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Effects of Check In/Checkout with a Fading Procedure on the Academic Engagement and Problem Behavior of Elementary School Students

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EFFECTS OF CHECK IN/CHECKOUT WITH A FADING PROCEDURE ON THE
ACADEMIC ENGAGEMENT AND PROBLEM BEHAVIOR
OF ELEMENTARY SCHOOL STUDENTS

by

Leila Mullooly Miller

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

August 2013
ABSTRACT

EFFECTS OF CHECK IN/CHECKOUT WITH A FAADING PROCEDURE ON THE ACADEMIC ENGAGEMENT AND PROBLEM BEHAVIOR OF ELEMENTARY SCHOOL STUDENTS

by Leila Mullooly Miller

August 2013

Though preliminary research indicates Check-In/Check-Out (CICO) is an effective intervention for improving problematic behavior in a variety of populations, the literature is limited in several ways. Several studies have relied on indirect measures of behavior, such as office discipline referrals (ODRs) and teacher ratings, to determine the effectiveness of CICO. However, indirect measures are not always reliable indicators of student behavior change, whereas direct observation is known to be an accurate tool for behavioral measurement. Therefore, the current study evaluated the effects of CICO on levels of problem behavior and academic engagement for a group of four elementary school students as measured by direct observation. Following successful implementation of CICO, a self-monitoring procedure was used to fade teacher feedback. Results indicated CICO is effective in decreasing problem behavior and increasing academic engagement. Moreover, self-monitoring was found to effectively maintain low levels of problem behavior across participants. A Spearman’s rank correlation was used to analyze convergence between teacher ratings and direct observation data. A strong correlation between teacher ratings and direct observation was found, indicating teacher ratings may be a reliable indicator of student academic engagement.
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2013
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CHAPTER I

INTRODUCTION

Review of the Literature

School-Wide Positive Behavior Interventions and Supports (SWPBIS) is a data-driven, system-wide approach for creating effective practices to prevent problem behavior and increase prosocial behavior in schools (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). SWPBIS utilizes a three-tier approach to intervention in which primary interventions, Tier 1, are available to all students in all school settings; secondary interventions, Tier 2, are more focused and are used to decrease or eliminate occurrences of problem behavior for students at risk for behavioral difficulties; and tertiary interventions, Tier 3, are individualized interventions for particular students at high risk of behavioral or academic difficulties (OSEP Center of Positive Behavioral Support, 2002; Sugai & Horner, 2002; Sugai & Horner, 2008). When SWPBIS is implemented, students are provided with a more structured environment, clearly stated rules and expectations, increased positive attention, and systemic acknowledgment for appropriate behavior (Warren et al., 2006). SWPBIS has been shown to be effective in reducing the number of office discipline referrals (ODR) and suspensions in schools implementing the intervention, while indirectly improving academic outcomes for students (Lassen et al., 2006; Luiselli, Putnam, Handler, & Feinberg, 2005; Sherrod, Getch, & Ziomek-Daigle, 2009). Many have speculated that SWPBIS may be effective for managing the behavior of 80-90% of students (Sherrod et al., 2009; Sugai & Horner, 2008).
For approximately 10-20% of students, Tier 1, the universal component of SWPBIS, may not be enough to prevent problem behaviors and additional behavioral supports may be needed (Hawken, 2006; McCurdy, Kunsch, & Reibstein, 2007; OSEP Center on Positive Behavioral Support, 2002; Sherrod et al., 2009). Tier 2 interventions may be effective in preventing poor outcomes for 5% to 15% of students, who would be considered at-risk for poor academic or behavioral outcomes (Hawken, 2006; Mitchell, Stormont, & Gage, 2011). At this level of support, interventions are designed to reduce students’ current behavioral or academic problems and prevent these issues from escalating to a level at which individualized supports would be necessary. As secondary interventions are not individualized, schools may have the resources to quickly implement Tier 2 interventions (Mitchell et al., 2011). Several Tier 2 interventions have been empirically validated including Check-In/Check-Out (CICO) as well as social skills trainings and academic intervention groups (Mitchell et al., 2011; Todd, Campbell, Meyer, & Horner, 2008). Tier 2 interventions such as a CICO may be effective in reducing or eliminating problem behaviors for these students. A primary feature of CICO is the use of a Daily Behavior Report Card (DBRC), which increases the amount of behavioral feedback students receive throughout the day and has been shown to decrease problem behaviors and increase academic engagement and appropriate behaviors (Chafouleas, Riley-Tillman, & McDougal, 2002).

The DBRC is a behavioral intervention in which teachers rate specific student behaviors and provide the student with feedback at regular intervals throughout the school day (Chafouleas, McDougal, Riley-Tillman, Panahon, & Hilt, 2005; Chafouleas et al., 2002; Riley-Tillman, Chafouleas, Briesch, & Eckert 2008). DBRCs are used to
monitor a wide range of behaviors and can be modified for use with a variety of behavior rating procedures (Chafouleas et al., 2002). DBRCs can also function as progress monitoring tools or as an intervention by themselves (Chafouleas, Riley-Tillman, Sassu, LaFrance, & Pawta, 2007). However, DBRCs may be limited as a behavioral proxy, as teachers fill them out at the end of a pre-determined amount of time rather than as behavior occurs, making them an indirect measure of behavior. In contrast, direct observations, the most widely accepted form of data collection, provide a direct measure of behavior. Though DBRCs are indirect behavioral measures, preliminary research has found that DBRCs may correspond with direct observations of student behavior (Chafouleas et al., 2005; Fabiano, Vujnovic, Naylor, Pariseau, & Robins, 2009; Riley-Tillman et al., 2008; Riley-Tillman, Chafouleas, Sassu, Chanese, & Glazer, 2008). In a survey of members of the National Association of School Psychologists (NASP) about training, use, and the acceptability of DBRCs and direct observation, both methods of data collection were rated as moderately acceptable and not intrusive (Riley-Tillman, Chafouleas, Briesch, & Eckert, 2008). Additionally, Chafouleas, Riley-Tillman, and Sassu (2006) surveyed teachers on their use and acceptability of the DBRC. Teachers reported they found DBRCs highly acceptable when they completed the forms themselves rather than having students or other staff complete the forms and noted they found the intervention more acceptable when used to highlight positive rather than negative behaviors (Chafouleas et al., 2006).

CICO, also referred to as the Behavior Education Program (McCurdy et al., 2007) and similar to the Check, Connect, Expect and school-home note interventions (Cheney, 2009; Jurbergs, Palcic, & Kelley, 2007), is a Tier 2 intervention that utilizes a DBRC in
conjunction with increased positive teacher feedback and prompts for appropriate behavior throughout the school day (Filter et al., 2007; Hawken & Horner, 2003; McCurdy et al., 2007; Mullooly, 2011; Todd et al., 2003; Todd et al., 2008). During CICO, the student is required to check-in with a designated staff member before school. At morning check-in, the student is provided with a DBRC, which he or she carries throughout the day. The student gives his or her teachers the DBRC at the beginning of each class period and receives feedback on his or her behavior at the end of the period. Each teacher gives the student points on the DBRC based on the student’s behavior in the class. At the end of the school day, the student attends check-out with a designated staff member who tallies the points earned on the DBRC and provides rewards when the student’s point goal is met. The DBRC is then brought home by the student for a parent signature and is returned at morning check-in. Though CICO is designed to work well for students who switch teachers throughout the day, Mong, Johnson, and Mong (2011), and Mullooly (2011) found CICO to be effective in reducing problem behavior and increasing academic engagement for elementary school students with as few as one or two teachers during the school day. Additionally, CICO has been shown to be effective in reducing problem behaviors and increasing academic engagement in a variety of populations (e.g., elementary school students, middle school students, high school students) as measured by ODRs, DBRC points, and direct observation (Harpole, 2010; March & Horner, 2002; Mullooly, 2011). Also, research has shown typical school personnel can implement CICO with high integrity (Filter et al., 2007).

Though some studies have found CICO to be effective in decreasing problem behavior and increasing academic engagement, there are some limitations in the
literature. When limiting literature searches to peer-reviewed journals, many of the identified CICO studies have relied on DBRCs or ODRs as the primary measure of problem behavior (Harpole, 2010; Hawken et al., 2007; McCurdy et al., 2007). Several issues surround the use of ODRs as measures of individual problem behavior, including the variety of individuals reporting behavior, potential inaccuracies when entered by office staff, limited predictive and concurrent validity, and individual biases which may affect reports of problem behavior (Nelson, Gonzalez, Epstein, & Benner, 2003; Pas, Bradshaw, & Mitchell, 2011; Peacock, Ervin, Daly, & Merrill, 2010). Also, relatively fewer studies have included academic engagement as a measure of the extent to which CICO results in improvements in appropriate behavior (Campbell & Anderson, 2011; Mullooly, 2011). Academic engagement is an important behavior to measure, as lack of problem behavior does not necessarily indicate students are engaging in the expected classroom behaviors, and academic engagement is a predictor of academic achievement (Dotterer & Lowe, 2011). Furthermore, no studies were identified that included data on generalization of behavior change across multiple school settings. Therefore, the extent to which changes in student behavior occurred throughout the school day is unknown.

In a review of the literature on SWPBIS Tier II interventions, Mitchell et al. (2011) identified 13 studies, eight of which evaluated the effects of CICO. Mitchell et al. (2011) found CICO was effective in reducing problem behaviors for a variety of populations; however, only three studies included in the review included direct observation data. Of these three studies, only one included direct observations of appropriate behavior. Also, only three studies included treatment integrity data, which limits evaluation of the degree to which CICO was implemented as planned.
Many of the peer-reviewed studies investigating CICO utilized ODRs as the primary measures of behavior. In studies conducted by Filter et al. (2007); Hawken, MacLeod, and Rawlings (2007); Hawken, O’Neill, and MacLeod (2011); March and Horner (2002); and Todd et al. (2008) the effects of CICO were investigated using ODRs as the primary measure of student behavior change. Results from all studies indicated CICO was effective in reducing problem behaviors as measured by ODRs. Unfortunately, as ODRs may not be reliable, study outcomes must be viewed with caution. Direct observation of student behaviors would have increased confidence in these findings. Also, these studies did not include a measure of appropriate behavior, so the extent to which problem behaviors were replaced by appropriate behaviors is unknown.

