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THE EFFECTS OF PEER-MEDIATED CHECK-IN, CHECK-OUT WITH A SELF-MONITORING COMPONENT ON DISRUPTIVE BEHAVIOR AND APPROPRIATE ENGAGEMENT IN THE CLASSROOM

by

Chandler Erin McLemore

A Dissertation
Submitted to the Graduate School and the Department of Psychology at The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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August 2016
ABSTRACT

THE EFFECTS OF PEER-MEDIATED CHECK-IN, CHECK-OUT WITH A SELF-MONITORING COMPONENT ON DISRUPTIVE BEHAVIOR AND APPROPRIATE ENGAGEMENT IN THE CLASSROOM

by Chandler Erin McLemore

August 2016

Check-In/Check-Out (CICO) is a commonly used Tier II behavioral intervention within public school settings. The present study evaluated the use of an alternative method of service delivery for CICO that included peers as interventionists. Self-monitoring was an additional intervention component, utilized in order to reduce teacher response effort associated with intervention implementation. Three target student/peer interventionist dyads served as participants (one elementary school dyad, one middle school dyad, and one high school dyad). Direct observation data were collected, and the effects of peer-mediated CICO were evaluated with an ABAB design. Social validity measures were also completed by each teacher as well as each participant. Overall, results revealed peer-mediated CICO with self-monitoring to be effective at reducing disruptive behavior in the classroom and increasing academically engaged behavior. With one exception, all teachers and students rated the intervention as socially valid. Limitations and implications for research and practice are discussed.
ACKNOWLEDGMENTS

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CHAPTER I – INTRODUCTION

Problem behaviors include actions that have a negative impact on an individual, on others, or are inappropriate in a given context. In a classroom setting, problem behaviors may include aggression, non-compliance, and social excesses or deficits (Langone & Glickman, 2002). The hallmark of a classroom problem behavior is that it impedes classroom functioning, not only for the student engaging in the problem behavior but often for other children as well. When a child engages in problem behaviors, this may disrupt the classroom and can take away instruction time (Carr, Taylor, & Robinson, 1991). This loss of instruction time may impair individuals’ learning and overall academic achievement in the classroom.

One way of addressing problem behaviors in schools is through the use of School-Wide Positive Behavior Intervention and Supports (SW-PBIS). SW-PBIS is a systematic way of attending to students’ behavioral needs across all school settings (e.g., classroom, non-instructional settings). SW-PBIS is a continuum of supports that is designed to reduce problem behavior through a three-tiered approach, with each tier representing a different level of support (Lassen, Steele, & Sailor, 2006; Office of Special Education Programs [OSEP] Center on Positive Behavioral Support, 2002; Scott, 2001; Sugai & Horner, 2008; Warren et al., 2006). SW-PBIS, when implemented with integrity, provides students with structured classrooms by having clear expectations, a high ratio of positive attention to negative attention, and school-wide acknowledgment (e.g., verbal praise, token reinforcement) for appropriate behavior (Warren et al., 2006).

Supports at Tier I include clear behavioral expectations, acknowledgement of positive behavior, and a clear set of consequences for inappropriate behavior. Tier I
interventions are designed to target all students within a school. However, some individuals do not respond to Tier I efforts. For those individuals (i.e., approximately 10-20% of students; Hawken, 2006; McCurdy, Kunsch, & Reibstein, 2007; OSEP Center on Positive Behavioral Support, 2002; Sherrod, Getch, & Ziomek-Daigle, 2009), Tier II interventions may be implemented, which consist of more targeted interventions for students at-risk for problem behaviors or academic failure. Tier II interventions are believed to prevent negative effects for 5% to 15% of the total population of students (Hawken, 2006; Mitchell, Stormont, & Gage, 2011). Tier III interventions are for students who fail to respond to Tier I and Tier II. These individuals are at a high risk of having academic or behavioral problems within a school setting (OSEP Center of Positive Behavioral Support, 2002; Sugai & Horner, 2002; Sugai & Horner, 2008). Tier III supports may include the use of a functional behavior assessment which is used to develop an individualized positive behavior support plan.

The focus of this study is on one Tier II intervention that has been commonly implemented in SW-PBIS (Mitchell et al., 2011; Todd, Campbell, Meyer, & Horner, 2008), Check-In/Check-Out (CICO; sometimes referred to as the Behavior Education Program [BEP]; Hawken, Pettersson, Mootz, & Anderson, 2007). According to Mitchell et al. (2011), CICO consists of the following components: a daily check-in with a mentor, feedback provided at regular intervals throughout the day, a daily check-out with a mentor, data collection with progress monitoring, and parental feedback. There is evidence to support CICO as effective at reducing the number of office discipline referrals (ODR’s; Filter et al., 2007; Hawken, 2006; Hawken, MacLeod, & Rawlings, 2007; March & Horner, 2002; Mong, Johnson, & Mong, 2011). In addition, there is
evidence to suggest that CICO can reduce the incidence of problem behaviors (e.g., Fairbanks, Sugai, Guardino, & Lathrop, 2007; Mitchell et al., 2011; Todd et al., 2008) as well as increase display of appropriate behavior in classrooms as evidenced by direct observations (Campbell & Anderson, 2011; Fairbanks et al., 2007; Hawken & Horner, 2003; McCurdy et al., 2007; Todd et al., 2008).

CICO utilizes a Daily Behavior Report Card (DBRC), as well as regular feedback, positive acknowledgement for appropriate behavior, and a tangible reinforcer for meeting a daily goal (Hawken & Horner, 2003; Todd et al., 2008). Similar components were used for the treatment package in the current study with slight modifications. Rather than adults serving as CICO mentors, student interventionists served as mentors, and target students monitored their own behavior instead of having a teacher rate the student’s behavior on the DBRC. The reinforcement component was similar to those utilized in previous CICO studies (e.g., Miller, Dufrene, Sterling, Olmi, & Bachmeyer, 2015b).

The following literature review focuses on CICO studies that have included direct observation of students’ disruptive and/or appropriate behaviors. Additionally, this review of the literature includes a review of the relevant peer-mediated interventions and self-monitoring literatures as those procedures are integral components of this study.

Review of the Literature

A preliminary study which focused on the evaluation of CICO was conducted by Hawken and Horner (2003). They evaluated the effects of CICO on both problem behavior and academic engagement in the classroom for four students (enrolled in both regular education and special education classes; students’ special education categories were not provided), ages 12 and 13, in a multiple baseline across participants design.
Both problem behavior and academically engaged behavior (AEB) were measured via direct observations within a target classroom. Implementation of CICO resulted in reductions of mean level and a reduction of variability of problem behavior for each of the participants. In addition, CICO was associated with increases in mean levels of AEB for each of the participants. Three of the four participants had a decrease in variability of AEB during implementation of CICO, and two of the four participants had increasing trends in AEB at the completion of the study. In addition, teachers reported that CICO was, “worth the time and effort” and indicated that they would, “recommend this intervention to others” (Hawken & Horner, 2003).

Another study conducted by Todd and colleagues (2008) tested the effects of CICO on reducing problem behavior in four elementary aged boys. Three of the four boys were enrolled in general education classrooms, and one was receiving special education services (disability category not reported). Across all conditions, direct observation data were collected as well as Office Discipline Referral (ODR) data. Results demonstrated a reduction in level of problem behavior upon implementation of the CICO intervention. In addition, there was a reduction in rate of ODR’s per day for three of the four participants. Therefore, it was determined, at least for these participants, that the implementation of CICO was functionally related to a reduction in problem behaviors (Todd et al., 2008).

In another study, Fairbanks et al. (2007) evaluated whether implementation of CICO would result in reductions in problem behavior, office discipline referrals, and teacher perception of problem behavior. Study 1 took place at a suburban elementary school that had been implementing PBIS. Ten children enrolled in two regular-
education, second grade classrooms served as participants. The primary dependent measure was the percentage of intervals in which problem behavior occurred during direct observations. In addition, teacher perception of behavior was assessed four times via rating scales (once prior to the intervention implementation, twice during the implementation, and once after the completion of the study). Rate of office discipline referrals was also a variable of interest. Results indicated reductions in problem behavior for four of the ten students during the implementation of CICO. For these four students, the reductions in problem behavior were maintained throughout the duration of the study. Teacher ratings of intensity of behavior were also lower during CICO implementation. Finally, the rate of ODR’s was lower during the CICO implementation phases relative to baseline (Fairbanks et al., 2007).

An additional study evaluated CICO in an ABAB design to reduce problem behavior and increase AEB (Campbell & Anderson, 2011). Participants consisted of three male students, two ages 7 and one age 10, enrolled in general education classrooms in a suburban school that had been implementing SW-PBIS for 5 years prior to the study. Disruptive behavior and AEB data were collected 4 to 5 days per week via direct observations. Results demonstrated a functional relationship between the implementation of CICO and a reduction in disruptive behavior for all 3 participants; a functional relationship also existed between the implementation of CICO and increases in AEB for two of the three participants (Campbell & Anderson, 2011).

In a similar study, Miller et al. (2015b) utilized direct observation data to evaluate CICO for reducing three elementary students’ problem behavior and increasing academic engagement in an ABAB withdrawal design. Additionally, Miller et al. (2015b)
systematically thinned the schedule of reinforcement following successful CICO implementation. Specifically, after the conclusion of the second intervention phase, a mystery motivator was used to deliver the reinforcer intermittently. Moreover, for one student, the teacher completed DBRC was replaced with self-monitoring. Results demonstrated that the use of CICO was effective at decreasing problem behavior and increasing academic engagement for all three students. Finally, thinning the reinforcement schedule via the Mystery Motivator maintained behavioral gains for two of the three students. In addition, the one student that experienced self-monitoring as a replacement for the DBRC maintained intervention gains observed during full CICO implementation.

