Authors	Participants	Dependent Variable (s)	Independent Variable (s)	Reinforcer (s)	Design	Results
1996 Lloyd, Eberhardt, & Drake	Experiment 1: 8th through 11th grade students in Spanish (n=27) Experiment 2: 8th through 11th grade students in Spanish (n=17)	Experiment 1 and 2: number of words translated correctly from Spanish to English	Experiment 1: Independent GC Experiment 2: Independent and dependent GC	Experiment 1 and 2: tangibles (candy, pencil, eraser), social recognition (stand for a cheer, gold star on board)	Experiment 1: ABAB design Experiment 2: ABCBC design A= students study independently with no GC B= students study in groups, independent GC C= students study in groups, dependent GC	Experiment 1: words translated correctly 70% during baseline, 87% during intervention, 68% during withdrawal, 83% during reintroduction of intervention Experiment 2: words translated correctly 67% during baseline to during independent GC, to 91% during dependent GC, back to 81% during independent GC, to 90% during the second dependent GC
1997 Malone & McLaughlin	7th students (n=20) 8th students (n=12) In parochial private school	Vocabulary words in quiz	Reciprocal peer tutoring (RPT) with interdependent GC (tutor, tutee pair must score 90% or above in quiz)	3 scores at 90% or above from tutor/tutee pair equaled one homework pass	Counter-balanced time series design (ABAB for one group and BABA for 2nd group)	Quiz scores improved when compared to baseline (traditional vocabulary teaching method). Friedman ANOVA used by condition and grade level, significant difference was found Follow up tests using Wilcoxon Signed Rank Test found significant differences between traditional method vs. RPT+GC
1988 Mesch, Johnson, & Johnson	10th grade students (n=28) in social studies (not a single subject study; control group were 10th grade students also in social studies class; n=26)	Score in quiz	Positive goal interdependence, and academic independent and interdependent GC	Bonus points for quiz	ABCBCA design, repeated measures ANOVA used for analysis for experimental group and t-test to compare experimental vs. Control group	Academic independent and interdependent GC shown effective when paired with positive goal interdependence

Secondary GC Studies (cont.)

Year/ Authors	Participants	Dependent Variable (s)	Independent Variable (s)	Reinforcer (s)	Design	Results
1986 Mesch, Lew, Johnson, & Johnson	8th grade at risk students in foreign language and math class (n=5)	4 variables: (1) 80% in test, (2) social skills (sharing ideas, directing group by asking questions, praising, checking that others understood), (3) survey from peers, (4) self-survey	Cooperative learning (students working in groups) and interdependent GC	Bonus points toward test grades	ABCA/ ABCBDA Design, repeated measure ANOVA used to analyze data	Academic scores and social skills statements increased in the academic GC and academic plus social GC
1982 Nevin, Johnson, & Johnson	Study 2: 7th grade students (n=11) Study 3: 9th grade handicapped students (n=5)	Study 2: Correct accuracy multiplication and division, "good study behaviors" (on-task) Study 3: rate of accuracy of math work, peer ratings, social interactions, performance in social studies (teacher rating)	Study 2: Independent and interdependent GC, students divided in teams, teams rearranged every other day Study 3: Independent and interdependent GC plus response cost	Study 2: Free activities once per week Study 3: Tokens exchanged for points	Study 2: Multiple baseline and ABA Design (A= independent GC, B= interdependent GC) Study 3: ABAB for some variables, AB for other variables	Study 2: Students math problems went from 0% to 100% accuracy by the 9th day of multiplication GC and 4th day of division GC. On task increased from 55% to 70% Study 3: Rate of math work per class went from 10 (A=independent GC) to 42 (B= interdependent GC), to 14 (A) to 155 (B). Negative peer ratings from 124 to 43, positive ratings from 84 to 92, grades went up (e.g., from F to C, from B to B+, from D+ to C)
1978 Page & Edwards	6th to 8th grade middle high students (n=52)	Disruptive behavior (out of seat, talking out, etc.)	Independent and interdependent GC	Free time: library, drawing, playing with calculator, read, talk quietly, listen to music (last 15 min of class)	Multiple baseline design (ABC)	Mean of disruptive behavior for all students was 54% during baseline, 36% during independent GC, and 34% during interdependent GC

Secondary GC Studies (cont.)