Other identified studies have used teacher ratings on DBRCs and rating scales to determine the effects of CICO on appropriate student behavior. Mcintosh, Campbell, Carter, and Dickey (2009) studied the effects of CICO on the pre- and post-test scores of 36 elementary school students on rating scales measuring problem and prosocial behaviors. Prior to the study, teacher interviews were conducted to create hypotheses regarding variables maintaining students’ problem behaviors. For the participants with problem behaviors hypothesized to be maintained by access to attention, results indicated CICO resulted in statistically significant effects for problem behavior, $F(1, 17) = 9.25, p < .01$, and prosocial behavior, $F(1, 17) = 8.38, p < .05$. McIntosh et al. (2009) also found CICO resulted in decreases in ODRs for students whose problem behavior was hypothesized to be reinforced by access to attention. Harpole (2010); Lane, Capizzi, Fisher, and Ennis (2012); and McCurdy et al. (2007) investigated the effects of CICO on
teacher ratings of appropriate behavior using DBRCs. The results of these studies indicated that CICO may be an effective intervention for increasing appropriate behavior. Harpole (2010) also reported decreases in the number of ODRs students received, indicating CICO was effective in reducing problem behavior. Though all studies found CICO to be effective in improving student behavior, DBRC points or rating scales were the primary measures of intervention effectiveness. As teachers complete DBRCs and rating scales following a pre-determined period of time rather than as behavior occurs, their ratings are indirect. Again, direct observations of student behaviors were not included in these studies.

Some studies have also used direct observation to measure the effectiveness of CICO. Hawken and Horner (2003); Mong et al. (2011) and Simonsen, Myers, and Briere (2011) examined the effects of a CICO intervention on the problem behavior exhibited by students in grades ranging from kindergarten through middle school. Results from these studies found CICO to be effective in reducing problem behavior. Additionally, Mong et al. (2011) found CICO resulted in increased math assignment completion, and Hawken and Horner (2003) found CICO resulted in increased academic engagement as measured by direct observation. Although the participants demonstrated improvement when CICO was implemented, none of these studies collected data in settings outside of the targeted observation period, so it is unknown if changes in behavior generalized to various times and school settings. Also, in the study conducted by Hawken and Horner (2003), there was a large amount of overlap in data between baseline and the intervention phase, which decreases the strength of the conclusions that can be drawn from the results. In studies conducted by Ennis, Jolivette, Swoszowski, and Johnson (2012) and Swoszowski,
Jolivette, Fredrick, and Heflin (2012) the effects of CICO on the behavior of six students with emotional and behavioral disorders at residential facilities who exhibited problem behaviors maintained by attention were compared to students whose behaviors were maintained by escape. Ennis et al. (2012) found CICO was more effective in reducing problem behaviors for attention-maintained students, with all three attention-maintained students displaying decreased problem behavior, but only one of three escape-maintained students showing improvement. In contrast, results obtained by Swoszowski et al. (2012) indicated CICO was similarly effective across the groups, decreasing problem behaviors for two participants whose behavior was attention-maintained and two participants whose behavior was escape-maintained. Neither of these studies included measures of appropriate behavior or used a fading procedure following successful implementation of CICO. Also, observations occurred only once per day, so the degree to which behavior generalized across settings is unknown.

Direct observation has also been used when comparing variations of CICO procedures to one another. In studies conducted by Campbell and Anderson (2008) and Fairbanks, Sugai, Guardino, and Lathrop (2007) function-based modifications to CICO were found to benefit students who did not respond to CICO efforts. Campbell and Anderson’s (2008) study included two participants hypothesized to engage in problem behaviors to access peer attention. Function-based modifications included allowing participants to sit by preferred peers at lunch if all points were earned during the morning, allowing them to attend check-out together if both earned at least 90% of points, and allowing them to sit together during math class the next day if both earned at least 90% of points. If the 90% criterion was not met, they had to check-out separately and sit apart
from preferred peers the next day. Of four participants included in Fairbanks et al.’s (2007) study, two exhibited behaviors maintained by peer and adult attention for whom modifications to CICO included clarification of behavioral expectations on DBRCs, having the participants put their heads down for ten seconds and then receive a redirection when they did not follow directions, and access to recess and class activities for reaching point goals. One participant exhibited behaviors maintained by peer attention and escape, and modifications to CICO for this participant included allowing him to complete smaller amounts of work and take assignments home, precorrections, and choices of activity when behavioral goals were met. For the fourth participant, behaviors were maintained by adult attention, and modifications included a change of seat to increase adult proximity, clarification of behavioral expectations on the DBRC, addition of a point system to earn access to time with the teacher or school counselor, and the loss of points for problem behavior. In both studies, function-based modifications plus CICO resulted in decreased problem behavior following unsuccessful implementation of CICO in isolation. Though these studies found modified versions of CICO to be effective in reducing problem behavior, there are some limitations such as Fairbanks et al.’s (2007) failure to include an experimental design that would allow for establishing a functional relationship between a modified CICO and changes in student behavior.

Of the CICO studies identified, only two studies have attempted to fade intervention efforts following successful CICO implementation. In a study conducted by Mullooly (2011) the effects of CICO on the problem behavior and academic engagement of elementary school students was investigated. An ABAB withdrawal design with a
fading procedure was used to measure the effectiveness of CICO. The fading procedure consisted of a Mystery Motivator phase followed by a self-monitoring phase. CICO fading began when students displayed a stable or decreasing trend in problem behavior during the final B phase. The Mystery Motivator phase introduced a thinner schedule of reinforcement and an indiscriminable contingency and consisted of students, upon meeting their point goal, being presented with an envelope containing slips of paper marked with an “M” indicating reward or “X” indicating no reward. The envelopes contained three slips indicating rewards and two indicating no reward. If a student met their CICO point goal, the student would pull a slip of paper from the envelope to see if they would receive a reward for that day. Mullooly (2011) used direct observation to measure both problem behavior and academic engagement. Results indicated CICO was effective in decreasing problem behavior and increasing academic engagement for all three students. Also, a Spearman’s rank correlation was conducted to determine if there was convergence between direct observations of academic engagement and teachers ratings for the same academic periods, resulting in a correlation coefficient of 0.47, \( p = 0.01 \), indicating a moderate correlation. When CICO was faded, only one teacher completed the fading procedure for one student, which was found to maintain behavioral gains for that student. A second student began the Mystery Motivator phase, but CICO was re-implemented as the student’s behavior regressed somewhat, as evidenced by an out-of-school suspension.

In another study evaluating fading of successful CICO, Campbell and Anderson (2011) systematically faded the teacher feedback component of CICO. Initial CICO implementation was found to increase academic engagement and reduce problem
behaviors as evidenced by direct observation of student performance. Moreover, when teacher feedback was systematically faded by reducing the number of feedback sessions, students were able to maintain reductions in problem behavior and increases in academic engagement. Though evidence for fading CICO is promising, additional research is needed to determine the extent to which CICO components can be faded while students maintain behavioral improvements.

Campbell and Anderson (2011) demonstrated successful gradual fading of teacher feedback session following effective CICO implementation. However, Mullooly (2011) demonstrated that, for one student, teacher feedback could be totally withdrawn and replaced by self-monitoring (i.e., student completes DBRC) and behavioral improvements could be maintained.

Therefore, self-monitoring, which is the process of collecting data on one’s performance in relation to a pre-determined goal (Soares, Vannest, & Harrison, 2008), can be considered as a fading procedure after behavioral goals have been met for interventions such as CICO that include a teacher completed DBRC. Self-monitoring operates in a similar fashion as the DBRC, albeit with fewer adult resources. Specifically, self-monitoring includes students monitoring their own performance for preset behaviors (Soares et al., 2008). Additionally, students may self-reinforce for meeting preset behavioral expectations (Kaplan, Hemmes, Motz, & Rodriguez, 1996). Self-monitoring has been shown to be effective in improving a wide range of problem behaviors (e.g., failure to complete assignments, out-of-seat, talking out) and for a variety of populations (e.g., regular education students, special education, Attention-Deficit/Hyperactivity Disorder); Amato-Zech, Hoff, & Doepke, 2006; Axelrod, Zhe,
Haugen, & Klein, 2009; Davies, Jones, & Rafoth, 2010; Rock, 2005; Rock & Thead, 2007; Wehmeyer, Yeagger, Bolding, Agran, & Hughes, 2003; Zlomke & Zlomke, 2003). If students meet their behavioral goals with CICO, self-monitoring may provide an effective method for fading intervention without losing the positive effects associated with regular feedback on behavior (albeit self-delivered feedback), while greatly reducing adult effort associated with intervention implementation (i.e., teachers no longer responsible for DBRC completion).

Several peer-reviewed studies have investigated the effects of self-monitoring on elementary student behavior; however, most studies have implemented self-monitoring as the primary intervention rather than as a fading procedure. Several studies have looked at the effects of self-monitoring on students’ on-task behavior. In studies conducted by Amato-Zech et al. (2006); Bialas and Boon (2010); Gulchak (2008); Kern, Dunlap, Childs, and Clarke (1994); Legge, DeBar, and Alber-Morgan (2010); and Mathes and Bender (1997) the effectiveness of self-monitoring on increasing on-task behavior for elementary school students with a variety of diagnoses (e.g., speech and language disorders, emotional and behavioral disorders) was investigated. These studies found self-monitoring resulted in increases in on-task behavior across participants; however, in all studies self-monitoring was implemented as the initial intervention, and only one attempted to fade the intervention. In the study conducted by Legge et al. (2010), self-monitoring was faded by decreasing prompts for self-monitoring and results indicated all participants were able to maintain behavioral gains. Results from Legge et al. (2010) are promising as they indicate self-monitoring can maintain behavioral gains with minimal staff support and when supports are decreased; however, none of these studies included
self-monitoring as a fading procedure following implementation of CICO, so the extent to which self-monitoring would maintain behavioral gains observed during CICO is unknown.