In another study, Mong et al. (2011) sought to evaluate the effectiveness of CICO on decreasing problem behaviors and increasing math performance in a multiple baseline across participants design with four students enrolled in regular education classrooms (8 years of age). These students were selected for participation based upon high rates of disruptive classroom behavior that was hypothesized as being maintained by access to attention and having at least 5 ODR’s within a single month. Dependent measures included: percentage of intervals with problem behavior, ODR data, percentage of points on the DBRC, and digits correct per minute on math worksheets. Results demonstrated slight reductions in problem behavior during the CICO intervention (more immediate changes in level for two of the participants and more gradual reductions in level for the other two participants). In addition, there was an overall reduction in ODR’s but minimal changes in math performance.
In addition to individual studies testing the effects of CICO, two recent systematic reviews have evaluated the body of literature testing CICO (Maggin, Zurheide, Pickett, & Baillie, 2015; Wolfe et al., 2016). These reviews explored the effectiveness of CICO as a Tier II behavioral support, incorporating both single case design studies as well as group designs. Both reviews contend that CICO may be considered an evidence-based treatment for school children whose problem behavior is maintained by attention. In addition, single case research tended to show more robust effects, whereas group designs had mixed findings. The most common method of collecting data within the CICO literature was direct observations, but office discipline referral data (ODRs) as well as ratings on the students’ daily behavior report card served as a means of data collection in several CICO studies. Most studies within the CICO literature evaluated the effects of intervention implementation on the reduction of problem behavior; however, some studies also included CICO’s effects on increasing an appropriate alternative behavior, as well. Taken together, these two reviews support the use of CICO as a Tier II behavioral intervention, especially for children whose problem behavior is reinforced by attention (Maggin et al., 2015; Wolfe et al., 2016).

Students as Interventionists

Though CICO has emerging evidence to support its use as a Tier II intervention, it requires school personnel time resources to implement. This may occasionally present problems for teachers, as they are often asked to complete numerous tasks with little support for intervention implementation. In fact, there is evidence to support the notion that classroom behavior problems increase teacher workload, stress level, and may be related to teacher burnout (e.g., Chang, 2009; Friedman-Krauss & Raver, 2014). An
alternative method could be to use students as interventionists in a peer-mediated intervention framework. If it is determined that using students as interventionists is effective, this information could be useful for practitioners because teachers could utilize less time resources to implement the intervention. This potentially allows for teachers to better utilize their time because they would spend less time implementing some Tier II interventions.

Student interventionists have served as effective change agents in school settings for both academic problems (e.g., Dufrene, Henington, & Townsend, 2006; Dufrene, Noell, Gilbertson, & Duhon, 2005; Dufrene et al., 2010) and behavior problems (Arceneaux & Murdock, 1997; Bowman & Myrick, 1987; Strain, Kerr & Ragland, 1979). For example, in one study, the effects of peer-mediated social skills training were evaluated for students with developmental disabilities (Strain et al., 1979). An 11-year-old student was successfully able to increase social behavior of four same-age students with developmental disabilities through the use of prompting students to play with each other and initiation of social interactions.

In another study, Bowman and Myrick (1987) used a peer-mediated social skills program with 2nd and 3rd grade target students (six in the experimental group, six in the control group). Peer mentors were in the 5th grade (six in the experimental group, six in the control group). School counselors provided training for peer facilitators in the experimental group, whereas students in the control group received no training. Peer facilitators led groups on friendship for target students in the experimental group; those in the control group received no treatment. Rating scales were given prior to intervention implementation and at follow up. Significant differences were found between the target
student groups (experimental and control groups) in the areas of classroom behavior and school attitude. Specifically, the experimental group had significantly higher levels of appropriate classroom behavior and had a more positive school attitude compared to the control group. There was also a significant difference between the target student groups (experimental and control) in the areas of acting out and distractibility. That is, target students in the experimental group exhibited lower levels of acting out and distractibility compared to the control group. This demonstrated that older students (peer facilitators) may be a feasible method of service delivery to effectively improve school attitudes and classroom behaviors for elementary-aged students with behavior problems.

Arceneaux and Murdock (1997) utilized a peer mentor in a middle school population to prompt another student in attempts to minimize disruptive noises made by a boy with an intellectual disability. Both the peer mentor and the target student were in the same 8th grade inclusion classroom. The target student was diagnosed as having an intellectual disability, whereas the peer mentor was typically developing. During class, the peer mentor prompted the target student by pointing to a picture in his reader to refocus on the academic task each time he vocalized. Results demonstrated that peer prompting decreased inappropriate vocalizations relative to baseline, and improvements were maintained at a 3.5 week and 5-week follow-up.

In addition to peer mediated interventions demonstrating positive treatment effects for academic and behavior concerns, there is evidence to support that students can successfully implement interventions with integrity. For example, Dufrene et al. (2006) and Dufrene et al. (2010) demonstrated that peer tutors can implement reading fluency interventions with moderate to high levels of integrity. In another study, the majority of
peer tutors (32 out of 37) were able to implement a math intervention with acceptable integrity. The five students who did not initially have high levels of integrity were able to attain acceptable levels with the use of performance feedback (Dufrene et al., 2005). Furthermore, Hughes and Fredrick (2006) demonstrated that students with a special education classification of learning disability (LD) were able to implement an intervention for vocabulary words with 100% accuracy. This level of accuracy was obtained after only four 20-minute training sessions (Hughes & Frederick, 2006).

There is a substantial literature base that supports the use of students as interventionists for improving their peers’ behavioral performance (e.g., Dart, Collins, Klingbeil, & McKinley, 2014; Kohler & Strain, 1990; Mathur & Rutherford, 1991). Moreover, there is empirical evidence suggesting that when students are provided with appropriate training and supports, they can implement peer-mediated interventions with integrity (Dufrene et al., 2005; Dufrene et al., 2006; Dufrene et al., 2010); however, there is little research available demonstrating student interventionists’ implementation of Tier II behavioral interventions within a SW-PBIS framework. Fortunately, some preliminary evidence is available. For example, Sanchez (2013) evaluated peer-mediated CICO with three fourth grade students in regular education classrooms. First, the researchers conducted a functional assessment to recruit participants whose problem behavior was hypothesized as being maintained by access to attention. Upon completion of the functional assessment, a multiple baseline design across participants was utilized to evaluate the effects of peer-mediated CICO. Student interventionists served as CICO mentors in this study. The peer mentors were responsible for implementing check-in and check-out for the target students. Once target student participants reached an 80%
criterion on the DBRC, the teacher feedback component (i.e., DBRC feedback at the end of the class period) was systematically removed. Percentage of points earned on the DBRC was the primary dependent variable in the study. Increases were observed for all three participants in percentage of points earned on the DBRC during peer-mediated CICO relative to baseline. However, increases were only maintained for one of the three participants.

In another set of studies (Dart, 2013), peer-mediated CICO was utilized for elementary aged students in public schools to determine overall effectiveness (Study 1). In addition, it was of interest to determine whether teacher interventionists or student interventionists would be more effective at increasing appropriate behavior (Study 2). Twelve students served as participants in the two studies (six in study 1, with three serving as interventionists and three serving as target students; and six in study 2, with three interventionists and three target students). Participants were in grades 2-4, with interventionists being in higher grades than target students.

Study 1 included a reversal design embedded in a multiple baseline across participants. First, baseline data were collected. Then CICO was implemented. Next, a reversal to baseline was employed, and finally, another CICO phase was implemented. The primary dependent variable in the study was percentage of points earned on the student DBRC. Results demonstrated overall increases in percentage of points obtained on the DBRC over the course of the study for two of the three target students. However, reductions in the percentage of DBRC during the reversal to baseline were not obtained for one of the students. Therefore, a functional relationship between CICO and changes in student performance was only demonstrated for one of the three participants.
Study 2 employed an alternating treatments design embedded within a multiple baseline across participants. Target students met with either teacher interventionists or peer interventionists on a given day. Results demonstrated that there were not meaningful differences between conditions on DBRCs. Taken together, the results of these studies offer preliminary evidence that students may be effective at implementing CICO. In addition, there is evidence to support that students were just as effective (or maybe even more effective in some cases) as adults in implementing this intervention, as two of the three target students had better outcomes with the student-led intervention relative to the teacher led intervention in study 2.

More recently, researchers have expanded upon the literature with regard to peer-mediated CICO. Collins et al. (2016) evaluated the effects of a peer-mediated CICO intervention on social skills in children who had difficulty interacting with peers. They utilized a concurrent multiple baseline design across participants. The primary dependent variable was ratings on the DBRC; however, they also evaluated social skills via the SSIS before and after the implementation of CICO. For three of the four target students, increases were observed on the DBRC. Scores on the SSIS demonstrated improvements as a result of participation in the study, as well. These studies are important because they demonstrate preliminary support that peer-mediated CICO may be an effective means of service delivery for children at risk of behavior problems.

Although there is preliminary evidence in support of student interventionists as mentors in CICO, previous studies that evaluated peer-mediated CICO included one noteworthy limitation. Specifically, the primary dependent variable in those studies was teachers’ ratings on students’ DBRCs. Teacher completed DBRCs provide an indirect
measure of students’ behavior. It would be preferable to have direct observation data demonstrating that students’ behavior change in the desired direction as a result of implementation of peer-mediated CICO. The present study addressed this limitation by utilizing direct observation methods. In addition, this study tested a further modified CICO intervention package by replacing the teacher completed DBRC with a student self- monitoring via the DBRC. Self-monitoring may reduce the reliance on teacher personnel to serve as change agents (McLaughlin, Krappman, & Welsh, 1985). The aim of including self-monitoring was to greatly reduce teacher response effort in implementing the intervention. Again, teacher time is a valuable resource and freeing up teacher time may allow school personnel to reach more kids while using fewer resources.

Self-Monitoring

Self-monitoring can be described as an intervention whereby an individual engages in self-observation and subsequently records his or her own behavior (Hallahan & Kauffman, 2000; Rutherford, Quinn, & Mathur, 1996; Vaughn, Bos, & Schumm, 2000). It has been used with individuals across a variety of ages, presenting with a variety of referral concerns (DiGangi, Maag, & Rutherford, 1991). It may be preferable as an intervention technique in the classroom because it is resource efficient (i.e., requires minimal teacher effort) and is beneficial for getting students to become increasingly self-aware of their own behavior. It may also aid in generalization and maintenance of appropriate behavior because students can implement the intervention on their own (at any given time and in any setting; Blick & Test, 1987; Rutherford et al., 1996). Self-monitoring has been used to increase students’ appropriate behaviors (Amato-Zech, Hoff,
& Doepke, 2006; Brooks, Todd, Tofflemoyer, & Horner, 2003; Rafferty, Arroyo, Ginnane, & Wilczynski, 2011; Rafferty & Raimondi, 2009; Rooney, Polloway, & Hallahan, 1985) and decrease their disruptive behaviors in some studies (Vance, Gresham, & Dart, 2012). For example, Amato-Zech et al. (2006) utilized a self-monitoring strategy to increase on task behavior. The researchers used a Motivador® (i.e., tactile prompting device) to prompt three elementary aged students to remain on task during class with the use of an ABAB withdrawal design. Upon implementation of self-monitoring, all of the students had increases in their on-task behavior. In addition, there were high rates of teacher acceptability.