Year/ Authors	Participants	Dependent Variable (s)	Independent Variable (s)	Reinforcer (s)	Design	Results
1986 Phillips & Christie	"Slow learning and disruptive" Middle school students in the United Kingdom (n=28)	Off task/ disruptive behaviors	Dependent GC- "the game", students divided into teams	Points exchanged for free time (break from work)	AB design	Data from the target student in this study showed a decrease in off-task behaviors from a mean of 23 to one after three weeks of intervention implementation
2003 Popkin & Skinner	Middle school self-contained SED students (n=6)	Spelling, math, and English daily assignments and quizzes	Interdependent GC with randomly selected components: randomly selected criterion (90% class average), randomly selected subject (English, math or spelling), randomly selected group reward	Computer games, group game, edibles (drinks, fruit, water), novelty toys, card game with staff, movie	A modified multiple baseline across behaviors (first target behavior was spelling, other target behaviors such as math and English were added rather than replaced)	Class accuracy Spelling: baseline 62%, intervention 96% Math: baseline 66%, intervention 86% English: baseline 85%, intervention 93% Spelling increased more consistently, math and English had more modest increases but less variability after intervention, grades improved more significantly: from D/ F to A
2010 Schanding & Sterling-Turner	10th students in biology plus 3 at risk students in class (n=30)	Problematic behaviors: Off task, out of seat, inappropriate vocalizations	Interdependent GC "mystery motivator"	Candy, homework passes, participation points, free day, replacing grade, having class outside, movie, teacher for a day, bonus points, games, pizza party/ cookout	Reversal design	Intervention reduced overall problematic behaviors in class and also reduced behaviors by an average of 40% in the 3 targeted students
2004 Theodore, Bray, & Kehle	Male "seriously emotionally disturbed" students in self-contained classroom (n=3)	Disruptive behavior (obscene words, not following directions, talking to students, inappropriate comments, looking away from teacher or work)	Independent, interdependent, and dependent GC (only one with randomized reinforcers)	Late to class pass, free detention pass, soda, candy, chips	Alternating treatment design (random order), effect sizes calculated	All three GC reduced disruptive behavior in all students. Two students had slightly higher response to dependent GC, last student had higher response with independent GC

Secondary GC Studies (cont.)

Year/ Authors	Participants	Dependent Variable (s)	Independent Variable (s)	Reinforcer (s)	Design	Results
2001 Theodore, Bray, Kehle, & Jenson	"Seriously emotionally disturbed" White students (n=5)	Disruptive behavior (failure to follow directions, obscene words, touching or talking to peers during work time, off topic comments, loud music from earphones)	Randomizing contingencies for reinforcement (interdependent: whole group, high, low, or average performance; unknown dependent (randomly selected student) and reinforcers	Soda, chips, $2 toward breakfast on Friday, candy bars, one late pass, one free detention pass- all suggested by teacher	Reversal design	Effect size calculated, disruptive behavior decreased
2006 Vidoni & Ward	6th grade randomly chosen students in 3 PE classes (n=6)	Supportive and nonsupportive volleyball game behaviors (high fives, praise, thumbs up, pushing, profanity)	Dependent GC with "mystery" (unknown to the class) student chosen	"mystery" tangibles (randomly selected tangibles from key chains, sport figurines, pencils, pins)	Multiple baseline across participants	Supportive physical behaviors went from a rate of 0.01 per min during baseline to 1.03 during intervention and .10 during follow-up. Supportive verbal went from a mean rate of 0.01 per min during baseline to 6 per min during intervention, and .39 per min during follow-up
1984 Waltzer	Junior high students (n=8)	Attendance (partial and full day) Teacher interviews	Interdependent GC plus role-play and group discussion	Edibles (soda, chips), long term reward of picnic and roller skating	AB design	Group average attendance of 3.6 days per 5-day week during baseline and 4.5 days per 5-day week during intervention. Follow-up showed group average attendance of 4.2 days per week

Secondary GC Studies (cont.)