Other studies have investigated the effects of self-monitoring on on-task behavior and either academic accuracy or productivity. Harris (1986); Harris, Friedlander, Saddler, Frizzelle, and Graham (2005); Hughes and Boyle (1991); Lloyd, Bateman, Landrum, and Hallahan (1989); Rafferty and Raimondi (2009); Reid and Harris (1993); Rooney, Polloway, and Hallahan (1985); and Wolfe, Heron, and Goddard (2000), studied the effects of self-monitoring on on-task behavior and task productivity of elementary school students with a variety of diagnoses (e.g., mild mental retardation, learning disabilities). Across all studies, self-monitoring resulted in increases in on-task behavior and task productivity for all participants. In studies conducted by Holifield, Goodman, Hazelkorn, and Heflin (2010); McDougall and Brady (1995); and Rafferty, Arroyo, Ginnane, and Wilczynski (2011) the effects of self-monitoring of on-task behavior and academic accuracy were investigated for elementary school students with and without diagnoses. Results indicated all participants displayed increases in on-task behavior and academic accuracy when self-monitoring was implemented, though McDougall and Brady (1995) noted one participant required additional instruction on self-monitoring before improvements were observed. Across all studies identified that investigated the effects of self-monitoring on the on-task and academic behavior of elementary school students, self-monitoring was implemented as a primary intervention strategy rather than as a fading procedure.
Several self-monitoring studies have focused on the effects of self-monitoring on a variety of outcomes including academic engagement, accuracy, and productivity. Lannie and Martens (2008), Maag and Reed (1993), Rock (2005), and Rock and Thead (2007) studied the effects of self-monitoring on the on-task behavior, academic accuracy, and academic productivity of elementary students. Results indicated self-monitoring increased low levels of academic behaviors and maintained behaviors when students exhibited initially high levels for most participants. In all of these studies, self-monitoring was implemented as the primary intervention, and only Maag and Reed (1993) and Rock and Thead (2007) attempted to fade self-monitoring. To fade self-monitoring, Maag and Reed (1993) removed all prompts for self-monitoring on the first day and removed self-monitoring two days later, while Rock and Thead (2007) increased the time between prompts for students to self-monitor and eventually removed self-monitoring. When self-monitoring was faded, Maag and Reed (1993) found participants displayed some decreases in on-task and academic behaviors, though all behaviors remained above baseline levels. Rock and Thead (2007) found four of five participants either maintained or displayed an increase in academic engagement and productivity, but only one student maintained increases in accuracy. Though these studies found self-monitoring can improve or maintain students’ behavior, self-monitoring was implemented as the primary intervention. More data are needed to determine if self-monitoring is able to maintain behavioral gains made during other interventions, such as CICO.

In studies conducted by Baskett (2001) and Dunlap et al. (1995), the effects of self-monitoring on the academic behaviors and problem behaviors of elementary students
in general education were investigated. Dunlap et al. (1995) found self-monitoring resulted in increased academic engagement and decreased problem behavior for the two participants in their study. Baskett (2001) found self-monitoring did not improve behaviors, but students who were highly accurate raters (agreement of 80% or more) were found to exhibit more stable behavior than their less accurate peers. No fading procedure was utilized in either study. Though results from Baskett (2001) did not indicate self-monitoring improved behavior, their study indicated self-monitoring can maintain stable levels of behavior for students who are accurate raters.

Summary and Purpose of the Study

CICO includes many of the features of previously empirically demonstrated effective school-based interventions such as DBRC. Specifically, CICO includes clearly communicated expectations, regular feedback on behavioral performance, and opportunities to earn rewards for meeting some preset behavior criterion. Preliminary research indicates that CICO may be effective for improving students’ behavioral performance when implemented in the context of SWPBIS. Unfortunately, the CICO literature is limited in some important ways. First, many of the CICO studies have used ODRs as the primary measure of disruptive behavior even though there are some major threats to the reliability and validity of ODRs as a measure of problem behavior (Harpole, 2010; Hawken & Horner, 2003; Hawken et al., 2007; McCurdy et al., 2007; Peacock et al., 2010). Also, few studies have included measures of appropriate behavior, and many studies that have included such measures have relied on teacher ratings of student behavior. However, teacher ratings may not be reliable, and data are needed to determine if convergence exists between ratings and more objective forms of behavioral
measurement, such as direct observation. Also, no studies were identified that included
direct observation of student behavior across multiple times and settings. For students’
behavior changes to be truly meaningful, decreases in problem behavior and increases in
academic engagement should be evidenced throughout the school day. Additionally,
only two CICO studies were identified that evaluated fading of core CICO components
(Campbell & Anderson, 2011; Mullooly, 2011). Mullooly (2011) found that self-
monitoring may be viable for replacing teacher feedback sessions within CICO; however,
Mullooly provided data for only one student demonstrating effectiveness of fading to
self-monitoring within CICO. Therefore, additional research is needed to support the use
of self-monitoring as a fading procedure within CICO.

The purpose of this study was to extend the CICO literature in some important
ways. First, the CICO literature is relatively new and many CICO studies include
limitations (e.g., lack of direct measurement, non-experimental designs, failure to collect
treatment integrity data) that undermine confidence in their results. As a result, this study
was designed to provide an additional demonstration of CICO effectiveness, while
including a rigorous experimental design, evaluation of treatment integrity, and use of
direct measures of student behavior. There must be multiple rigorous demonstrations of
CICO effectiveness in order to justify recommendation of CICO as a preferred Tier 2
strategy within SWPBIS. Second, this study provides an additional demonstration of
CICO with elementary students. Though some CICO studies have used elementary
school students, there are relatively fewer studies with this population. Third, this study
demonstrates the impact of CICO on student behavior throughout the school day and
across multiple academic subjects. Previous CICO research has largely evaluated student
behavior change for a single target academic setting. Finally, this study employed a systematic method for fading intervention. Specifically, this study faded CICO to self-monitoring once beneficial intervention outcomes were achieved. Again, only two studies have evaluated fading of core CICO components, and evaluation of fading CICO is critical for informing applied practice.

Research Questions

The following research questions will be addressed in this study:

1. Does CICO produce decreases in problem behavior as evidenced by direct observations?
2. Does CICO produce increases in academic engagement as evidenced by direct observation and DBRCs?
3. Do changes in problem behavior and academic engagement generalize to multiple school settings/activities?
4. Will self-monitoring be effective in maintaining behavioral gains when CICO is faded?
5. Is there convergence between direct-observation data and DBRCs?
CHAPTER II

METHODS

Participants and Setting

This study was conducted in two elementary schools in the southeast United States in which SWPBIS had been in place for three years. School A was located in a small city and served 477 students in grades kindergarten through fifth. The student population of School A was 81.6% African American, 13.4% Hispanic, 3.8% Caucasian, 0.6% Asian, 0.4% American Indian, and 0.2% multiracial. Approximately 96.2% of the students received free or reduced price lunch. School B was located in a small city and served 525 students in grades pre-kindergarten through fifth. The student population of School B was 97% African American, 2% Hispanic, and 1% Caucasian. Approximately 97.9% of the students received free or reduced price lunch. To determine if the universal components of SWPBIS were successfully implemented, the School-Wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2005) had been recently conducted by independent observers who received training in conducting the SET and obtained interobserver agreement above 80% on the instrument. Schools A and B achieved scores of 83.4% and 96.9%, respectively, on the general index of the SET (Todd et al., 2003).

Student participants were four elementary school students who exhibited disruptive behavior despite exposure to universal SWPBIS procedures (i.e., Tier I). Students were selected for participation due to meeting the following criteria: (a) school administrator nomination due to frequent referrals for problem behavior, (b) teacher verification of problem behavior, (c) problem behavior caused no physical harm to the student or others, (d) informed consent was obtained from student’s parents or legal
guardian (Appendix A), (e) and informed consent was obtained from student’s teachers and CICO mentor (Appendix B). One participant was excluded from the study due to these criteria. Though the student was initially nominated by the principal, at a follow-up meeting with the student’s teachers and the principal it was determined the student was not in need of further behavioral supports. Also, though one of the participants, Daniel, did not have any official office referrals, the principal reported speaking to him several times regarding his behavior, and his teachers all reported his behavior was a major concern and that they often sent him out of the room due to behavioral issues. No participants had any previous diagnoses or special education rulings.

Lisa

Lisa was an African American female in the second grade at School A. She was nominated by the school’s principal for a high number of ODRs by School A’s standards. Prior to the study, Lisa had received three referrals for repeated minor behaviors and a three-day suspension for verbally disrespecting her teacher and disrupting the classroom. Her teachers reported she was often talking out, out of seat, and playing with objects.

Andrew

Andrew was a Caucasian male in the second grade at School A. He was nominated by the school’s principal for a high number of ODRs by School A’s standards. Prior to the study, Andrew had received two referrals, both for repeated minor behaviors. His teacher reported he was often talking out, out of seat, and off-task.

Daniel

Daniel was an African American male in fourth grade at School A. He was nominated by the school’s principal due to frequent reports of problem behavior. Prior to
the study, Daniel had not received an ODR; however, the principal reported he often spoke to Daniel about his disruptive behavior, and his teachers reported he exhibited high levels of problem behavior. His teachers reported he was often talking out, playing with objects, and off-task.

Grant

Grant was an African American male in kindergarten at School B. He was nominated by the school’s principal due to a high number of referrals by School B’s standards. Prior to the study, Grant had received three referrals for repeated minor behaviors. His teacher reported he was often out of seat, off-task, and touching other students and their property.