In another study, self-monitoring and reinforcement were utilized to determine whether or not a functional relationship existed between self-monitoring and an increase in on-task behavior as well as assignment completion in a trained setting, 4th grade seatwork. Generalization of the intervention effects was also assessed across two untrained settings, resource room seatwork and resource room group instruction (Brooks et al., 2003). The participant was a 10-year-old girl who received special education services and had a diagnosis of Down Syndrome. She was taught to monitor her behavior through the use of a personal cassette system and a monitoring card. At predetermined intervals, the cassette would cue the participant, and she would mark herself as either being on task (with a “+”) or as off task (with a “−”). The dependent variables in the study were on task behavior and work completion. Results demonstrated that a functional relationship existed between the implementation of the self-monitoring intervention and on-task behavior as well as assignment completion for this participant; however, on-task behavior results were mixed in the untrained generalization settings.
On-task behavior increased during intervention relative to baseline in the resource room seatwork setting, but not in the resource room group instruction setting (Brooks et al., 2003).

In addition, self-monitoring has been used in the context of CICO. For example, as described previously, Miller et al. (2015b) evaluated the use of CICO with in an ABAB design. Both disruptive behavior and AEB were tracked throughout the study via direct observations. Once improvements were stable, the daily reinforcement opportunity was systematically replaced with the use of a Mystery Motivator to thin the schedule of reinforcement. Then, for one participant, the teacher completed DBRC, and feedback procedures were systematically replaced with self-monitoring via the student completing their own DBRC. Results for that student demonstrated that when self-monitoring was introduced, the student maintained level of problem behavior that was lower than the preceding baseline phases and level of AEB that was greater than the preceding baseline phase (Miller et al., 2015b).

In a follow-up study, Miller, Dufrene, Olmi, Tingstrom, & Filce (2015a), systematically replaced the teacher completed DBRC with self-monitoring for four students. Again, direct observation data regarding levels of problem behavior and AEB were collected throughout the study. An ABABC design was utilized (A represented baseline; B represented CICO; and C represented self-monitoring). For each of the 4 participants, there were higher levels of AEB and lower levels of problem behavior during the CICO phase relative to baseline. Additionally, during the self-monitoring phase, decreases in problem behavior were maintained for each of the four students, and increases in AEB were maintained for three of the four students (Miller et al., 2015a).
These studies provide preliminary evidence that, following effective CICO implementation, the teacher completed DRBC and feedback components may be systematically replaced with self-monitoring and students may maintain behavior gains evidenced during CICO implementation.

These studies (i.e., Miller et al., 2015a; Miller et al., 2015b) are important because they demonstrated that intervention efforts of teachers may be decreased by replacing the teacher completed DBRC and feedback components with self-monitoring; however, it remains unclear whether or not CICO can be effective when self-monitoring is used throughout intervention implementation, particularly when students are serving as CICO interventionists. Again, by using student interventionists as CICO mentors and utilizing a self-monitoring component, this nearly eliminates teacher response effort in order to implement CICO. If this intervention is successful with minimal teacher time resources, this could be useful information for practitioners.

Purpose of the Study

The purpose of the present study was to extend the literature on peer-mediated CICO. First, this study extended the peer-mediated CICO literature by testing a peer-mediated CICO intervention while including direct observation of student performance as the primary dependent variable. This study extended previous literature (i.e., Miller et al., 2015a; Miller et al., 2015b) by testing a modified CICO intervention with self-monitoring replacing the teacher completed DBRC at the outset of intervention. In addition, teacher ratings of social validity and target student ratings of acceptability were measured.
The following research questions were addressed:

Research Questions

1. Does peer-mediated CICO with self-monitoring decrease disruptive behaviors as evidenced by direct observations?

2. Does peer-mediated CICO with self-monitoring increase appropriately engaged behavior as evidenced by direct observations?

3. Do teachers rate peer-mediated CICO with self-monitoring as a socially valid Tier II intervention?

4. Do target students rate peer-mediated CICO with self-monitoring as an acceptable Tier II intervention?
CHAPTER II – METHOD

Participants and Setting

The study was conducted in one elementary school (School A), one middle school (School B), and one high school (School C) from one district in the southeast United States located in a small city. Approval from the university’s Institutional Review Board (see Appendix A) was obtained prior to the beginning of the study. Teachers provided consent for participation in this study and parents provided consent for their children’s participation. The schools implemented SW-PBIS at the time of the study. School A served approximately 527 students. The population of School A included students in the following demographic categories: 92% African American, 3% Hispanic, 3% Biracial, 2% Caucasian, and <1% of a different demographic. Approximately 95% of students qualified for free or reduced lunch. At the time of the study, School B was recently opened as a result of district restructuring. School B included approximately 303 students in the 6th grade. The population of school B included students in the following demographic categories: 91% African American, 4% Hispanic, 3.6% Caucasian, and <1% of a different demographic. Approximately, 99% of students qualified for free or reduced lunch. School C served approximately 1180 students in grades nine through twelve. The student population of School C consisted of students in the following demographic categories: 94% African American, 4% Caucasian, 2% Hispanic, and <1% of a different demographic. Approximately 89% of students qualified for free or reduced lunch.

The School-Wide Evaluation Tool (SET), a widely recognized, empirically-supported assessment of SW-PBIS implementation, was utilized as part of the school’s
SW-PBIS efforts. The SET evaluates the critical features of SW-PBIS through the review of permanent products, observation of the school campus, and interviews with school personnel and students. The SET provides information regarding implementation of critical features in each of 7 categories, as well as an overall mean score, represented as a percentage. This percentage provides information as to whether the SW-PBIS implementation is considered to be: 1) *not targeted/started* (0-50%), 2) in the *planning phase* (50-80%), or 3) in the *implementation/maintenance phase* (80% or above) of SW-PBIS. The SET was conducted by external consultants during the school year in which these data were collected. School A obtained a score of 96%, School B obtained a score of 91.9%, and School C obtained a score of 80%, indicating that each of the schools were in the implementation/maintenance phase during the time of the study (Sugai, Lewis-Palmer, Todd, & Horner, 2005)

*Target Students*

Participants included one elementary student (first grade), one middle school student (sixth grade), and one high school student (eleventh grade) in need of Tier II behavioral intervention services for social behavior concerns (based on teacher or administrator nomination). The following criteria were required for an individual to participate in the study: (a) the student was referred for Tier II intervention due to classroom disruptive behaviors that occurred frequently, which was operationally defined as occurring during at least 20% of intervals observed during a screening observation, (b) the student scored in the moderate to high-risk range on a screening tool, the Student Risk Screening Scale (SRSS; Drummond, 1994) (c) the student did not have a current behavior intervention in place during the study, (d) the student did not have a special education
ruling of Emotional Disability (ED) or Intellectual Disability (ID), (e) the student did not have behavioral goals on their individualized education plan, and (f) the student’s parent must have provided consent prior to the study. To verify that the disruptive behavior occurred at a level greater than or equal to 20% of intervals, a screening observation was performed for each participant. Moreover, the student could not exhibit behaviors that were deemed dangerous (e.g., aggression), destructive (e.g., property destruction), or infrequent. Finally, a student’s primary referral concern could not be truancy.

*Marcus.* Marcus was an African American male enrolled in the first grade. He was nominated by a teacher support team leader for concerns related to off task behavior and out of seat behavior. He received multiple office discipline referrals prior to the start of the study for work refusal, talking to peers in class, and being out of his seat excessively. Marcus received special education services under the eligibility category of speech impairment, but spent the majority of the school day in regular education with supports. Marcus’ score on the SRSS was a 6, placing him in the moderate range in terms of risk for behavioral concerns.

*Jamie.* Jamie was an African American female enrolled in the sixth grade. Jamie did not receive special education services at the time of the study. She was referred by her classroom teacher for high levels of noncompliance with teacher requests and playing with objects. She received two office discipline referrals prior to the start of the study for disruptive classroom behavior. Jamie’s score on the SRSS was an 11, indicating that she fell within the high risk range of risk for behavioral concerns.

*Bianca.* Bianca was an African American female enrolled in the eleventh grade. She did not receive any special education services at the time of the study. She was
nominated for participation by the school counselor. She had received three office discipline referrals prior to the start of the study for talking back to teachers, disrespect, and other disruptive behavior. Bianca’s score on the SSRS was a 10, placing her in the high range of risk for behavioral concerns.

*Student Interventionists*

Student interventionists were recruited based on teacher and/or administrator nomination to serve as an interventionist for each target student. Student interventionists met the following criteria to be eligible for the study: (a) were reported by the teacher to not have behavior or social skills problems at school, as exemplified by low-risk scores on the SRSS (total score of 3 or below), (b) were the same-sex as the target student, (c) parents consented to their children’s participation, and (d) did not have any office discipline referrals prior to the beginning of the study. CICO mentors received compensation in the form of a $10 gift card for their participation in the study.

*Ty.* Ty served as an interventionist for Marcus. He was a second grade African American male who was nominated to be an interventionist by the school counselor. His teacher described him as helpful and responsible. In addition, he had high levels of academic achievement (i.e., all A’s on most recent report card) at the time of the study. Ty’s score on the SRSS was a 0, placing him in the low risk category in terms of potential behavioral concerns.

*Sarah.* Sarah served as an interventionist for Jamie. She was a sixth grade African American female who was nominated by the school principal to be an interventionist. Sarah’s teacher described her as an academically-achieving leader and indicated that Sarah routinely engaged in pro-social behaviors with peers. Sarah’s score on the SRSS
was a 0, placing her in the low risk category in terms of likelihood for behavioral concerns.

Harriet. Harriet served as Bianca’s peer interventionist. She was a twelfth-grade African American female who was nominated to be an interventionist based upon high levels of academic achievement and responsible school conduct. She was reported to be on the honor roll and was involved in student government as well as the debate team. In addition, she was enrolled in advanced placement courses. Harriet’s score on the SSRS was a 1, placing her in the low risk category in terms of likelihood for behavior concerns.

Setting

Primary observations took place in the participants’ classrooms during the class period that was reported to be most problematic by the teacher. Additional probe observations occurred in another classroom twice per week to assess intervention effects across classroom settings. Check-ins and check-outs occurred in a location that was identified by teachers as a place where students could be easily supervised, was conveniently located, and included minimal distractions (e.g., in the corner of the classroom, in the front office).