Year/ Authors	Participants	Dependent Variable (s)	Independent Variable (s)	Reinforcer (s)	Design	Results
2009 Williamson, Campbell-Whatley, & Lo	African American Special education students in 10th English (n=6)	Off-task behaviors during independent seat work	Random GC intervention (independent, dependent, interdependent; "target" student is unknown)	Group voted prior to class to get: Homework pass, bonus points, extra free time	Reversal	Off-task behavior decreased three out of six students (possible reasons for limited success as reported by authors: end of school year, teacher recording behavior and implementing IV, response maintenance, majority voted for a less interesting reinforcer for a particular student, etc.)

Appendix C

Blank Independent Reading Log

Date	Title Author	**Pages From ___ to ___**	**Response Guides:** I'm wondering about _____. I think that . . . I remember a time _____. This tells me . . . I feel sorry for _____ because . . . I think _____ will happen because . . .
			Stop 1: Stop 2: End:
			Stop 1: Stop 2: End:

Appendix D

Examples of Completed Independent Reading Logs

Date	Title Author	**Pages From ___ to ___**	**Response Guides:** I'm wondering about _____. I think that . . . I remember a time _____. This tells me . . . I feel sorry for _____ because . . . I think _____ will happen because . . .
3/10/11	"Lesson Learned"	100-127	Stop 1: I feel sorry that Luke is not being successful at his attempts to seek girls because his friends seem to have better luck with girls. Stop 2: I'm wondering about Kate and what she thinks about Luke. I think that she thinks that Luke may be out of his mind because he has the tendency to be pessimistic and claim that he is ruining everything. End: I think that Luke is jealous of Kate because his parents took her in. I think Luke will try to do something to make Kate go.
Date	Title Author	**Pages From ___ to ___**	**Response Guides:** I'm wondering about _____. I think that . . . I remember a time _____. This tells me . . . I feel sorry for _____ because . . . I think _____ will happen because . . .
3/11/11	"My life"	24-78	Stop 1: I'm wondering if Steve is innocent. I think that he is because he kept saying how he wanted nothing to do with their plans. I don't think he was the lookout. Stop 2: I remember a time when some girl kept trying to talk to me even though I was dating M****. This shows me that his girlfriend is going to get really mad when she finds out. End: I think his girlfriend is going to be very upset and decide to break up with him because he does not act like he cares about her feelings and keeps flirting with other girls while his girlfriend watches from inside the room.

Appendix E

Behavior Data Sheet

Period	Class Activity % of time spent in class:				Observer	Date	Time observation started
2 3 6	LG	SG	IA	T			

Observation Type				Reliability	Reliability Score
Baseline ⦙ Interv A ⦙	Interv B ⦙	Reversal ⦙		Y ⦙ N ☐	%

Each Cell code as
 += Active Responding= Reading Aloud, Writing (task related), Silent Reading (if tracking text and turning pages at a rate of one page every 2 min), answering Q's or Academic Talk
 - = Not Active Responding = Listening, Looking, Off-Task Behaviors (including disruptive)
/ = Unable to observe (e.g., absent, left the classroom, unable to see)

Directions: At every 30 sec interval observe each student for 2 s and record "+", "-", or "/"", then move to next student, observe for 2 s and record. Observe students in the same order (if reliability quietly announce "1" then "2" then "3" etc to announce which student to observe. Observations should be 15 min long, student must be observed for 12 min in order to be counted.

Activity → (LG, SG, IA, T)		1'		2'		3'		4'		5'		6'		7'		8'		9'		10'		11'		12'		13'		14'		15'	Total	%
Student 1																																	
Student 2																																	
Student 3																																	

Check if:
⦙ √ Sticky notes/ visualization prompts used at any time during class
⦙ √ Group contingency/ tickets used at any time during class
⦙ √ Indep. Reading log used at any time during class

Class Activity codes
LG= Large Group (teacher led)
SG= Small group (teacher led)
IA= Individual/ independent work
T = Transition

Primary Observer:

Secondary Observer

Comments:

Class Mean

Appendix F

Teacher Consumer Satisfaction Questionnaire

Date completed: _____

	No Familiarity			High Familiarity	
How familiar were you with the components of this intervention (group contingency plus self-monitoring) before using it in your classroom?	1	2	3	4	5
How familiar are you now with the components of this intervention?	1	2	3	4	5

	Unacceptable			Acceptable	
How satisfied are you with the training you received?	1	2	3	4	5
How satisfied are you with support you received?	1	2	3	4	5