Each student was asked to identify three school staff members they would like to serve as the CICO mentor. One of the individuals selected by each student was chosen to participate in the study as their CICO mentor. To be chosen, the staff members had to be available to implement morning and afternoon CICO sessions and consent to participate in the study. Lisa’s mentor was her classroom teacher, who had a bachelor’s degree in education and 10 years of teaching experience. Andrew’s CICO mentor was the school secretary, who had a high school diploma and 14 years of experience working in her current position. Daniel’s CICO mentor was his homeroom teacher, who had a master’s degree plus 30 hours in education and eight years of teaching experience. Grant’s CICO mentor was his classroom teaching assistant, who had an associate’s degree in education and nine years of experience teaching. Consent was obtained from CICO mentors as well as all of the students’ other teachers (Appendix B). For each student, a second individual chosen from the list of staff members provided by each student was selected to serve as
the alternative mentor, responsible for conducting check-ins and check-outs if the primary mentor was absent. Consent was obtained from all alternate mentors as well (see Appendix B).

Morning check-ins and afternoon check-outs for each student were completed by their CICO mentors. The CICO mentors were responsible for the following tasks each morning: (a) reviewing the day’s point goal with their assigned student, (b) discussing possible strategies for attaining the point goal with the student, (c) reviewing the possible rewards available if the point goal was met by the student, and (d) providing a new DBRC to the student. At the end of each day, the CICO mentors were responsible for tallying the students’ earned points for the day and providing feedback and/or access to rewards based on whether the point goals were reached.

Problem behaviors for each participant were identified during a teacher interview. To be included in the study, the behaviors identified had to be reported as occurring at least intermittently throughout the school day. Two direct observations of each student were conducted to verify that identified problem behaviors were present and that the behaviors were exhibited throughout the school day.

Materials

*Functional Analysis Informant Record for Teachers (FAIR-T II)*

The FAIR-T II (Appendix C) is an adaptation of the FAIR-T, which has been found to be useful as an indirect functional assessment instrument (Doggett, Edwards, Moore, Tingstrom, & Wilczynski, 2001; Edwards, 2002). Specifically, the FAIR-T has been found to produce data that converged with descriptive and experimental functional analysis procedures and was useful for intervention development across a range of
behaviors and student populations. The original FAIR-T included open-ended and selection responses while the FAIR-T II includes a rating scale format in which respondents rate the extent to which behaviors occur and are preceded by and followed by specific environmental events. The FAIR-T II was used to collect information about each student’s problem behaviors, the settings in which the behaviors occurred, and consequences that typically followed the behaviors. All teachers of each participating student completed the FAIR-T II. The first section of the FAIR-T II gathers general demographic information as well as information about the student’s teachers, schedule, and general behavior. The second section gathers information on the student’s problem behaviors, the manageability of the behaviors, and the disruptiveness of the behaviors. The third section collects information on the antecedents and consequences of the behavior. This section was converted into a rating scale, with items ranging from 0 to 3, with 0 indicating the behavior or event “never happens” and 3 indicating the behavior or event “happens very often.”

*Daily Behavior Report Card*

Teachers completed the DBRCs (Appendix D) at times predetermined based on consultation with the primary investigator. Times selected were either natural transition points during the school day, or times otherwise agreed upon by the primary investigator and the teacher. The periods of observation were of roughly equal length and marked the end of one behavioral observation period, for which the teacher rated the student’s level of appropriate behavior exhibited during the period.

Three target behaviors representing appropriate behavior and academic engagement that were in agreement with the school’s SWPBIS expectations were
included on the DBRC. Target behaviors were developed using information gathered from the teacher interviews. Target behaviors were paired with a school expectation and descriptions of the appropriate behavior (e.g., “remain in-seat” listed under “Be Safe,” “raise hand and be called on before speaking” under “Be Respectful,” and “remain on-task and complete assignments” under “Be Responsible”). DBRCs also had a point system, similar to that used by Chafouleas et al. (2007), for rating student behavior during each period. Ratings were on a 6-point Likert scale with descriptors for each rating (e.g., 0 = behavior not observed, 1 = occasionally, 2 = some, 3 = approximately half, 4 = most, and 5 = majority). Additionally, a range of percentages were matched to each point and descriptor (0 = 0%, 1 = 1-20%, 2 = 21-40%, 3 = 41-60%, 4 = 61-80%, and 5 = 81-100%). To determine the validity of the DBRC, Chafouleas et al. (2007) converted direct observation data into DBRC ratings. These ratings were compared to teacher ratings from the same period. Chafouleas et al. (2007) found this DBRC format to result in average agreement of 90% when compared to teacher ratings of behavior, demonstrating convergent validity of the DBRC.

CICO Treatment Integrity Checklist

Treatment integrity was measured using a checklist adapted from Hawken, MacLeod, and Rawlings (2007). The CICO Treatment Integrity Checklist (Appendix E) items included (a) student attended the morning check-in, (b) parent initialed the DBRC indicating they had reviewed the previous day’s data, (c) teachers provided appropriate feedback throughout the school day, (d) the student attended check-out at the end of the school day, (e) teachers accurately filled out the DBRC, (f) CICO mentor accurately tallied points, and (g) student was allowed access to rewards when criterion was met.
**Self-Monitoring Treatment Integrity Checklist**

Treatment integrity during self-monitoring was measured using the Self-Monitoring Treatment Integrity Checklist (Appendix F), which included (a) student had his or her own DBRC and (b) student rated his or her behavior at the pre-determined time.

**CICO Procedural Integrity Checklist/Training Script**

During the initial training sessions, procedural integrity data were collected using the CICO Procedural Integrity Checklist/Training Script (Appendix G), which included all steps of the training in script form. An observer had a copy of the checklist during trainings and, as the items were covered, the observer marked on the form to indicate that the steps were completed.

**Self-Monitoring Procedural Integrity Checklist/Training Script**

Prior to the start of self-monitoring, students were taught the self-monitoring procedures. During these trainings, procedural integrity data were collected using a Self-Monitoring Procedural Integrity Checklist/Training Script (Appendix H), which included all steps of the training in script form. An observer had a copy of the checklist during trainings and, as the items were covered, the observer marked on the form to indicate that the steps were completed.

**CICO Student Record Form**

The CICO Student Record Form (Appendix I), adapted from Crone, Horner, and Hawken (2004), was completed daily by each student’s CICO mentor to summarize the student’s data. CICO Student Record Forms were also collected as permanent product measures of treatment integrity (Hawken & Horner, 2003; Hawken et al., 2007). On the
CICO Student Record Form there were blanks for the student’s name and the mentor’s name, and a chart on which to record the date and if the following events occurred: (a) student had materials for the day, (b) student returned signed DBRC from the following day, (c) mentor reviewed the daily goals with the student, (d) student attended check-out, and (e) a copy of the DBRC was retained. There is also a column for the mentor to write the percentage of points earned each day.

*Intervention Rating Profile 15 (IRP-15)*

Treatment acceptability of CICO was assessed using a modified version of IRP-15 (Martens, Witt, Elliott, & Darveaux, 1985). The IRP-15 consists of 15 statements related to treatment acceptability, which are measured on a 6-point Likert scale used to indicate agreement or disagreement with the statements. IRP-15 scores range from 15 to 90 with higher scores indicating greater acceptability. A Cronbach’s alpha of .98 has been found for the IRP-15, indicating a high degree of internal consistency (Martens et al., 1985). Additionally, high construct validity was indicated by a principal components factor analysis that revealed primary loading on one factor with ratings ranging from 0.82 to 0.95. The instrument was modified by changing future tense items to past tense. Previous research (Freer & Watson, 1999) indicated that psychometric properties of the instrument are not adversely impacted by these modifications.

Data Collection

*Dependent Measures*

Observations were conducted by graduate and undergraduate students who had been previously trained in the observation procedures and met a 90% agreement criterion with an established observer. Additionally, prior to the study, observers met with the
primary researcher and received detailed descriptions of operational definitions for study measures and behavioral coding procedures. The primary dependent variable was percentage of intervals in which students exhibited problem behavior and was recorded using a partial interval recording method. Problem behaviors for each participant were identified during a follow-up teacher interview for the FAIR-T II. Observations for each student were conducted daily during the academic period identified as most problematic during teacher interviews. The periods identified were Language Arts for Lisa, whole group reading instruction for Andrew, Science for Daniel, and morning large group instruction for Grant. At the beginning of each week, two class periods were randomly chosen for generalization observations. Generalization observations were conducted in the same manner as those in the target instructional periods.

Lisa’s problem behaviors were talking out, out of seat, and playing with objects. The definition of talking out was any vocalization not relevant to the academic task or made without permission. Out of seat was defined as the students’ buttocks leaving the seat for at least three consecutive seconds. Playing with objects was defined as touching or manipulating any item in the room not necessary for the task at hand or in a manner other than the intended use. Andrew’s problem behaviors were off-task, out of seat, and talking out. The definitions of talking out and out of seat were identical to those used for Lisa. Off-task was defined as failure to attend to the teacher during instruction or attend to assigned activities when instructed to do so for at least three seconds. Daniel’s problem behaviors were talking out, off-task, and playing with objects. Definitions of these problem behaviors were identical to those used for Lisa and Andrew. Grant’s problem behaviors included off-task, out of seat, and touching other students. Touching
other students was defined as physical contact with another student that was not necessary or related to the classroom activity. Definitions of off-task and out of seat were identical to those used for other participants. For each participant, three alternative target behaviors were selected for use on the DBRC. Lisa’s alternative behaviors were remain in seat, raise hand and be called on before speaking, and use objects appropriately and only with permission. Andrew’s alternative behaviors were remain in seat, raise hand and be called on before speaking, and remain on-task and listen to the teacher during instruction. Daniel’s alternative behaviors were remain in seat, keep hands and feet to self, and pay attention and follow teacher instructions.