Materials

Student Risk Screening Scale (SRSS)

As a screening tool, teachers rated target students and interventionists

externalizing behaviors on the SRSS (Drummund, 1994). The SRSS is a teacher-completed, seven-item, screener used to identify students at-risk for externalizing behavioral concerns. The SRSS utilizes a 4-point Likert-type scale ranging from 0-3 (0=never, 1=occasionally, 2=sometimes, 3=frequently). Total scores range from 0 to 21,
with three risk categories (low=0-3, moderate=4-8, or high-risk=9 or greater; Drummund, 1994; Lane et al., 2009). There is evidence in support of high internal consistency and test-retest reliability utilizing the SRSS in elementary aged students, middle school and high school students (Lane et al., 2011; Lane et al., 2012). Target students were required to score in the moderate to high risk range to be selected for the study. Student interventionists were required to score in the low range to be selected for participation.

*Daily Behavior Report Card (DBRC)*

Target students engaged in self-monitoring each day by rating the extent to which they performed the appropriate behavior on their Daily Behavior Report Card (DBRC; See Appendix B). DBRCs included three appropriate behaviors that were identified based on collaboration between the researcher and the target student’s teacher. Target students rated each behavior at the end of each class period using a 6-point Likert scale, with 0 indicating that the child did not exhibit the behavior, and 5 indicating that the behavior was exhibited the majority of the time. Each rating corresponded with a range of percentages, as follows (0 = 0%, 1 = 1-20%, 2 = 21-40%, 3 = 41-60%, 4 = 61-80%, and 5 = 81-100%). The present study utilized a DBRC that was adapted from Chafouleas, Riley-Tillman, Sassu, LaFrance, and Patwa (2007) and Miller et al. (2015a). In those studies, DBRC data demonstrated adequate convergent validity with direct observation data as evidenced by statistically significant correlations between DBRC ratings and direct observations of students’ appropriate behaviors.
**Interventionist Training Script**

A training script was utilized to facilitate training with each of the student interventionists (see Appendix C). It included each of the steps necessary for the training to complete during the interventionists training sessions.

**Self-Monitoring Training Script**

The primary researcher also used a training script to train target students on the self-monitoring component of the intervention (see Appendix D). It included all of the steps required for the trainer to complete during the target student training session.

**Student Interventionist Treatment Integrity Checklist**

The primary researcher completed a treatment integrity checklist (see Appendix E) during 40% of check-ins and check-outs to document implementation of CICO intervention steps. The components for each check-in were as follows: (1) CICO mentor obtained the Home Report Form from the previous day (2) a DBRC was provided to the student, (3) CICO mentor reviewed behavioral expectations and daily point goal, and (4) CICO mentor provided positive encouragement. The components for each check-out were as follows: (1) praise and/or corrective feedback was provided at the end of the day for behavior (2) CICO interventionist calculated daily percentage (or uses the DBRC percentage calculator to determine the percentage), (3) CICO interventionist provided reinforcement if goal was obtained (if goal was not obtained, no reinforcement was provided), and (4) CICO interventionist copied relevant information (name, date, whether or not the student met their goal, student’s score, and any additional comments) to the CICO home report (Appendix H) and prompted the student to get the home report signed by parents and bring it back to school the following day.
Student Interventionist Checklists, Check-in, Check-out

The student interventionist completed a checklist each day for each check-in (Appendix F) and each check-out (Appendix G). These checklists served as a guideline for the CICO interventionist to ensure proper implementation. They consisted of step-by-step instructions for the interventionists to follow.

CICO Home Report

The CICO interventionist completed a small report each day following check-out so that the target students could provide information to their parents each day regarding behavioral updates and obtain a parent signature (see Appendix H)

Behavioral Intervention Rating Scale (BIRS)

The BIRS is a rating scale that assesses teacher perception of the social validity of an intervention. It is an extension and revision of the Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliot, & Darveux, 1985). It includes 24 items that are rated on a 6-point Likert scale, ranging from strongly disagree to strongly agree. Higher scores on the BIRS indicate a higher level of overall acceptability and satisfaction with the intervention. Elliott and Treuting (1991) found three factors in a factor analysis of the BIRS, acceptability, effectiveness, and time of effect. The score reliability of the BIRS is .97. For acceptability, effectiveness, and time of effect, alpha values are .97, .92, and .87, respectively (Elliott & Treuting, 1991; Carter, 2007). In the current study, the BIRS was modified (see Appendix I) to include past tense wording. Previous research has demonstrated that minor modifications to the BIRS, in terms of changing the tense, do not significantly impact the psychometric properties (Sheridan & Steck, 1995: Sheridan, Eagle, Cowan, & Mickelson, 2001). Each of the target students’ teachers completed a
modified version of the BIRS after the completion of the study in order to assess teachers’ perception of the social validity of the peer-mediated CICO with self-monitoring intervention.

*Children’s Intervention Rating Profile (CIRP)*

The CIRP is a rating scale (also a modification of the IRP-15) designed to assess a child’s acceptability of an intervention (see Appendix J). It includes 7 items that are related to overall satisfaction and effectiveness of the intervention using a 7-point Likert rating scale. Overall scores are obtained by summing all items, and higher scores are indicative of higher levels of acceptability. The internal consistency of the CIRP ranges from .75 to .89 (Carter, 2007). Each target student and interventionist participant completed the CIRP upon completion of the study (Witt & Elliott, 1985). It should be noted that slight modifications were made in the language of the CIRP that was administered to interventionists (i.e., “the other student” instead of “me”) on certain items.

Dependent Measures and Observation Procedures

The primary dependent measure was percentage of intervals with disruptive behavior. Disruptive behavior was defined based upon referral concern (i.e., through consultation with the teacher and a review of records). Disruptive behavior was a response class that included behaviors such as talking without permission, out of seat, and playing with objects unrelated to the academic task, consistent with behaviors targeted in previous CICO research (e.g., Miller et al., 2015a; Miller et al., 2015b). For Marcus and Jamie, disruptive behavior included off-task behavior, inappropriate vocalizations, and noncompliance. For Bianca, disruptive included off task behavior,
putting head down, and using her cellular phone during class. The secondary dependent measure was the percentage of intervals with Appropriately Engaged Behavior (AEB). AEB was defined as: (a) student looking at the teacher during instruction, (b) student working with a peer when instructed to do so, (c) student reading silently or writing to complete assignments when instructed to do so, (d) student participating in a teacher-approved activity following the completion of work, or (e) student talking with the teacher about academic work (Hawken & Horner, 2003). AEB and the response class of disruptive behavior were not mutually exclusive. That is, during any particular interval, a participant could be coded as engaging in both disruptive behavior and AEB. Observers were cued via an audio device. When a tone was made (at the beginning of each interval), observers watched the target student and determined if any of the problem behaviors were occurring as well as if the student exhibited AEB and then coded accordingly.

Direct observations were conducted via 20-minute observation periods with 10-second intervals. Observers arrived approximately 10 minutes prior to the observation in order to minimize participant reactivity. They sat in an unobtrusive location in the classroom. An audio file was used by observers in order to cue each interval. Both disruptive behavior and AEB were coded using a momentary time sampling procedure in which the observer coded the occurrence of either behavior at the beginning of the interval. Direct observations occurred each day during the class period identified by the teacher as being most problematic. For Marcus, oral language instruction, occurring in the morning at approximately 9:30 am, was selected for target classroom observation. For Jamie, oral reading instruction, occurring at approximately 12:45pm, was selected for target classroom observation. For Bianca, afternoon history class, occurring at
approximately 1:00 pm, was selected for target classroom observation. In addition, probe observations were intermittently conducted at a different time at least twice per week in order to investigate intervention effects throughout the day. Class periods for the probe observations were chosen at random. Observations were conducted by the primary researcher as well as graduate and undergraduate students who were trained in direct observation. Observers met with the primary researcher to review operational definitions of the target behavior prior to conducting observations. In addition, they met a 90% agreement criterion with the primary researcher or an established observer prior to conducting independent observations.

Experimental Design and Data Analysis

An ABAB withdrawal design was utilized to test the effects of peer mediated CICO with self-monitoring with a minimum of 5 data points per phase (e.g., Kratochwill et al., 2010). This design was appropriate because it is considered to be robust in determining overall treatment effect (Kazdin, 2011). The treatment phases occurred in the following order: Baseline (A), Peer-Mediated CICO with Self-Monitoring (B), Withdrawal (A), and Return to Intervention (B). To evaluate intervention effectiveness, visual analysis of percentage of interval occurrence for AEB and disruptive behavior included analysis of level, trend, variability around level and trend, immediacy of change between phases, overlap across adjacent phases, and consistency of change (Horner et al., 2005). Phase change decisions were made based upon data for disruptive behavior because student referrals included referrals for services designed to reduce disruptive behaviors. Observation data were collected during the target instructional period each day. In addition, probe observation data (i.e., observations conducted during another
class period) were collected twice a week in order to determine the effects of the intervention throughout the school day. For each target student, percentage of intervals with disruptive behavior and AEB were graphed and visually analyzed for each phase.

**Measurements of Effect Size**

Tau-U (Parker, Vannest, Davis, & Sauber, 2011) is a non-parametric effect-size measure for single case design data that is calculated by using pairwise comparisons. It assesses nonoverlapping data between baseline and intervention conditions while accounting for data trend. Tau-U is based upon Kendall’s Rank Correlation and Mann-Whitney U. Tau-U scores range between 0.00 and 1.00. Tau-U was calculated across participants by comparing the first intervention condition with baseline (A1 vs. B1), and the second intervention condition with the withdrawal condition (A2 vs. B2); and computed for both disruptive behavior and AEB (Parker et al., 2011).

**Procedure**

**Screening**

Once target students were selected and consent was obtained, a review of records and a teacher interview were conducted in order to determine target disruptive behaviors as well as appropriate replacement behaviors. An additional screener, the SRSS was administered to the target students’ teachers as a verification that identified students were at risk of behavioral problems. Next, a screening observation was conducted for the target student’s disruptive behavior to verify that the disruptive behavior occurred frequently, at least at a level of 20% of intervals.
**Baseline**

During baseline, the teacher was instructed to conduct classroom procedures in a typical manner, and the target student was not knowledgeable to the purpose of the study. In addition to collecting direct observation data, the observer completed a modified DBRC (see Appendix M) immediately following each baseline session in order to determine the criterion for reinforcement during the intervention phase. When two observers were present for direct observations during baseline, IOA was obtained for the modified DBRC. The criterion for reinforcement during intervention was determined by calculating the mean of the DBRC ratings in baseline. The criterion did not exceed 80%.

**Preference Assessment**

A reinforcement menu was developed in collaboration with the target students. A brief meeting occurred between the researcher and each of the target students to determine which items were preferred for CICO reinforcement opportunities. The students were asked open-ended questions regarding the types of tangible items or activities they would like to earn. Based on this information, the primary researcher designed a prize box to serve as a reinforcement menu for the target students meeting their goal on the DBRC.