	Very Hard			Very Easy	
To what extent was this intervention easy to implement?	1	2	3	4	5
To what extent were the procedures easy to learn?	1	2	3	4	5

	A Lot of Time			Very Little Time
Amount of time required to use the intervention:				

A) Amount of preparation time: 1   2   3   4   5

B) Amount of time during
   instruction:
                            1   2   3   4   5

C) Amount of time
   delivering rewards: 1   2   3   4   5

	Not very effective			Very Effective
How effective do you feel the intervention was?	1 2	3	4	5

	Very Little			Very Frequently
To what extent did the students increase their on-task behavior during the intervention?	1 2	3	4	5
To what extent did the students work completion improve?	1 2	3	4	5

	Very Little			Very Frequently
To what extent did the students reading skills improve?	1 2	3	4	5

	Strongly Disliked			Liked Very Much	
To what extent did you like the intervention?	1	2	3	4	5

	Very Unlikely			Very Likely	
How likely are you to use this intervention with future classes?	1	2	3	4	5
How likely are you to recommend this intervention to a colleague?	1	2	3	4	5

Feedback:

Please list what you liked about this intervention:

_____

_____

_____

Please list what you did not like about it:

_____

_____

_____

Suggestions on how to improve or other comments:

_____

_____

_____

Appendix G

Student Satisfaction Questionnaire

Name: _____   Date: _____

1. I liked earning tickets in my classroom.

    Yes/ A lot   Okay/Alright   No/ Not at all

2. I liked the self-monitoring strategy used during the 6-minute intervals in the reading logs.

    Yes/ A lot   Okay/Alright   No/ Not at all

3. It was easy to learn the rules in order to earn tickets.

    Yes/ A lot   Okay/Alright   No/ Not at all

4. It was easy to do what I needed to do in order to earn tickets and rewards.

    Yes/ A lot   Okay/Alright   No/ Not at all

5. I liked earning rewards/ prizes.

    Yes/ A lot   Okay/Alright   No/ Not at all

6. I felt motivated to stay on-task.

    Yes/ A lot   Okay/Alright   No/ Not at all

7. I felt motivated to complete my work.

    Yes/ A lot   Okay/Alright   No/ Not at all

8. I felt motivated to improve my reading skills.

        Yes/ A lot   Okay/Alright   No/ Not at all

9. I followed directions more when tickets were awarded.

        Yes/ A lot   Okay/Alright   No/ Not at all

10. I stayed on-task more when tickets were awarded.

        Yes/ A lot   Okay/Alright   No/ Not at all

11. I completed my work more when tickets were awarded.

        Yes/ A lot   Okay/Alright   No/ Not at all

12. I increased my writing when the self-monitoring strategy ("stop 1", "stop 2", "end") during the 6-minute intervals was used in my reading logs.

        Yes/ A lot   Okay/Alright   No/ Not at all

Appendix H

Semi-structured Teacher Interview

1. What are your current concerns in class?

2. Are the current concerns observed in most students, some, or a few?

3. What is the course content and materials?

4. What type of instructional strategies are you currently using?

5. What is the typical format for your class (e.g., large or small group, independent work)?

6. What are the most common assignments the students have to complete?

7. Can you please explain what students need to do to complete specific worksheets (e.g., explain the reading log in detail)?

8. How is the final grade determined?

9. Do you have any questions for me?

10. Any other issues that I have not specified and that you would like to discuss?

Appendix I

Weekly Ticket sheet

Student Name: _____ Period: _____ Week starting on: _____

Expectation	Day 1	Day 2	Day 3	Day 4
I grabbed my **binder** and filled out my **planner** the first 3 minutes in class. **1X=1 ticket**				
I completed **notes** during the first half of the class (including sticky notes) **1 X= 1 ticket**				
I completed **notes** during the second half of the class (including sticky notes) **1 X= 1 ticket**				
I completed a **reading log row** while in class (read for 20 minutes, used reading strategy) **1 X= 1 ticket**				
I turned in a **completed reading log.** **1 X = 2 tickets**				

Awards:
5 tickets = small prize
10 tickets = medium prize
12 tickets = large prize

Appendix J

List of Reinforcers

Small prize:

Bag of chips
       Doritos
       Cheetos
       Potato Chips

Drink bottle
       Gatorade (different flavors)
       Kool-Aid (different flavors)