Data were also collected on the level of academic engagement, which was defined in the same terms as those used by Hawken and Horner (2003). Academic engagement was measured through a partial interval recording system. A student was marked as exhibiting academic engagement if he or she were engaged in any of the following behaviors for at least seven seconds during a 10-second interval: (a) looking at the teacher during instruction, (b) working with a peer when instructed to do so, (c) reading silently or writing to complete assignments when instructed to do so, (d) participating in a teacher-approved activity following the completion of work, or (e) talking with the teacher about academic work.

DBRC points were recorded as the percentage of points earned each day. The participants had the opportunity to earn between 0 and 5 points for each of the three target behaviors during each academic period. ODR and suspension data were also collected.
Design and Data Analysis

To evaluate the effects of CICO, an ABABC withdrawal design with a fading procedure was used. In addition to collecting observation data for the target instructional period, this study included probes throughout the school day to determine the generalized effectiveness of intervention. Specifically, observations were conducted daily in the target instructional periods and twice weekly in randomly selected periods throughout the day. The fading procedure included implementation of self-monitoring following effective implementation of CICO. The treatment phases occurred in the following order: Baseline (A), CICO (B), Withdrawal (A), Return to Intervention (B), and Self-Monitoring (C). For each student, the percentages of intervals with problem behavior and academic engagement were graphed for visual analysis across all phases. The percentage of DBRC points earned was also graphed as a secondary measure of student performance. Data were analyzed through visual analysis of level, trend, and variability.

The percentage of intervals in which academic engagement occurred and percentage of DBRC points earned during the class period corresponding to observations were analyzed to determine convergence. A Spearman’s rank correlation was conducted to determine the convergence between direct observation and percentages of points earned in the corresponding periods. Spearman’s rank correlation was chosen, as the correlation involved ordinal variables that do not follow the normal distribution needed for Pearson’s r (Wheater & Cook, 2000).

Procedure

Informed consent was obtained prior to the start of the study from all teachers, staff members, and parents of participating students. Before the beginning of the study,
all teachers completed the FAIR-T II, which was used to determine the target behaviors for CICO and the best times for behavioral observation of each student. Following completion of the FAIR-T II, each teacher met with the primary investigator individually to follow-up on his or her responses.

*Teacher and Staff Training*

All teachers and CICO mentors were trained on the implementation of CICO using the Procedural Integrity Checklist/Training Script prior to initiation of CICO. For check-ins, the CICO mentors were trained to (a) greet the student and engage in rapport-building behaviors (e.g., initiation of pro-social interaction), (b) ask if the student had the materials needed for the day, (c) collect the DBRC from the previous day, (d) provide a new DBRC, (e) review the point goal for the day, providing encouragement and praise, and (f) complete the CICO Student Record Form. CICO mentors were taught to record the student’s name, the date, if the student had his or her materials, if she or he turned in the previous day’s DBRC, and if the daily goals were reviewed with the student on the CICO Student Record Form. Following training, CICO mentors practiced a typical check-in and were provided an opportunity to ask questions. Following training, the primary researcher was present the first two days of intervention to monitor CICO implementation, provide feedback, and prompt the mentor to complete any steps that were missed to ensure 100% integrity during those sessions.

CICO mentors were trained on how to conduct check-outs using the Procedural Integrity Checklist/Training Script. CICO mentors were taught to (a) collect the DBRC, praising the student for any appropriate behavior they displayed that day; (b) provide constructive feedback on any areas in which students needed improvement, phrasing
feedback in a positive manner; (c) calculate percentage of points earned by adding up the total number of points earned, dividing by the number of points possible, and multiplying by 100; (d) determine if the point goal had been met using the percentage of points earned; (e) allow student to choose a reward if point goal was met; (f) make a copy of the DBRC for the student to bring home for a parent to sign; and (g) note on the Student Record Form that the DBRC was sent home. Following training, CICO mentors practiced conducting a typical check-out, received feedback, and were given an opportunity to ask questions. The primary investigator was present the first two days of intervention to monitor CICO implementation and provide feedback if needed.

The Procedural Integrity Checklist/Training Script was used to train teachers on how to rate behaviors throughout the day. Teachers were trained to (a) collect the DBRC at the beginning of the class period, prompting the student for the card if they did not immediately present it, (b) use the DBRC to rate the student’s behavior at the end of the period, (c) meet with the student to review the points earned and provide feedback on their behavior in that class period, and (d) return the DBRC to the student. All target behaviors were clearly explained and teachers were provided with a handout of operational definitions and examples of all problem behaviors. Following the training, teachers practiced the steps in collecting the note, completing the note, and providing feedback. The teachers also received feedback and were given the opportunity to ask questions. The primary investigator was present the first two days of intervention to monitor implementation of CICO and provide feedback if needed.
Baseline

The initial level of problem behaviors was determined during the baseline phase. Daily direct observations of classroom behavior were conducted during the period identified as most problematic during the FAIR-T II, and observers positioned themselves in an unobtrusive location so that reactivity to observation was minimized. Problem behavior was measured by percentage of intervals occurrence or rate depending on the topography of the behavior, and these data were assessed to determine when CICO should be implemented. In addition to observations during the targeted class period, probe observations were conducted across random class periods as was described previously.

Academic engagement was measured during direct observations as percentage of intervals in which the student was academically engaged. As a secondary measure of appropriate classroom behavior, teachers used the DBRCs to rate the participants’ behavior without their knowledge. The mean percentage of points earned for the last three days of baseline was calculated and set as the criterion used for reward during CICO implementation.

Student Preference Assessment

Prior to implementation of CICO, a reward menu was developed by asking the students to identify possible rewards using open-ended questions (e.g., “What kind of things or items at school and home do you like?” (Cooper, Heron, & Heward, 2007; Hishinuma, 1996). If a student had trouble identifying items, the researcher verbally presented item names with multiple options and asked students to choose rewards for the menu. A pool of rewards was created for the students to choose from when they met
their point goals (Cooper et al., 2007; Hishinuma, 1996). Each menu included at least 10 items to minimize the likelihood of students satiating on rewards. Lisa’s reward menu included stickers, necklaces, small notebooks, crayons, bracelets, lip gloss rings, barrettes, mechanical pencils, goldfish crackers, and fruit roll-ups. Andrew’s prizes included wooden pencils, mechanical pencils, crayons, coloring books, animal-shaped pencil toppers, toy airplanes, matchbox cars, card games, erasers, stickers, and army men. Daniel’s rewards included binders, construction paper, mechanical pencils, erasers, crayons, matchbox cars, stencils, army men, stickers, and ballpoint pens. Grant’s rewards included plush toys, coloring books, crayons, pencils, stencils, stickers, matchbox cars, army men, erasers, and goldfish crackers.

**CICO**

When a stable or increasing trend was observed in baseline levels of problem behavior, CICO was implemented. During CICO, problem behavior and academic engagement were measured in the same manner as during baseline. Additionally, generalization probes were conducted twice per week in randomly selected class periods other than the one identified in the FAIR-T II.

*Check-in.* Students checked in with their assigned CICO mentor each morning. At each check in, the CICO mentor (a) collected the copy of the DBRC from the previous day, (b) checked to see if a parent or guardian has signed the DBRC, (c) praised the student for returning a signed copy of the DBRC, if appropriate, (d) asked if the student has his or her materials for class, (e) reviewed point goals and the student’s performance the previous day, (f) provided encouragement and suggestions on how to meet the day’s goal, (g) provided the student with a new DBRC, (h) rated the student on his or her
behavior and preparedness during check-in, and (i) recorded the day of the week, if the student was present at check-in, if the previous DBRC was signed, and the point goal for the day on the CICO Student Record Form.

**Teacher use of DBRC and behavioral feedback.** At the beginning of each class, the student was to present his or her teacher with the DBRC. If the student did not present the card, the teacher was instructed to prompt the student for the DBRC. The teacher met with the student briefly to review the point goal and provide encouragement. At times pre-determined during consultation, the teacher rated the student’s behavior for the preceding period and provided the student with feedback regarding his or her performance during that period. Times selected coincided with transitions between school settings and, when students were in the same classroom for multiple subjects, transitions between subjects. The student was rated on the three target behaviors with scores between 0 and 5 (i.e., 0 points indicating the behavior never occurred, 1 point indicating the behavior occurred between 0% and 20% of the time, 2 points indicating the behavior occurred 21% to 40% of the time, 3 indicating the behavior occurred 41% to 60% of the time, 4 indicating the behavior occurred 61% to 80% of the time, and 5 indicating the behavior occurred 81% to 100% of the time).

**Check out.** At the end of each day, the student reported to the CICO mentor for check-out. At this time, the CICO mentor collected the DBRC, calculated the percentage of points earned, and recorded the total points earned on the DBRC. After determining if the point goal was met for the day, the CICO mentor reviewed the target behaviors and provided corrective feedback or praise as appropriate. If the point goal was obtained, the student was allowed to pick one item or activity from the reward menu.
Withdrawal

Data collection during withdrawal occurred in a manner similar to baseline. During this phase, the student was told her or she no longer needed to carry the DBRC or check-in or out with the CICO mentor or teachers. During this time, students did not receive feedback for their behavior or have a chance to earn rewards. Additionally, the participants’ mentors were told intervention implementation would be put on hold for several days. Observation procedures were conducted in the manner previously used during baseline.

Return to Intervention

When a stable or increasing trend in problem behavior was observed in the withdrawal phase, CICO was reimplemented. During this phase, intervention was conducted in the same manner as in the initial B phase, and data collection procedures were also the same as in the initial B phase.