**Training**

*Student Interventionists.* Student interventionists were trained using a procedure based upon Dart (2013). During baseline, student interventionists were trained on the CICO procedures over the course of at least three consecutive days. A CICO packet was provided to the student interventionist before training. Training sessions were approximately 10 minutes in duration each day and occurred during a time that did not
interfere with academic instruction (e.g., during an activity period). First, the primary researcher explained the intervention to the student interventionist. Next, two researchers modeled CICO for the student interventionist, with one researcher acting as the target student and the other researcher acting as the student interventionist. Then, each student interventionist engaged in a role play of the intervention procedures with one of the researchers acting as the target student. Feedback was provided on student performance (i.e., praise for correct implementation and corrective feedback for incorrect implementation). A treatment integrity checklist was utilized during training to remind the student interventionist of the necessary components. In addition, the primary researcher observed the student interventionist during training sessions and tracked treatment integrity using the checklist. Training continued until the peer CICO mentor obtained 100% treatment integrity during role plays for three consecutive days. Each student completed training with 100% integrity across three days. The student interventionists were trained to do the following for check-ins: (a) obtain the DBRC from previous day, (b) review behavioral expectations and the daily point goal with the target student, and (c) provide positive encouragement. The student interventionists were trained on the following components for each check-out: (a) provide praise for appropriate behavior exhibited throughout the day (b) provide constructive feedback on areas where the student needed improvement (c) calculate the students’ daily percentage on the DBRC, (d) provide reinforcement if DBRC goal was met (if goal was not met, no reinforcement provided), (e) copy relevant information on to the DBRC home report (f) send a copy of the DBRC home report with the student to take home and get signed, and (g) prompt the target student to get his or her DBRC home report signed and bring it back
to school the following day. A matrix chart was provided to help the students provide praise and feedback regarding behavior (see Appendix L).

Target Students. Target students were trained on the intervention procedures at the completion of baseline (see Appendix D for training script). They were taught to attend check-ins with their peer interventionist each day and to collect their DBRC each morning. They were also taught how to monitor their own behavior at predetermined times throughout the day (i.e., to provide themselves with a rating on the DBRC at the end of each class period). Each rating was explained in detail to the target student (e.g., “you will give yourself a rating between 0 and 5 for each behavior and each class. A rating of 0 means you did not exhibit the behavior; while a score of 5 means you did the behavior most of the time or during the whole class”). Students were provided with multiple exemplars to assist with understanding. In addition, target students were taught to attend check-outs at the end of each day to take their home report with them every afternoon, obtain a parent signature, and return the home report following day.

Intervention

The intervention consisted of a treatment package: peer mediated CICO with self-monitoring. Each day, the student interventionist checked in with the student. Check-ins occurred in locations that were determined to be convenient for students and teachers. Before implementing CICO, a researcher collaborated with teachers as well as other relevant school personnel to determine a location. It was necessary to determine locations within each school that were unobtrusive and also allowed for students to receive adult supervision. The location was different for each interventionist/target student dyad and included areas such as in the front office, in the library, or in the target student’s
classroom. In all cases, students were supervised by a school professional. A researcher also supervised students.

During each morning check-in, the interventionist provided the student with his or her DBRC as well as any other materials required for a successful day at school (e.g., book bag, notebook, pencil). The student interventionist also reminded the student of the behavioral expectations and provided encouragement for a positive day at school. Throughout the day at predetermined times (i.e., at the end of each class period), the target student monitored his or her own behavior and rated his or her expected behaviors on the DBRC. At the end of each day, the target student checked out with the student interventionist.

During each check-out, the student interventionist determined the student’s percentage of points on the DBRC and whether or not the student met his or her daily goal. If the student met his or her goal, reinforcement was provided paired with labeled praise. However, if the student did not meet his or her daily goal, no reinforcement was provided and corrective feedback was given. The primary investigator or another trained researcher was present during check-in and check-out for the first two days of intervention to ensure the student interventionists were implementing the procedures correctly. Following those two days, teachers or administrators supervised student check-ins and check-outs. The primary researcher supervised students (via brief meetings) throughout the study to ensure check-ins and check-outs were implemented each day. Permanent products of treatment integrity data collected by the interventions were also reviewed.
Withdrawal

During the withdrawal phase, data collection occurred in a manner similar to baseline. Target students were told that they would no longer need to self-monitor their behavior and would no longer need to check-in or out with the student interventionist. Target students were not eligible to obtain reinforcement or receive corrective feedback. Student interventionists were told to no longer meet with target students or conduct the intervention until further notice.

Return to Intervention

During this phase, the intervention was reinstated. Again, target students were told to self-monitor their behavior as well as check in and out just as in the previous intervention phase. All procedures were conducted as they were in the initial B phase. The criterion for reinforcement was the same as during the first intervention phase.

Acceptability

Upon completion of the second B phase, teachers completed a modified version of the BIRS as an assessment of the social validity of the peer mediated CICO intervention package. Target students and interventionists completed a modified version of the CIRP as a measure of student intervention acceptability. The primary researcher met with each teacher and student participant following the completion of the second B phase and administered acceptability measures.

Procedural and Treatment Integrity

Procedural Integrity for Training

During interventionist training sessions, which occurred over the course of three days for each interventionist, procedural integrity data were collected by the primary
researcher to ensure that students were trained according to the protocol (Appendix E). Integrity data were collected during each day of training, and a second observer was present during all trainings in order to obtain interobserver agreement (IOA) on the integrity (i.e., to compare the primary researcher’s integrity with an independent observer). Integrity was monitored by the researchers indicating if each step from the protocol was completed. Integrity data were calculated by dividing the number of steps implemented correctly by the total number of possible steps and multiplying by 100. Procedural integrity was 100% for each participant during all training sessions. IOA on the integrity was also 100% for all training sessions.

Just as in interventionist training sessions, procedural integrity data were collected during target student training sessions (which occurred once for each student) by the primary researcher to ensure that students were accurately trained to self-monitor their behavior. An additional researcher was present during target student training sessions in order to obtain IOA on the integrity (i.e., to compare integrity with an independent observer). Integrity was monitored by the researchers indicating if each step from the protocol was completed (Appendix E). Integrity data were calculated by dividing the number of steps implemented correctly by the total number of possible steps and multiplying by 100%. Procedural integrity was 100% during each training session. IOA was also 100% for each training session.

CICO Treatment Integrity

During 40% of sessions in which CICO was implemented, the primary researcher recorded the percentage of check-in and check-out steps implemented correctly for each student (Appendixes E). The score was calculated by dividing the number of steps
implemented correctly by the total number of steps. For 50% of those sessions, IOA was obtained on treatment integrity data. An independent observer completed a treatment integrity checklist, and those data were compared with the checklist completed by the primary researcher. Integrity data were calculated by dividing the number of steps implemented correctly by the total number of possible steps and multiplying by 100%. Treatment integrity reported for CICO was 100% for each participant. IOA was 100% across for each participant.

**Target Student Treatment Integrity**

The target student was responsible for rating his or her own behavior during each class period. Treatment integrity data for the target student were documented by reporting the percentage of class periods that the student provided a self-rating. All students provided self-ratings during each class period. To ensure accuracy of self-ratings, the interventionist checked student ratings at the end of each day and collaborated with the primary researcher. On one occasion, there was a noticeable discrepancy between Marcus’ ratings on the DBRC compared to his direct observation data (i.e., Marcus circled higher ratings than what would be expected given the direct observation data). To address this, Marcus was re-trained on self-monitoring. No other discrepancies were noted between DBRC ratings and direct observation data.

**Inter-observer Agreement**

Inter-observer agreement (IOA) observations were obtained for 40% of all direct observation for each phase. IOA was obtained for both the occurrence of disruptive behavior and the occurrence of AEB. IOA was calculated using the total agreement method. In other words, the total number of agreements (occurrence and nonoccurrence
of the behaviors) was divided by the total number of intervals and multiplied by 100. Observers were trained to a 90% agreement criterion with the primary researcher before independently observing. In addition, if a particular observer’s percentage of agreement fell below 90%, he or she was retrained to the 90% criterion. Retraining occurred once during the study, when IOA fell below the criterion. In addition, kappa was calculated for each IOA observation as a statistical measurement of IOA (Watkins & Pacheco, 2000). Mean IOA for observations of Marcus’ disruptive behavior and academic engagement was 96.3% (range = 88% - 100%; mean kappa=.790). Mean IOA for observations of Bianca’s disruptive behavior and academic engagement was 97.08% (range = 92.9%- 100%; mean kappa=.823). Mean IOA for observations of Jamie’s disruptive behavior and academic engagement was 98% (range = 93%-100%; mean kappa=.85).
CHAPTER III - RESULTS

Direct Observations of Student Behavior

Visual Analysis

Marcus. Figure 1 includes data from direct observations of Marcus’ disruptive behavior and academically engaged behavior (AEB) during the target classroom observations and during probe observations conducted in random classrooms. During baseline observations in the target classroom, disruptive behavior demonstrated an increasing trend, with some variability, and mean levels of disruptive behavior averaged 46.7% of the observed intervals (range = 29.16% - 63.3%). Disruptive behavior during probe observations averaged 49.6% of the observed intervals (range = 45.8% – 53.3%). During baseline, AEB in the target classroom demonstrated a decreasing trend, with some variability, and the mean level was 58.9% of the observed intervals (range = 45.8% - 82.5%). AEB during probe observations averaged 56.9% of the observed intervals (range = 45.8% - 68%).

When CICO was implemented, Marcus exhibited immediate and substantial decreases in disruptive behavior. The data demonstrated a decreasing trend for disruptive behavior, and the changes in responding were stable across intervention sessions. Marcus’ disruptive behavior during the first phase of CICO decreased to a mean level of 6.78% of the observed intervals (range =1.6% - 9.2%). During probe observations, mean levels averaged 14.6% of the observed intervals (range = 11.7% - 17.5%). Marcus’ direct observation data also depicted an immediate and substantial increase in AEB levels during the initial CICO implementation phase. Data were stable across intervention sessions and demonstrated an increasing trend. Marcus’ AEB during the first phase of
CICO increased to a mean level of 93.3% (range = 90.8 - 98.3%) of the observed intervals. During probe observations, AEB averaged 86.7% of the observed intervals (range = 82.5% - 90.9%). There was no overlap between the first A phase and the first B phase. These data provide strong evidence for consistent intervention effects.