Candy
       Snickers
       Milky Way
       Twix
       Laffy Taffy

Medium prize:

Two different small reinforcers

Large prize:

Three different small reinforcers
Coupon for fast-food restaurant
       Wendy's
       McDonalds
       Taco Bell

Appendix K

Classwide Intervention: Written Information Provided to Teacher

Rationale & Purpose
Group contingencies, differential reinforcement, and self-management strategies are reported in the literature some of the most effective strategies for improving students' academic responding and task completion behaviors while reducing classroom disruptions (e.g., Stage & Quiroz, 1998). In addition to improving students' engagement, teachers agree that improvements in academic performance and productivity are equally as important to school success. Yet many high school students have a history of failing and/or poor grades. They need Tier II interventions through more targeted instruction. Evidence based practices include metacognitive strategies such as: self-monitoring, and visualization, as well as specific instructional guidance. Allen (2000) identified effective strategies such as: teaching summarizing, self-questioning, and self-monitoring.

The presenting problems in your Tier II high school literacy classes are both off task behaviors and incomplete assignments. You have expressed interest in improving student performance, particularly during independent reading time. The goal of the study is to address your students' active responding (e.g., reading silently or aloud, writing, answering/asking questions about the assignment). Active responding is a known correlative behavior to improved learning. A second goal is to improve assignment completion, as in other Tier II-level remedial reading classes that target comprehension. Improving reading and comprehension of written materials sets the stage for improved grades and high school success.

Baseline:
Business as usual with components of evidence-based interventions you are currently using that are embedded into classroom routines (e.g., discussion on how to make inferences in a group format, completion of reading logs, etc.)

Intervention (composed of two components that are implemented simultaneously):

Component A: Class-wide Group Contingency procedures:

Students earn points for 5 behaviors in class. The students mark one point for each behavior (self-monitoring) in the Weekly Ticket Sheet and you (teacher) confirms agreement for the point and awards a ticket (can be done during or at the end of the class period). The five target behaviors are:

1. Student collects binder and fills out planner within the first few minutes of class.

2. Student completes notes in the first half of class (can use sticky notes).

3. Student completes notes in second half of class (can use sticky notes).

4. Student reads for 20 minutes during independent silent reading and completes the reading log row.

5. Student gives you (teacher) the completed weekly reading log (you verify points, award tickets and give prizes if student has enough tickets).

Component B: Self-monitoring of Reading Logs

Students use self-monitoring/ self-management and visualization strategies.

1. Students use the new and modified reading logs to write information about the story passages. During independent reading, students complete one row of the new reading log.

2. After a silent timer vibrates, students write in one of the reading log sections: "Stop time 1", "Stop time 2", or "End" during independent work time. The silent timer is set to vibrate every 6 minutes for a total of 3 times (18 minutes).

3. Students give themselves a point in the Weekly Ticket Sheet for completing a reading log row (# 4 above).

4. Students give themselves a point in the Weekly Ticket Sheet for turning in the completed weekly reading log at the end of the week (# 5 above).

Dependent Measures:
Active Responding – Reading aloud, silent reading, writing, academic talk/asking and answering questions about reading.

Reading Logs: Total words written in Reading logs; Rubric score given to reading log.

Assignment completion: Points earned as shown in the school's online data warehouse.

Experimental Design:
ABAB design in each of the three class periods.

Conditions:
Baseline is implemented using 'business as usual' instruction and materials, researcher collects data.

Intervention (two components described above) is implemented after teacher and students receive training, data collection continues, intervention is in place for several weeks.

Withdrawal of intervention: using original reading log sheets and removal of points/tickets/weekly ticket sheet (and incentives), and timers. Withdrawal of intervention lasts approximately one week. Collection of data continues.

Reinstate the intervention: intervention implemented again (same components as first intervention condition), collection of data continues.

Appendix L

Student Training Script

"Class-wide Ticket System + Self-monitoring"

We are going to use a new program in this class called the "Class-wide Tickets + Self-Monitoring Program".

The goal of the program is to help students become more responsible for their engagement in class and to increase completion of assignments. A second goal is to teach "cooperative team spirit". We want to encourage everyone to improve their performance.
Three parts of the program: 1) Tickets & points, 2) self-monitoring of reading logs, and 3) rewards/lottery game.