Self-Monitoring

When problem behavior was observed to occur in 20% of intervals or less for five consecutive days in the second B phase, self-monitoring was introduced. Lisa did not meet this criterion due to elevated levels of problem behavior on the sixth day of CICO reimplementation. However, as her overall level of problem behavior was still below baseline levels and a decrease was observed on day seven, a decision was made to fade CICO as it appeared that CICO had been consistently effective for reducing problem behavior. Prior to implementation of self-monitoring, students were trained on the self-monitoring procedures using the Self-Monitoring Procedural Integrity/Training Script. Students were instructed to attend check-ins and collect a copy of the DBRC, to use the
DBRC to rate their behavior at the pre-determined times, and to attend check-outs where their ratings were compared to teacher ratings, and it was determined if their point goals had been met. Teachers were told to no longer review their ratings with the students, but to rate their behavior as they did during baseline and withdrawal phases. Initially, teacher ratings were still used to determine if the point goal was met. Student ratings were compared to teacher ratings each day until ratings met an 80% agreement criterion with teacher ratings. Once students were considered to be accurate raters, teachers no longer completed the DBRC, and student ratings were used to determine if the point goal had been met each day. Students continued to attend check in and check out after the teachers stopped completing the DBRC.

Procedural and Treatment Integrity

During the initial training sessions and self-monitoring training sessions, procedural integrity data were collected to ensure accurate training of CICO and self-monitoring using the CICO Procedural Integrity/Training Script and the Self-Monitoring Procedural Integrity/Training Script. A second observer was present during the trainings to collect procedural integrity data. The observer monitored integrity by indicating if the primary researcher completed each step in the training procedure. The CICO Procedural Integrity Training Script included 29 steps outlined previously in the Teacher and Staff Training section. The Self-Monitoring Procedural Integrity/Training Script Procedural integrity included six steps outlined previously in the Self-Monitoring section. Procedural integrity was calculated by dividing the number of steps the researcher completed by the total number of steps and multiplying by 100. Procedural integrity was 100% during all training sessions.
Treatment integrity for morning check-in was monitored using the CICO Treatment Integrity Checklist, which included (a) student attended the morning check-in, (b) parent initialed the DBRC indicating they had reviewed the previous day’s data, (c) teachers provided appropriate feedback throughout the school day, (d) whether or not the student attended check-out at the end of the school day, (e) teachers accurately filled out the DBRC, (f) CICO mentor accurately tallied points, and (g) student was allowed access to rewards when criterion was met. Treatment integrity was monitored daily by the CICO mentor, who completed a CICO Treatment Integrity Checklist each day. Also, the primary researcher was present on the first two days of CICO to prompt the CICO mentors and teachers if steps were not implemented as planned. Treatment integrity was calculated by dividing the number of items on the checklist completed by seven (i.e., the total number of items on the checklist) and multiplying by 100. Mean percent treatment integrity reported for CICO was 99.35% (range = 85.71% - 100%) for Lisa, 97.85% (range = 85.71% - 100%) for Andrew, 97.32% (range = 85.71% - 100%) for Grant, and 96.43% (range = 85.71% - 100%) for Daniel. Mentors reported CICO was implemented consistently with the exception of parent signatures on DBRCs across participants.

Treatment integrity was also monitored by the primary investigator using the Treatment Integrity Checklist for 42.42% to 56% of all possible CICO sessions across participants. For Andrew, mean treatment integrity was observed to be 100% during all sessions. For Grant, Lisa, and Daniel, mean treatment integrity scores were 98.90% (range = 85.71% - 100%), 98.98% (range = 85.71% - 100%), and 97.96% (range = 85.71% - 100%), respectively.
Permanent product data were collected as a secondary measure of treatment integrity and included evaluation of completed DBRCs and CICO Student Record Forms. Permanent product data were used to assess the central elements of CICO, which were (a) check-in, (b) daily use of DBRC, (c) teacher ratings of behavior, (d) check-out, and (e) parent signature. The mean levels of treatment integrity for central elements were 99.09% (range = 80% - 100%), 97.00% (range = 80% - 100%), 96.25% (range = 60% - 100%), and 95.00% (range = 80% - 100%) for Lisa, Andrew, Grant, and Daniel, respectively. For all participants, permanent product data indicated that the central elements were implemented consistently with the exception of parent signature on returned DBRCs.

Interobserver Agreement (IOA)

IOA data were collected for between 33.33% and 57.14% of all direct observation sessions across phases. Problem behaviors and academic engagement were independently coded by trained graduate students. Percentage agreement between the primary researcher and the graduate student was calculated by dividing the total number of intervals of agreement by the number of intervals observed and multiplying by 100. For Lisa, IOA data were collected during 57.14% of baseline observations, 50% of CICO observations, 57.14% of withdrawal observations, 33.33% of observations in the reinstatement phase, and 43.75% of self-monitoring observations. Mean IOA for observations of Lisa’s problem behavior and academic engagement was 93.49% (range = 85.83% - 99.17%). For Andrew, IOA data were collected for 42.86% of observations in the baseline, CICO, and withdrawal phases and 33.33% of observations in the reinstatement and self-monitoring phases. Mean IOA for observations of Andrew’s
problem behavior and academic engagement was 94.06% (range = 90% - 97.50%). For Grant, IOA data were collected during 42.86% of baseline observations, 55.56% of CICO observations, 37.50% of withdrawal observations, and 42.86% of reinstatement and self-monitoring observations. Mean IOA for observations of Grant’s problem behavior and academic engagement was 93.63% (range = 80.83% - 99.17%). For Daniel, IOA data were collected for 42.86% of baseline and CICO observations, 57.14% of withdrawal and reinstatement observations, and 37.50% of self-monitoring observations. Mean IOA for observations of Daniel’s problem behavior and academic engagement was 94.80% (range = 83.33% - 100%).

The primary researcher and graduate students collected IOA data for treatment integrity measures for between 35.71% and 46.15% of observations. IOA for treatment integrity was calculated by dividing the number of agreements by the number of agreements and disagreements for each step and multiplying by 100. For all observations, IOA for treatment integrity was 100%.
CHAPTER III

RESULTS

Direct Observations of Student Behavior

Figure 1 includes data from direct observations of students’ problem behaviors and academic engagement. During baseline observations in the target class period, mean levels of problem behavior were 49.67% (range = 28.33% - 70.83%), 70.00% (range = 61.67% - 74.17%), 44.17% (range = 35% - 52.50%), and 46.83% (range = 38.33% - 65.83%), for Lisa, Andrew, Grant, and Daniel, respectively. During generalization observations, mean levels of problem behavior were 62.92% (range = 35.83% - 90%), 60.42% (range = 50.83% - 70%), 41.67% (range = 33.33% - 50%), and 50.83% (range = 35.83% - 65.83%) for Lisa, Andrew, Grant, and Daniel, respectively.

During baseline observations in the target period, mean levels of academic engagement were 56.33% (range = 38.33% - 70.83%), 45.17% (range = 37.50% - 55.83%), 61.67% (range = 35.83% - 85.83%), and 65.17%, (50% - 75%) for Lisa, Andrew, Grant, and Daniel, respectively. During generalization observations, mean levels of academic engagement were 32.50% (range = 25.83% - 39.17%), 44.17% (range = 36.67% - 51.67%), 65.83% (range = 52.50% - 79.17%), and 72.08% (range = 70.83% - 73.33%), for Lisa, Andrew, Grant, and Daniel, respectively.

When CICO was implemented, all participants exhibited immediate decreases in problem behavior. Following implementation of CICO, Lisa’s problem behavior in the target period decreased to a mean of 22.78% (range = 15.83% - 33.33%). Her problem behavior during generalization observations decreased to a mean of 22.42% (range =
Figure 1. Direct Observation Data for Target Behaviors (i.e., Problem Behavior and Academic Engagement) for Each Participant.
18.18% - 26.67%). Lisa’s problem behavior also decreased in variability when CICO was implemented.

Andrew’s problem behavior during the target period decreased to a mean of 18% (range = 11.67% - 27.50%). Andrew’s mean problem behavior during generalization observations decreased to 32.50% (range = 30.83% - 34.17%). Grant’s percentage of intervals with problem behavior during the target period decreased to a mean of 13.89% (range = 0.83% - 20.83%). For Grant, mean percentage of intervals with problem behavior decreased to 24.44% (range = 20.83% - 30%). Daniel’s mean level of problem behavior during the target period decreased to 16.33% (range = 6.67% - 27.5%). Daniel’s mean level of problem behavior during generalization observations decreased to 8.75% (range = 7.50% - 10%). Throughout the CICO phase, the levels of problem behavior exhibited by all participants were lower than those observed in baseline.

During CICO, mean levels of academic engagement increased across all participants for target and generalization period observations. Lisa’s academic engagement during the target period increased to a mean of 85.42% (range = 74.17% - 92.50%). During generalization observations, Lisa’s academic engagement increased to a mean of 74.81% (range = 74.17% - 75.45%). Andrew’s percentage of intervals with academic engagement during the target period increased to a mean of 86.67% (range = 73.33% - 93.33%). During generalization, Andrew’s mean level of academic engagement increased to 87.08% (range = 78.33% - 95.83%). For Grant, mean academic engagement during the target period increased to 87.36% (range = 80% - 99.17%). Grant’s mean level of academic engagement during generalization observations increased to 82.50% (range = 70.83% - 90%). Daniel’s mean level of academic engagement during
the target period increased to 89.83% (range = 76.67% - 96.67%). During generalization observations, Daniel’s mean level of academic engagement increased to 92.92% (range = 90.83% - 95%).