When CICO was withdrawn, Marcus exhibited immediate and substantial increases in disruptive behavior and decreases in AEB. The responding was variable, and the data were trending in an undesirable direction (i.e., data depicting an increasing trend for disruptive behavior and a decreasing trend for AEB), just as in the baseline phase. Marcus’ disruptive behavior increased to an average of 51.66% (range = 40% - 66.7%) of the observed intervals. During probe observations, disruptive behavior increased to an average of 50.65% (range = 48% - 53.3%). AEB decreased to mean level of 55.82% of the observed intervals (range = 47.5% - 60%). During probe observations, AEB decreased to mean level of 54.8% (range = 53% - 56.6%).

When CICO was re-implemented immediate, stable changes were observed once again for both disruptive behavior and AEB, replicating the previous intervention effects. Again, the data were trending in the intended direction (i.e., data depicting a decreasing trend for disruptive behavior and an increasing trend for AEB). In terms of mean level, disruptive behavior decreased to an average of 13.74% of the observed intervals (range = 10.8% – 18.3%). During probe observations, disruptive behavior level averaged 18.3% (range = 5% - 31.6%). Level of AEB increased to mean level of 86.2% of the observed intervals (range = 83% – 89.1%). During probe observations, mean level was 81.1% (range = 68.3 % - 93.8%). There was no overlap between the second A phase and the second B phase. Intervention effects were consistent across each CICO phase. Therefore,
there is strong evidence to support that this intervention was effective at consistently
decreasing classroom disruptive behavior and increasing AEB for Marcus.

Jamie. Figure 2 includes data from direct observations of Jamie’s disruptive
behavior and academic engagement during the target classroom. During baseline
observations, the data regarding both disruptive behavior and AEB depict variability of
responding. Disruptive behavior had an increasing trend, whereas AEB had a decreasing
trend. The mean level of disruptive behavior was 61% (range = 32% - 79%) of the
observed intervals. During probe observations, disruptive behavior averaged 74% (range
= 67% – 81%) of the observed intervals. The mean level of AEB was 39% (range = 21%
- 68%) of the observed intervals. During probe observations, AEB averaged 26% (range
= 19% -33%) of the observed intervals.

When CICO was implemented, immediate and substantial changes in both
disruptive behavior and AEB were observed. It should be noted that the data were
initially variable during the first phase of CICO for both disruptive behavior and AEB.
However, stability emerged during the third session within the phase and data remained
stable for the duration of sessions within that phase. Jamie’s disruptive behavior during
the first phase of CICO decreased to a mean level of 23% of the observed intervals (range
=26% - 48%). During probe observations, disruptive behavior averaged 30% (range =
15%- 45%) of the observed intervals. Jamie also exhibited increases in AEB levels during
the first CICO phase. Jamie’s AEB during the first phase of CICO increased to a mean of
77% of the observed intervals (range = 52% - 90%). During probe observations AEB
averaged 70% (range = 55% - 85%) of the observed intervals. Additionally, a decreasing
trend was observed for disruptive behavior, and an increasing trend was observed for AEB. There was minimal overlap between the first A phase and the first B phase.

When CICO was withdrawn, immediate changes emerged. Jamie exhibited increases in disruptive behavior and decreases in AEB, and the responding became variable once more. For disruptive behavior, an increasing trend emerged, and for AEB, a decreasing trend emerged. Overall, Jamie’s disruptive behavior increased to mean levels of 56% (range = 37% - 67%) of the observed intervals. During probe observations, mean level was 64% (range = 61% -67%) of the observed intervals. AEB decreased to mean level of 42% (range = 25% - 64%) of the observed intervals. During probe observations, AEB decreased to mean of 36% (range =33% – 39%) of the observed intervals.

When CICO was re-implemented, immediate changes emerged once again in level, although the data remained variable. As in the first phase of CICO, the data were trending in the intended direction (i.e., a decreasing trend for disruptive behavior and an increasing trend for AEB). In addition, levels of disruptive behavior decreased, as before. During target classroom observations, the mean level of disruptive behavior was 20% of the observed intervals (range = 8% – 40%). During the probe observations, the mean level of disruptive behavior was 14% (range = 6% - 22%). Level of AEB increased, just as in the previous CICO phase, with mean level of 74% (range = 60% – 92%) of the observed intervals during target classroom observations. During probe observations, mean level of AEB was 86% (range = 78% - 94%) of the observed intervals. There was minimal overlap between the second A phase and the second B phase. The data indicate that intervention effects were consistent in decreasing Jamie’s disruptive behavior and increasing AEB during CICO phases, providing support for utilizing this intervention.
Bianca. Figure 3 includes data from direct observations of Bianca’s disruptive behavior and AEB during the target classroom. In baseline, the mean levels of disruptive behavior were 67.4% of the observed intervals (range = 48.3% - 95%) during observations in the target classroom. During probe observations, disruptive behavior averaged 72.5% (range = 45% – 100%) of the observed intervals. Regarding AEB, the mean level was 42.6% (range = 27.5% - 61.6%) of the observed intervals. During probe observations, AEB averaged 45.8% (range = 36.6% - 55%) of the observed intervals. It should be noted that Bianca’s responding (both disruptive behavior and AEB) was variable during the first baseline phase. There was a decreasing trend for disruptive behavior and an increasing trend for AEB.

However, when CICO was implemented, Bianca exhibited immediate and substantial decreases in disruptive behavior and immediate increases in AEB. Bianca’s disruptive behavior during the first phase of CICO decreased to a mean of 7.2% of the observed intervals (range =.08% - 17.5%). During probe observations, disruptive behavior decreased to a mean 20.8% (range = 1.6%- 40%) of the observed intervals. Bianca’s AEB during the first phase of CICO increased to a mean of 92.8% of the observed intervals (range = 82.5% - 99.1%) during target classroom observations. During probe observations, AEB averaged 94.2% (range = 90% - 98.3%) of the observed intervals. In addition, stability in the data were also achieved for both disruptive behavior and AEB. Data continued to trend in the desired direction during this phase (i.e., a decreasing trend observed in terms of disruptive behavior and an increasing trend observed for AEB). There was no overlap between the first A phase and the first B phase.
When CICO was withdrawn, Bianca exhibited immediate increases in disruptive behavior and decreases in AEB. During withdrawal, Bianca’s disruptive behavior increased to mean level of 57.1% of the observed intervals (range = 21.6% - 81.6%). During probe observations, disruptive behavior averaged 72.8% (range = 53.8% -91.7%) of the observed intervals. AEB decreased to mean level of 49.62% of the observed intervals (range = 29.2% - 78.3%). During probe observations, AEB averaged 47.5% (range =46.7% – 48.3%) of the observed intervals. As in the baseline phase, the data once again demonstrated high levels of variability, which resulted in no observable trend during this phase.

When CICO was re-implemented, immediate and substantial changes were again observed. Levels of disruptive behavior decreased to mean of 12% of the observed intervals (range = 1.7% – 20.8%). During probe observations, disruptive behavior averaged 14.95% (range = 13.3% - 16.6%) of the observed intervals. Level of AEB increased to a mean of 87.8% of the observed intervals (range = 78.3% – 98.2%). During probe observations, AEB increased to mean level of 84.6% (range = 82.5 % - 86.7%) of the observed intervals. As in the previous phase of CICO, the data were trending in the desired direction during re-implementation (i.e., a decreasing trend for disruptive behavior and and increasing trend for AEB). For both disruptive behavior and AEB, the data were slightly variable in this phase, although less variable than when CICO was not being implemented. There was no overlap between the second A phase and the second B phase. The data indicate that intervention effects were consistent in decreasing Bianca’s disruptive behavior and increasing AEB during CICO phases, providing additional support for utilizing this intervention.
Figure 1. Marcus’ Direct Observation Data for Target Behaviors (i.e., Disruptive behavior and Appropriately Engaged Behavior).
Figure 2. Jamie’s Direct Observation Data for Target Behaviors (i.e., Disruptive behavior and Appropriately Engaged Behavior).
Daily Behavior Report Card Data

During the baseline phase, researchers completed DBRC’s at the completion of each observation in order to develop the reinforcement criterion during both intervention phases. DBRC data were not collected during the withdrawal phase. Students completed DBRC’s each day during both intervention (B) phases. For Marcus, DBRC data averaged 80.12% (range=60%-87%) during the baseline phase. During the first intervention phase, DBRC data averaged 90.8% (range=86%-100%), and during the second intervention phase, DBRC data averaged 67.4% (range=26%-80%). For Jamie, DBRC data averaged 33.8% during baseline (range=4%-60%). During the first intervention phase, DBRC data averaged 81.8% (range=80%-89%, and during the second intervention phase, DBRC averaged 78.6% (range=68%-85%). For Briana, DBRC data averaged 29% (range=6%-

Figure 3. Bianca’ Direct Observation Data for Target Behaviors (i.e., Disruptive behavior and Appropriately Engaged Behavior).
60%) during the baseline phase. During the first intervention phase, DBRC data averaged 86.4% (range=68%-98%). During the second intervention phase, DBRC data averaged 97.4% (range=93%-100%).

Effect Sizes

Table 1 presents the weighted effect size calculations between phases for each participant. Overall, the intervention had a very strong effect decreasing disruptive behavior and increasing AEB, according to weighted Tau-U calculations. For Bianca, baseline trend was controlled for in order to calculate Tau-U. However, it was not necessary to account for issues related to trend with Marcus or Jamie. Vannest and Ninci (2015) propose that effect size cutoffs for Tau-U should always be interpreted in terms of clinical significance, but recommend the following breakdown: an effect size of 0.20 may be considered a small change, an effect size between 0.20 to 0.60 may be considered a moderate change, an effect size between 0.60 to 0.80 may be considered a large change, and a score above 0.80 may be considered a very large change, depending on the context.

Table 1

*Effect Size Calculations*

<table>
<thead>
<tr>
<th></th>
<th>Tau-U</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disruptive Behavior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marcus</td>
<td>1.00</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Jamie</td>
<td>0.92</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Bianca</td>
<td>1.00</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Weighted average</td>
<td>0.97</td>
<td>Very Strong</td>
</tr>
<tr>
<td><strong>Academically Engaged Behavior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marcus</td>
<td>1.00</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Jamie</td>
<td>0.88</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Bianca</td>
<td>0.98</td>
<td>Very Strong</td>
</tr>
<tr>
<td>Weighted average</td>
<td>0.95</td>
<td>Very Strong</td>
</tr>
</tbody>
</table>
Social Validity

*Teacher Ratings*

At the completion of each target student’s second B phase, their teacher completed the BIRS as a measure of social validity. Marcus’ teacher provided ratings that yielded a mean score of 2.95, indicating low levels of social validity. Marcus’ teacher provided the following mean item ratings for each subscale: 3.53-acceptability, 2-effectiveness, and 2-time to effect. However, both Jamie’s and Bianca’s teachers provided ratings that indicated high levels of social validity, providing mean scores of 6 and 5.83, respectively. Jamie’s teacher provided the following mean item ratings for each subscale: 6-acceptability, 6-effectiveness, and 6-time of effect. Bianca’s teacher provided mean item ratings for each subscale: 6-acceptability, 5.86-effectiveness, and 6-time to effect.