Part 1: Tickets and points
A main goal of the program is to help students become more responsible for staying engaged and to complete assignments.

<u>In this class here are 5 key responsibilities:</u>
6. collecting binder and filling in planner within 1st 3 minutes of class,

7. completing notes in 1st half of class (using sticky notes),

8. completing notes in 2nd half of class (using sticky notes),

9. reading for 20 minutes and completing reading log row using one strategy,

10. turning in the completed reading log. Tickets are exchanged for rewards.

<u>Weekly Ticket Sheet (SHOW A BLANK TICKET SHEET):</u>
Every student will earn one point for each of these 5 behaviors in class. You are going to 'self-monitor' your own behavior. That means you will mark one point in each box by each of the 5 behaviors during each class.
Part of being responsible is being accurate in your monitoring. I will help you by confirming your points. IF I AGREE THAT YOU COMPLETED EACH BEHAVIOR, I WILL TRADE THOSE POINTS FOR A TICKET.
One point = one ticket. I will do this sometimes during class at the end of each assignment, OR at the end of the class period.
Here is an example of a weekly ticket sheet that is completed. <u>SHOW A COMPLETED WEEKLY TICKET SHEET</u>

Part 2 is "Self-monitoring of Reading Logs"
Self-monitoring means that students keep track of their own behavior. This is a like dieting, when people keep track of their calories. Or another example is an athlete building endurance for long distance running who keeps track of his time for runs each work out.
In our class students will use self-monitoring and visualization sticky notes to help improve your Reading Logs.

Weekly Reading Log (SHOW BLANK FORM)
See the change to your weekly reading log.
1) I added more space so you are allowed to 1) write more words and 2) put your sticky notes on the logs.

2) Also, note that the sentence starters are the same:

"I'm wondering about _____. I think that….
I remember a time _____. This tells me …
I feel sorry for _____ because …..
I think _____ will happen because……

3) See something new – "Stop time 1" and Stop time 2"
We will use silent timers (regular timer for now) that will remind you to write in your logs. The timer will sound/vibrate every 6 minutes. If you are reading, this reminds you to write a few words on the sticky note to help you write in the log.

Students write at Stop time 1 and Stop time 2 during independent work time.
Remember, you will still receive grades (up to 5 points for each reading log row) completed to meet our standards.
SHOW COMPLETED LOG SHEET WITH GOOD EXAMPLES FROM 2 STORIES…..

4) At the end of the Reading Log/Silent reading time, finish up the logs and give yourself a point for completing a reading log row (remember that is one of the 5 key responsibilities).

5) When you turn in your Reading Log, give yourself another point on the Weekly Ticket Sheet.

Rewards & Lottery
The points/tickets earned can be turned in for rewards.
Incentives are rewards to help people meet their goals.
People use incentives because it is hard to change old habits (maybe not turning in assignments or fooling around instead of getting work done).
It helps make learning fun, and students do the right thing.
Rewards are used at first, then after a while students can show improved responsible behaviors with only occasional incentives.

1) In this class you will earn small rewards for tickets:

5 tickets will earn a small reward
10 tickets will earn a medium reward
12 tickets will earn a large reward

2) In this class you can also turn in tickets for a lottery drawing for large rewards.

EXPLAIN THIS LOTTERY SYSTEM.
3) Show REWARD CHART with examples of prizes

Appendix M

Procedural Fidelity Checklist

Observer: _____

Date: _____

Procedures

1. Target student behaviors are visually displayed (on board and binders) for students to see	Yes	No

2. Rules for earning points were followed, students gave themselves:
 	
    a. Point for planner/ binder
    b. Point for notes during first half of class
    c. Point for notes during second half of class
    d. Point for Reading Log row
    e. Point for complete Reading Log
	
	Yes
	Yes
	Yes
	Yes
	Yes
		
		No
		No
		No
		No
		No

3. Points are displayed in ticket sheet for students to see progress	Yes	No
4. Points are tallied and student verifies accuracy with teacher	Yes	No
5. Reinforcers are delivered if sufficient tickets are earned	Yes	No
6. Students use timer to self-monitor writing at 6-min interval	Yes	No
7. Students use visualization notes to self-monitor writing in reading log	Yes	No

Number of "yes"=

Total number scored=

Number of "yes" divided by total=