When CICO was withdrawn, all participants exhibited increases in problem behavior. During withdrawal, Lisa’s problem behavior during the target period increased to a mean of 63.5% (range = 45.83% - 73.33%). Lisa’s mean problem behavior during generalization observations increased to 60.83% (range = 57.50% - 64.17%). For Andrew, problem behavior during the target period increased to a mean of 54% (range = 44.17% - 81.67%). During generalization observations, Andrew’s mean problem behavior increased to a mean of 40.42% (range = 37.50% - 43.33%). Grant exhibited an increase in problem behavior during the target period to a mean of 37.08% (range = 23.33% - 50%). During generalization observations, Grant’s mean problem behavior increased to 36.25% (range = 30.83% - 41.67%). Daniel’s problem behavior during the target period increased to a mean of 38.17% (range = 16.67% - 61.67%). During generalization observations, Daniel’s mean problem behavior increased to 44.17% (range = 38.33% - 50%). Andrew exhibited an immediate increase in problem behavior on the first day of withdrawal, though his problem behavior decreased on the second day of withdrawal and stabilized at a level similar to that observed in baseline. Grant exhibited an initial increase in problem behavior during withdrawal followed by a decreasing trend across the first four days of the phase; however, his problem behavior never reached levels observed during CICO and increased across the final two days of withdrawal. Daniel did not exhibit an increase in problem behavior on the first day of withdrawal; however, there was an increasing trend in his problem behavior throughout the phase.
During withdrawal, academic engagement decreased across all participants. For Lisa, academic engagement in the target period decreased to a mean of 39% (range = 31.67% - 41.67%). During generalization observations, Lisa’s academic engagement decreased to a mean of 42.08% (range = 35.83% - 48.33%). Andrew’s mean level of academic engagement during the target period decreased to 62.33% (range = 49.17% - 74.17%). During generalization observations, Andrew’s mean level of academic engagement decreased to 69.58% (range = 65% - 74.17%). Grant’s academic engagement during the target period decreased to a mean of 66.39% (range = 53.33% - 79.17%). During generalization observations, Grant’s academic engagement decreased to a mean of 70% (range = 61.67% - 78.33%). For Daniel, academic engagement during the target period decreased to a mean of 65.50% (range = 41.67% - 81.67%). Daniel’s mean academic engagement during generalization observations decreased to 63.33% (range = 50.83% - 75.83%).

When CICO was reimplemented, problem behavior decreased for all participants. Lisa’s problem behavior during the target period decreased to a mean of 21.07% (range = 0.83% - 36.67%). During generalization observations, Lisa’s problem behavior decreased to a mean of 27.50% (range = 21.67% - 33.33%). Andrew’s problem behavior during the target period decreased to a mean of 19.52% (range = 10.83% - 35.83%). During generalization observations, Andrew’s problem behavior decreased to a mean of 22.50% (range = 17.50% - 27.50%). For Grant, problem behavior during the target period decreased to a mean of 15.17% (range = 6.67% - 19.17%). Grant’s problem behavior during generalization observations decreased to a mean of 11.67% (range = 3.33% - 20%). Daniel’s mean level of problem behavior during the target period
decreased to a mean of 17.67% (range = 15.83% - 20%). During generalization observations, Daniel’s problem behavior decreased to a mean of 19.58% (range = 15.83% - 23.33%). Levels of problem behavior were stable for Grant and Daniel, while Andrew exhibited a decreasing trend across the first four days of reimplementation. During the observation, Lisa’s teacher placed her in a seat across the room and had her share reading materials with another student, which may have contributed to the increased problem behavior on that day.

When CICO was reinstated, academic engagement increased for all participants. Lisa’s mean level of academic engagement during the target period increased to 81.43% (range = 64.17% - 96.67%). During generalization observations, Lisa’s mean level of academic engagement increased to 76.25% (range = 72.50% - 80%). For Andrew, academic engagement in the target period increased to a mean of 91.43% (range = 86.67% - 95%). Andrew’s level of academic engagement during both generalization observations was 97.5%, an increase from the withdrawal phase. Grant’s mean level of academic engagement in the target period increased to 85.17% (range = 75% - 94.17%). During generalization observations, Grant’s mean level of academic engagement increased to 90.42% (range = 83.33% - 97.50%). Daniel’s mean academic engagement during the target period increased to 86.83% (range = 81.67% - 89.17%). During generalization observations, Daniel’s mean academic engagement increased to 87.08% (range = 85.83% - 83.33%).

Andrew, Grant, and Daniel met the criteria of five consecutive days with problem behavior less than or equal to 20% of intervals, so self-monitoring was introduced. Lisa did not meet criteria, as she displayed elevated problem behavior on the sixth day of the
study. As her problem behavior remained below average levels exhibited in baseline and withdrawal phases and decreased on the seventh day of the phase, the decision was made to move her to self-monitoring. When self-monitoring was implemented, mean levels of problem behavior decreased slightly across all participants. Lisa’s mean level of problem behavior in the target period decreased to 20.88% (range = 0.83% - 39.17%). During generalization observations, Lisa’s mean level of problem behavior decreased to 17.08% (range = 0.83% - 22.5%). For Andrew, problem behavior in the target period decreased to a mean of 10.83% (range = 2.5% - 19.17%). Andrew’s mean level of problem behavior during generalization observations decreased to 13.33% (range = 6.67% - 21.67%). Grant exhibited a slight decrease in problem behavior during the target period with a mean of 11.33% (range = 1.67% - 37.5%). Grant’s mean level of problem behavior during generalization observations decreased to 7.50% (range = 5% - 10%). Daniel’s mean level of problem behavior in the target period decreased to 4.17% (range = 0.83% - 4.17%). During generalization observations, Daniel’s mean level of problem behavior decreased to 6.25% (range = 3.33% - 9.17%). On the last day of self-monitoring, Lisa was suspended for cutting the hair of three other students during an art project. When she returned, her teachers stated they were no longer interested in participating in the study. On the fourth day of self-monitoring, Grant was suspended for hitting another student. He returned to school for one day prior to the end of the year. Data were collected through the end of the school year for Andrew and Daniel.

During self-monitoring, academic engagement increased for Andrew, Grant, and Daniel, but decreased for Lisa. For Lisa, academic engagement in the target period decreased to a mean of 75.94% (range = 58.33% - 100%). During generalization
observations, Lisa’s mean level of academic engagement increased to 85.83% (range = 70.83% - 98.33%). Andrew’s academic engagement in the target period increased slightly to a mean of 93.54% (range = 84.17% - 97.50%). During generalization observations, Andrew’s mean level of academic engagement decreased to 91.67% (range = 85.83% - 99.17%). For Grant, academic engagement in the target period increased to a mean of 90.33% (range = 65% - 99.17%). Grant’s mean level of academic engagement during generalization observations increased to 95.42% (range = 93.33% - 97.50%). Daniel’s academic engagement in the target period increased to a mean of 98.19% (range = 94.17% - 100%). During generalization observations, Daniel’s mean level of academic engagement increased to 96.67% (range = 95% - 98.33%). Though Lisa’s academic engagement decreased, her mean level of academic engagement remained above those exhibited during baseline and withdrawal phases. Teacher ratings decreased during self-monitoring for Lisa, Andrew, and Grant, respectively, but increased for Daniel. As teacher ratings were high compared to direct observation throughout the study, ceiling effects may have affected ratings during self-monitoring.

**Teacher Ratings of Student Behavior**

Figure 2 includes data from teacher and self ratings of participants’ appropriate behaviors. Mean ratings during baseline were 68.96% (range = 30.83% - 90%), 62.07% (range = 48.15% - 80%), 74.47% (range = 63.81% - 81.90%), and 60.35% (range = 41.33% - 78.33%) for Lisa, Andrew, Grant, and Daniel, respectively. The teacher rating from Lisa’s first day of baseline was not included as the teacher was observed completing the ratings at the end of the day. At that time, she was retrained on the procedures for
Figure 2. Teacher and Self Ratings for Each Participant.
completion of the DBRC at designated times as opposed to completing all ratings at the end of the day.

When CICO was implemented, mean teacher ratings of appropriate behavior increased for all participants. Lisa’s mean teacher rating increased to 75.14% (range = 49.17% - 83.33%). For Andrew, the mean percentage of points earned increased to 83.70% (range = 78.52% - 90.37%). Grant’s mean percentage of points earned increased to 78.57% (range = 65.71% - 90.48%). For Daniel, mean teacher ratings increased to 67.14% (range = 53.33% - 76.30%).

When CICO was withdrawn, mean teacher ratings decreased for Lisa, Grant, and Daniel, but increased for Andrew. Lisa’s mean teacher ratings decreased to 54.83% (range = 42.50% - 65%). For Andrew, mean percentage of points earned increased slightly to a mean of 78.65% (range = 62.96% - 94.07%). Grant’s mean percentage of points earned decreased to 66.45% (range = 40.95% - 92.38%). For Daniel, mean teacher ratings decreased to 57.35% (range = 25% -70%). Following the initial implementation of CICO, Daniel’s teachers stated they felt his behavior was much improved, which may have affected their subsequent ratings.

When CICO was reinstated, mean teacher ratings increased for all participants. Lisa’s mean teacher ratings increased to a mean of 68.10% (range = 40.83% - 98.33%). Andrew’s mean percentage of points earned increased to 87.23% (range = 79.26% - 92.59%). Grant’s mean percentage of points earned increased to 75.62% (range = 55.24% - 93.33%). For Daniel, mean teacher ratings increased to 79% (range = 67.62% - 92.38%).
When self-monitoring was introduced, mean teacher ratings increased for Daniel but decreased for Lisa, Andrew, and Grant. Lisa’s mean teacher ratings decreased slightly to 60.42% (range = 45.83% - 67.50%). Lisa’s mean self rating was 57.67% (range = 30% - 82.50%). For Andrew, mean teacher ratings decreased to 78.49% (range = 57.78% - 100%). Andrew’s mean self rating was 83.98% (range = 62.96% - 96.30%). Grant’s mean teacher ratings decreased slightly to 72.44% (range = 60% - 80%). Grant’s mean self rating was 62.82% (range = 24% - 85.33%). For Daniel, mean teacher ratings increased to 98.75% (range = 97.50% -100%). Daniel’s mean self rating was 98.61% (range = 91.67% - 100%).