*Student Ratings*

In addition to teacher acceptability, target students and interventionists also rated their level of acceptance with regard to the intervention using the CIRP. Each of the target students found the intervention to be acceptable, Marcus’ rating was 36, with a mean item rating of 5.14. Jamie’s total rating was 42, with a mean item rating of 6. Bianca rated similarly to Jamie, with an overall rating of 42 and a mean item rating of 6. In addition, each of the interventionists rated the intervention as acceptable, with scores as follows: Ty total score of 35, mean item rating of 5; Sarah total score of 42, mean item rating of 6, and Harriet total score of 37, mean item rating of 5.28.
CHAPTER IV – DISCUSSION

Recent systematic reviews identify CICO as an evidence-based practice (Hawken, et al., 2015; Wolfe et al., 2016). However, teacher response effort in the implementation of classroom behavioral interventions is a growing concern (e.g., Chang, 2009; Friedman-Krauss & Raver, 2014). The current study sought to provide initial evidence in support of an alternative method of service delivery for CICO, utilizing students as interventionists. With students as interventionists, this study aimed to reduce teacher response effort while providing students at risk for behavioral difficulties with necessary supports.

Research Questions

Research Question 1

The first research question asked if peer-mediated CICO with self-monitoring decreased disruptive behavior as evidenced by direct observation data. Across all target students, reductions in disruptive behavior were observed during intervention phases, relative to both baseline and withdrawal phases. This finding is consistent with previous CICO studies, where the implementation of CICO resulted in reductions in disruptive behavior (e.g., Hawken et al., 2015; Wolfe et al., 2016). In addition, decreases in disruptive behavior were also obtained during probe observations conducted twice weekly during random class periods. The present study expands upon previous work, utilizing students as interventionists rather than teachers. In addition, this study expanded upon previous CICO studies to include a self-monitoring component, as a way to reduce teacher response effort associated with implementing the intervention. Consistent with
previous studies that focused on self-monitoring, students in the current study were able
to accurately self-monitor their own behavior for the majority of intervention sessions.

*Research Question 2*

Research question 2 addressed whether peer-mediated CICO with self-monitoring increased AEB as evidenced by direct observation data. Results indicated that CICO was effective at increasing AEB, compared to baseline and withdrawal phases, across all participants during target class periods. In addition, increases in AEB were also obtained during probe observations conducted twice weekly during random class periods. This finding indicates that behavioral gains were obtained both during target class periods as well as across the school day. This conclusion is consistent with previous CICO studies, whereby the implementation of CICO increased appropriate alternative behavior in the classroom (e.g., Hawken et al., 2015; Wolfe et al., 2016). Again, the present study expands upon previous research by evaluating whether peer-mediated CICO with a self-monitoring component could be effective at increasing AEB.

*Research Question 3*

Research question 3 addressed if teachers rated peer-mediated CICO with self-monitoring as a socially valid Tier II intervention. Both Bianca’s and Jamie’s teachers rated the intervention as socially valid in addressing behavior. Anecdotally, it should be noted that Bianca’s teacher asked to continue utilizing the intervention following the completion of the study and for the duration of the school year. When the researcher met with Bianca’s teacher to administer the BIRS, she also reported that Bianca and Harriet had become friends as a result of participation in the study, suggesting that this intervention may also result in collateral benefits for participants.
Marcus’ teacher did not rate the intervention as socially valid in addressing behavioral concerns even though direct observation data indicated that Marcus had meaningful reductions in disruptive behavior and increases in AEB as a result of the intervention. It should be noted that, anecdotally, Marcus’ teacher had a contentious relationship with Marcus. For example, she was often observed to loudly reprimand Marcus, even when Marcus was actively engaged in classroom activities. During classroom observations, Marcus’ teacher was observed to praise other students, but Marcus was, on no occasion, positively acknowledged.

Overall, two of the three teachers rated the intervention socially valid for addressing target students’ behavioral concerns. This finding is consistent with previous CICO studies that assessed social validity, whereby most school personnel rated CICO as a socially valid intervention for addressing behavioral concerns (Wolfe et al., 2016).

Research Question 4

Research question 4 addressed if target students rate peer-mediated CICO with self-monitoring as an acceptable Tier II intervention. Results from the current study indicated that each of the target students rated peer-mediated CICO to be acceptable. Anecdotally, each target student also reported that they enjoyed participating in the study. In addition, the interventionists rated the intervention as acceptable. Anecdotally, the interventionists from the present study reported that they enjoyed helping other students succeed. Harriet also reported that she and Bianca became friends following completion of the study, providing additional evidence that positive peer relationships may also be a positive outcome associated with this method of service delivery. Previous CICO studies have not formally evaluated student acceptability.
Limitations

Although this study offers preliminary evidence in support of utilizing peer-mediated CICO with self-monitoring as an effective Tier II behavioral intervention, some limitations are worth discussion. First, the student interventionists were provided high levels of supervision (provided by researchers) in order to implement the intervention procedures with integrity. In particular, the elementary-age interventionist/target student dyad necessitated a researcher to supervise check-ins and check-outs each day. Without the supervision of a researcher, the student interventionists may not have implemented CICO with integrity. However, the high school interventionist/student dyad was mostly independent with regard to implementation of CICO once the interventionist was adequately trained. It is unclear what level of supervision would be necessary to provide this method of service delivery as a standard school-wide Tier II behavioral support. Additional research should evaluate this issue more extensively.

Another potential limitation of the current study is participant reactivity to observers in the classroom. Because researchers trained the target students on self-monitoring and were present for the first two days of CICO, the target students may have reacted to their presence in the classroom during direct observations. However, this was minimized by arriving to observations at least 10 minutes before the start of the observation and consistently observing each day, regardless of the condition.

Another limitation is that it is difficult to draw conclusions by comparing the DBRC data across phases. The researcher rated the student’s behavior on the DBRC during baseline, and the student provided a self-rating during intervention phases.
Therefore, it is difficult to make comparisons across phases with regard to percentages on the DBRC.

Finally, because the current study evaluated a treatment package, peer-mediated CICO, it is difficult to determine which component of the intervention contributed to change (i.e., the self-monitoring component or the peer-mediated CICO component). Future research may evaluate these components individually to determine which component necessitates change.

*Implications for Practice*

Based on the findings of this study, and findings from previous research (Dart, 2013), school psychologists may consider the use of peer-mediated CICO as a Tier II intervention in schools implementing SW-PBIS. If peer-mediated CICO with self-monitoring is implemented, it is recommended that school personnel (a) appropriately identify students for intervention based on teacher/administrator referral as well as scores from reliable and valid screening instruments (e.g., SRSS), (b) train interventionists in a manner consistent with this study as well as previous studies employing peer-mediated CICO, and (c) regularly monitor interventionists CICO implementation as well as target students response to the peer-mediated intervention.

*Summary*

The purpose of the study was to evaluate the effectiveness of peer-mediated CICO with a self-monitoring component. Results demonstrated that this treatment package was effective at decreasing disruptive behavior and increasing AEB across three participants of different grades. Additionally, two of three teachers rated the peer-mediated CICO intervention as socially valid, and all students rated the intervention as acceptable.
Moreover, student interventionists implemented the intervention with integrity. Taken together, data support the feasibility of the intervention as an effective Tier II behavioral support.
APPENDIX A – IRB Approval Letter

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 29. 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Event Report Form”.
- If approved, the maximum period of approval is limited to twelve months.

Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 14112005
PROJECT TITLE: The Effects of Peer-Mediated Check-In/Check-Out with a Self-Monitoring Component
PROJECT TYPE: New Project
RESEARCHER(S): Chandler McLemore
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: School Psychology
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 01/22/2015 to 01/21/2016

Lawrence A. Hosman, Ph.D.
Institutional Review Board
## Check-in/Check-out Daily Behavior Report Card

**Student Name:** ___________________________  **Date:** ____________

Please indicate the point value corresponding to the degree to which each behavior was displayed:

- 0 = Never (0%)
- 1 = Occasionally (1-20%)
- 2 = Some (21-40%)
- 3 = Approximately Half (41-60%)
- 4 = Most (61-80%)
- 5 = Majority (81-100%)

**Total Points Earned (Possible 75):** ____________  **Percentage Earned:** ____________  **Goal Percentage:** ____________

<table>
<thead>
<tr>
<th></th>
<th><strong>Be Safe</strong> (remain in seat)</th>
<th><strong>Be Respectful</strong> (raise hand and be called on before speaking)</th>
<th><strong>Be Responsible</strong> (remain on task and complete assignments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 1</td>
<td>0 1 2 3 4 5</td>
<td>0 1 2 3 4 5</td>
<td>0 1 2 3 4 5</td>
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<tr>
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</tr>
<tr>
<td>Period 2</td>
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<td>0 1 2 3 4 5</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td></td>
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<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
</tr>
<tr>
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<td>0 1 2 3 4 5</td>
</tr>
<tr>
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<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
</tr>
<tr>
<td>Period 5</td>
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<td>0 1 2 3 4 5</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td></td>
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<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
</tr>
</tbody>
</table>

**Morning Sign in:** ________________  **Afternoon Sign in:** ________________  **If Goal Met, Reward Chosen:** ________________

**Student Initials After Reward Received:** ________________
APPENDIX C – Interventionist Example Training Script CICO

Introduction:

“You will help another student with his or her behavior by doing what’s called Check-In, Check-Out. It’s easy to do. Today you will learn how to do it. I will teach you how to first. Then, you will have the chance to practice.”

Morning Check in:

“When the student arrives, you will want to be nice and greet them. You might start off saying, for example, ‘Good morning, Jimmy! How are you today?’”

“You will then ask if the student has what they need for school, such as a pencil and notebook. So you would say, ‘Jimmy, are you ready for school? Do you have a pencil and notebook?’ If the child is prepared, you should tell him or her, ‘Good job coming prepared!’”

“Next you would ask the student if he or she has their home report from the previous day (not to be done on day 1). Again, you should praise the student for coming prepared.”

“At this time, you should give the student the new report card for the day.”

“After giving them the child the card, review the point goal. Explain what the child is supposed to do in order to earn points. For example, ‘Jimmy, your point goal for today is 80% or 60 points. Remember to stay on-task, to raise your hand before you speak, and to follow directions the first time.”

“You’ll also want to praise the student for attending check in, so you could say ‘You’re starting off great today by remembering to check in, keep up the good work!’”

“The student should also be encouraged to meet their point goal. Try to provide encouragement with statements such as, ‘Your point goal is 60,
and I know you can reach it!”

☐ “At this time, check in is over, and the student can report to class. During the check in, follow along with your checklist and check off each step as you do it.”

☐ “Do you have any questions? Let’s practice a typical check in.”

☐ Have the student go through all steps of the CICO procedure, and use the Treatment Integrity Form to determine if all steps are completed.

☐ Provide feedback on the practice session.

Afternoon Check Out:

☐ When the student arrives at check out, collect the report card and provide praise for good behavior. Even if the student had a bad day, they probably earned some points. Provide praise for anything they did well. For example, ‘Great job staying in your seat during 3rd period, Jimmy!’!”

☐ “If the student seemed to have trouble in a particular area, state what he/she could have done differently. Try to have a nice, calm tone. For example, ‘Jimmy, you seemed to have trouble finishing your work today. Tomorrow, do your best to stay on-task and finish your work. You can do it!’”

☐ “Next, you are going to calculate the percentage of points the child earned that day. Add up all points earned, divide by the total points possible, and multiply by 100. The total number of points earned should be written at the bottom of the report card, as should the percentage of points earned.” (If the CICO mentor has trouble doing this, a percentage calculation chart will be provided).

☐ “Based on the point goal for the day, use the percentage of points earned to determine if the goal is met. For example, the total points possible will be 75. If a student earns 60 points, 60 divided by 75 is .8, times 100 is 80%.”
If the point goal for the day is 80%, the goal has been met.”

☐ “If the student reaches the point goal, allow him or her to choose a reward from the reward menu. I will provide you with the rewards.”

☐ “Copy the date, score, percentage, and whether or not the student met his goal on the home report. Remind the student to get the home report signed.”

☐ “At this time the student is finished checking out, and you may allow them to leave. Put the DBRC in this folder for safe keeping. Complete the checklist as you go along with the checkout”

☐ “Do you have any questions? Let’s practice a typical check out.”

☐ Have the student go through all steps of the CICO procedure, and use the Treatment Integrity Form to determine if all steps are completed.

☐ Provide feedback on the practice session.
APPENDIX D – Self-Monitoring Example Training Script

Student Self-Monitoring:

☐ “When you arrive at school, you will still need to attend check in. At check in, you will get a copy of your behavior report card to keep with you.”

☐ “At the end of each class, you should rate your behavior during that class period. When rating your behavior, do your best to be accurate.”

☐ “At the end of the day, you will attend check-out. You will have the chance to earn a reward if you meet your point goal for the day, so do your best!”

☐ “Do you have any questions? Let’s practice.”

☐ Have the student go through all steps of the self-monitoring procedure. Provide multiple exemplars (e.g., “if you only raise your hand 20% of the time, what number should you circle?”).

☐ Provide feedback on the practice session.
APPENDIX E – CICO Interventionist Treatment Integrity

Components of Check-In/Check-Out

<table>
<thead>
<tr>
<th>Check-in Components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Collect previous day’s home report</td>
<td></td>
</tr>
<tr>
<td>(2) Issue the student a new DBRC</td>
<td></td>
</tr>
<tr>
<td>(3) Review daily goals and expectations</td>
<td></td>
</tr>
<tr>
<td>(4) Provide positive encouragement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Check-out Components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Praise and/or corrective feedback will be</td>
<td>provided at the end of the day for behavior</td>
</tr>
<tr>
<td>calculated daily performance</td>
<td></td>
</tr>
<tr>
<td>(3) Provide student with reward if point goal met.</td>
<td>No reward is given if goal is not met.</td>
</tr>
<tr>
<td>Remind student to return form with parent signature</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX F – Intervention Checklist for Check-in

☐ When the student arrives, you will want to be nice and greet them. You might start off saying, for example, “Good morning, Jimmy! How are you today?”

☐ Ask if the student has what they need for school, such as a pencil and notebook. So you would say, “Jimmy, are you ready for school? Do you have a pencil and notebook?” If the child is prepared, you should tell him or her, “Good job coming prepared!”

☐ Ask the student if he or she has their home report from the previous day (not to be done on day 1). Again, you should praise the student for coming prepared.

☐ Give the student the new report card for the day.

☐ Next, review the point goal. Explain what the child is supposed to do in order to earn points. For example, “Jimmy, your point goal for today is 80% or 60 points. Remember to stay on-task, to raise your hand before you speak, and to follow directions the first time.”

☐ Praise the student for attending check in. You could say “You’re starting off great today by remembering to check in, keep up the good work!”

☐ Encourage the student to meet his point goal. Try statements such as, “Your point goal is 60, and I know you can reach it!”
APPENDIX G – Intervention Checklist for Check-out

☐ When the student arrives at check out, collect the report card and provide praise for good behavior. Even if the student had a bad day, they probably earned some points. Provide praise for anything they did well. For example, “Great job staying in your seat during 3rd period, Jimmy!”

☐ If the student seemed to have trouble in a particular area (gets a score of 2 or lower), state what could have been done differently. Try to have a nice, calm tone.

For example, “Jimmy, you seemed to have trouble finishing your work today. Tomorrow, do your best to stay on-task and finish your work. You can do it!”

☐ Next, calculate the percentage of points the child earned that day. Record the percentage on the DBRC.

- Add up all points earned, divide by the total points possible, and multiply by 100. The total number of points earned should be written at the bottom of the report card, as should the percentage of points earned.

- OR use percentage calculation chart to find the percentage

☐ Based on the point goal for the day, use the percentage of points earned to determine if the goal is met.

☐ If the student reaches the point goal, allow him or her to choose a reward from the reward menu.

☐ Copy the date, score, percentage, and whether or not the student met his goal on the home report. Remind the student to get the home report signed.

☐ At this time the student is finished checking out, and you may allow them to leave. Put the DBRC in this folder for safe keeping.
APPENDIX H – CICO Home Report

Student’s Name: _________________________ Date: ___________________

Did student meet his or her daily percentage goal? Circle Yes or No

Student’s percentage of points was: ____________________________

Comments (what did the student do well, what could be improved):

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

Parent Signature: ____________________________________________
APPENDIX I – Modified Behavioral Intervention Rating Scale

Please circle the number that best describes your agreement (6) or disagreement (1) with each statement.

1. This was an acceptable intervention for the child’s problem behavior.
   1 2 3 4 5 6

2. Most parents and teachers would find this intervention appropriate for other behavior problems.
   1 2 3 4 5 6

3. This intervention was effective in changing the child’s problem behavior.
   1 2 3 4 5 6

4. I would suggest the use of this intervention to other teachers.
   1 2 3 4 5 6

5. The child’s behavior problem was severe enough to warrant the use of this intervention.
   1 2 3 4 5 6

6. Most teachers would find this intervention suitable for the child’s problem.
   1 2 3 4 5 6

7. I would be willing to use this intervention again.
   1 2 3 4 5 6
8. This intervention would not result in negative side-effects for the child.

1 2 3 4 5 6

9. This intervention would be appropriate for a variety of children.

1 2 3 4 5 6

10. This intervention is consistent with those I have used in classroom settings.

1 2 3 4 5 6

11. This intervention was a fair way to handle the child’s problem behavior.

1 2 3 4 5 6

12. This intervention is a reasonable approach for the child’s problem behavior.

1 2 3 4 5 6

13. I like the procedures used in the intervention.

1 2 3 4 5 6

14. This intervention was a good way to handle the child’s problem behavior.

1 2 3 4 5 6
15. Overall, this intervention was beneficial to the child.

16. This intervention quickly improved the child’s problem behavior.

17. This intervention should produce a lasting improvement in the child’s behavior.

18. This intervention should improve the child’s behavior to the point that it does not noticeably deviate from other children’s behavior.

19. Soon after using the intervention, I noticed a positive change in the problem behavior.

20. The child’s behavior should remain at an improved level even after intervention is discontinued.

21. Using this intervention should not only improve the child’s behavior in the classroom and at home, but in other situations as well.
22. When comparing the child with a well-behaved peer before and after use of the intervention, the child’s and the peer’s behavior would be more alike after using the intervention.

23. The intervention should produce enough improvement in the child’s behavior so that the behavior is no longer a problem.

24. Other behaviors related to the problem behavior are likely to be improved by the intervention.
### APPENDIX J – Children’s Intervention Rating Profile/ Modified Version

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICO was fair.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>I liked CICO</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>I think other students would like CICO</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>CICO helped me (the other student) do better in school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>CICO did not cause problems for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>CICO did not cause problems for my friends</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>I liked the rewards (the other student) earned with CICO</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

APPENDIX K – Modified DBRC for Baseline

Student Name: ____________________________    Date: ___________________

Please indicate the point value corresponding to the degree to which the behavior was displayed: 0=never (0%), 1=occasionally (1-20%), 2=some (21-40%), 3= approximately half (41-60%), 4=Most (61-80%), 5= Majority (81-100%).

Total points earned (Possible 15):______________

Percentage Earned: __________________________

<table>
<thead>
<tr>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 1 2 3 4 5</td>
<td>0 1 2 3 4 5</td>
<td>0 1 2 3 4 5</td>
</tr>
<tr>
<td>Behavior 1: Remain In your seat.</td>
<td>If student received a score between 0 and 2 during ANY class period say:</td>
<td>If student received all scores between 3 and 5 during each class period, say:</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>You had a little trouble staying in your seat during (X) period(s), make sure you try to stay in your seat during class.</td>
<td>Great Job staying in your seat today! Keep up the good work!!!</td>
</tr>
<tr>
<td>Behavior 2: Raise hand to be called on before speaking.</td>
<td>You had a little trouble raising your hand and waiting to be called on during (X) period(s), make sure you raise your hand and wait to be called on before speaking.</td>
<td>Great Job raising your hand to speak and waiting to be called on! Keep up the good work!!!</td>
</tr>
<tr>
<td>Behavior 3: Remain on task and complete assignments.</td>
<td>You had a little trouble completing your work today. Tomorrow, try to make sure you stay focused so you can complete your work.</td>
<td>Great Job completing all of your work today! Way to go!!</td>
</tr>
</tbody>
</table>
REFERENCES