Statistical Analysis

A Spearman’s rank order correlation was used to determine correlations between direct observations of academic engagement and point data for the corresponding class periods for all participants. When data from all participants were combined, a positive correlation was found between points earned and academic engagement. The correlation coefficient was 0.501 with a p-value of > 0.01, indicating a strong correlation. Data for individual participants were also analyzed. Lisa’s data resulted in a correlation coefficient of 0.426 with a p-value of 0.003, indicating a moderate correlation. For Andrew, analysis of observation and point data resulted in a correlation coefficient of 0.427 with a p-value of 0.003, indicating a moderate correlation. When Grant’s data were analyzed individually, a correlation coefficient of 0.575 with a p-value of > 0.001 was found, indicating a strong correlation. For Daniel, analysis of point data and direct observations indicated a correlation of 0.678 with a p-value of > 0.001, indicating a strong correlation.
Office Discipline Referrals

ODRs were analyzed as a secondary measure of problem behavior for all participants. Prior to CICO implementation, Lisa had received four referrals, three of which were for repeated minor behaviors and one for verbally disrespecting her teacher and disrupting the classroom. Her referral for verbal disrespect and classroom disruption resulted in a three day suspension. When CICO was in place, Lisa did not receive any referrals; however, during withdrawal, she received two referrals, one for biting another student and one for disrupting the class. On the last day of self-monitoring, Lisa was suspended for three days for cutting other students’ hair during an art project. When she returned, her teacher stated she no longer wished to participate as she felt overwhelmed with her current responsibilities and no longer had time. Following the removal of all intervention, she was suspended on two other occasions, once for biting her teacher and once for repeated disruption of the classroom and multiple offenses. Prior to CICO, Andrew had received two referrals for repeated minor behaviors. Following implementation of CICO, Andrew did not receive any additional ODRs. Prior to the study, Grant had received three referrals for repeated minor behaviors. During the study, Grant was suspended during withdrawal and on the fourth day of self-monitoring. During withdrawal, he was suspended for disruption of the school. During self-monitoring, his suspension resulted from an altercation with another student. Prior to the study, Daniel had not received any official ODRs, though his teachers reported often sending him out of the room and the principal reported having spoken to him on several occasions regarding his behavior. Following implementation of CICO, Daniel did not
receive any ODRs, his teachers reported no incidences in which he was sent from the room, and the principal stated he did not speak to Daniel about his behavior again.

Teacher Acceptability Ratings

All participating teachers completed the IRP-15 as a measure of treatment acceptability at the end of the study. The mean score on the IRP-15 across all teachers was 73.7, indicating a high level of acceptability. Lisa had two teachers, whose scores were 66 and 77. The teacher who gave Lisa a score of 77 also served as her CICO mentor. Andrew had one teacher, whose score was 70. Andrew’s CICO mentor had a score of 71. Grant had two teachers, one whose score was 74, and another who also served as his CICO mentor, whose score was 80. Daniel had four teachers, whose scores were 70, 72, 77, and 80. The teacher whose score was 72 served as Daniel’s mentor. Results from the IRP-15 indicate all teachers and mentors found the intervention acceptable.
While a literature base supporting the use of CICO as a Tier 2 behavioral intervention is growing, studies utilizing more stringent research methods are needed. Several studies have relied on indirect measures, such as DBRCs and ODRs, as the primary measure of problem behavior; however, indirect measure of student behavior may not be reliable. Moreover, of the studies that have included direct observations of student behavior only three were identified that included observations of academically engaged behavior (Campbell & Anderson, 2011; Hawken & Horner, 2003; Mullooly, 2011). Though decreased problem behavior is desirable, lack of problem behavior does not necessarily indicate students are engaged in appropriate, alternative behaviors. The current study sought to determine if CICO resulted in decreases in problem behavior and increases in academic engagement as measured by direct observation (Research Questions 1 and 2, respectively). Results indicate CICO was effective in reducing problem behavior of all participants as measured by direct observation across target periods for all participants. Teacher ratings of appropriate behavior, a secondary measure of academic engagement, also increased for all participants when CICO was implemented. The results of this study are similar to those found by Campbell and Anderson (2011), who found CICO resulted in decreased problem behavior and increased academic engagement across participants using direct observations of student behavior. As CICO resulted in improvements in problem behavior and increased desired, appropriate behaviors, the current findings support the use of CICO as a behavioral intervention within the SWPBIS framework.
Research Question 3 examined if behavioral improvements observed during CICO generalized across school settings and activities. Results from the current study indicate CICO was effective in decreasing problem behavior and increasing academic engagement across participants during generalization observations occurring at randomly selected times throughout the school day. In the review of the literature, no studies were identified that included generalization observations. In order to ensure behavior change occurs, throughout the school day and in multiple settings, generalization observations are needed. Results from the current study indicate similar changes in behavior during observations in target periods and other settings. Such data are important, as students in Tier 2 interventions may exhibit problem behavior in multiple settings. Results from generalization observations support CICO for use with students who exhibit problem behavior in multiple settings.

Another aim of this study was to determine if self-monitoring could maintain intervention effects following successful implementation of CICO (Research Question 4). Specifically, once students met criteria of five consecutive days with problem behavior in no more than 20% of direct observation intervals, self-monitoring was introduced as a fading procedure. Lisa did not meet this criterion, but as her problem behavior had decreased substantially, the decision was made to fade intervention for her as well. When self-monitoring was introduced, all participants were observed to exhibit decreases in problem behavior beyond those observed during CICO during both target and generalization observations. Increases in academic engagement were observed during target periods for Andrew, Grant, and Daniel, but a decrease was observed for Lisa. Though Lisa’s academic engagement decreased, her mean level of academic engagement
remained above those exhibited during baseline and withdrawal phases. Increases in academic engagement were observed during generalization for three participants, Lisa, Grant, and Daniel, while a small decrease in academic engagement was observed for Andrew. During self-monitoring, teacher ratings decreased for Lisa, Andrew, and Grant, respectively, but increased for Daniel. As teacher ratings were high compared to direct observation throughout the study, ceiling effects may have affected ratings during self-monitoring. Prior to the current study, only two studies were identified that attempted to reduce intervention efforts following successful implementation of CICO (Campbell & Anderson, 2011; Mullooly, 2011). Research on fading procedures is important, as Tier 2 interventions are not meant to be implemented indefinitely and successful fading is needed to return students to Tier 1 level supports. Overall, results from direct observations indicate self-monitoring may be a good CICO fading option once behavioral gains have been made.

Research Question 5 examined the convergence between teacher ratings of appropriate behavior and direct observations of academic engagement. The current study included Spearman’s rank correlations of data from direct observations of academic engagement and teachers’ ratings of appropriate behavior to determine if convergence exists between the two measures. If DBRCs constitute a valid measure of a student’s behavioral performance, teacher ratings would be expected to converge with data from observations, which are a direct measure of behavior (Chafouleas et al., 2007; Fabiano et al., 2009; Riley-Tillman et al., 2008). When data from all participants were combined, a correlation coefficient of 0.501, indicating a strong correlation between teacher ratings of appropriate behavior and direct observations of academic engagement, was found. When
teacher ratings and direct observation for each participant were analyzed, moderate correlations were found for two participants, Lisa and Andrew, while strong correlations were found for Grant and Daniel. Similar results were obtained by Mullooly (2011), which found a moderate correlation of 0.47 between teacher ratings and direct observations of academic engagement. Chafouleas et al. (2007), Fabiano et al. (2009), and Riley-Tillman et al. (2008) also found moderate correlations between teacher ratings on DBRCs and direct observations for on-task behavior, problem behavior, and on-task and problem behavior, respectively. Though results from these studies are promising, the moderate correlations indicate a considerable amount of variance in teacher ratings. In the current study, a strong correlation was also found between teacher ratings and direct observations and visual analysis indicates much clearer intervention effects for direct observation data versus teacher ratings. Consistent with previous studies, results from this study indicate teacher ratings may be consistent with direct observations. Future studies should attempt to further evaluate the extent to which teacher ratings converge with direct observations of academic engagement.

Some limitations exist in this study, which are in need of discussion and further research. First, all participants were elementary school students, limiting the extent to which results can be generalized to other populations. As CICO is designed to increase behavioral feedback, a procedure which is not limited to a particular age group, it is believed that CICO would be effective in reducing problem behaviors across age groups. More research is needed to determine what populations respond positively to CICO.

Second, this study included CICO implementation in schools that received regular expert consultation for PBIS and Tier 2 interventions. Integrity findings from this study
indicate exceptional implementation over an extended period of time. However, teachers’ treatment integrity may have been impacted by availability of and reactivity to regular presence of PBIS consultants. As a result, the extent to which integrity and outcome findings from this study generalize to schools with fewer supports is unknown. The purpose of the study was to provide an initial evaluation of CICO while probing for intervention effects in multiple settings and systematically fading the DBRC component of CICO to self-monitoring. Consequently, this study did not focus on natural implementation in the absence of expert consultation. Future research should evaluate the extent to which CICO is implemented consistently in schools that do not have the benefit of routine expert consultation.

A third limitation is related to the failure to evaluate complete fading of CICO. Tier 2 interventions are designed to address the behavioral needs of students at-risk for behavioral failure, and it is expected that intervention be terminated at some point so that intervention resources can be directed to additional students who present with behavioral needs. This study was designed to evaluate self-monitoring as a method for fading teacher completion of the DBRC and feedback to students, but did not evaluate fading of self-monitoring. Future research may extend this study by also evaluating the extent to which self-monitoring and check-ins and check-outs are faded to determine if intervention effects maintain following complete intervention withdrawal.

In summary, CICO has become a common Tier 2 intervention within SWPBIS despite only a limited number of rigorous experimental demonstrations of CICO’s effects on students’ problem and appropriate behaviors as measured by direct observation (Campbell & Anderson, 2008, 2011; Fairbanks et al., 2007; Hawken & Horner, 2003).
However, recent rigorous evaluations of CICO indicate that CICO is a viable Tier 2 intervention for addressing the behavioral needs of students who are at-risk for substantial behavioral difficulties. Moreover, the strong correlation found between teacher ratings and direct observation indicate teacher ratings on a DBRC may be appropriate for progress monitoring students’ responses to intervention. Finally, this preliminary evaluation of self-monitoring as a fading procedure provides a promising option for decreasing teacher support following successful implementation of CICO. Future research should continue to evaluate the effectiveness of self-monitoring in fading CICO.
APPENDIX A

STUDENT CONSENT FORM

University of Southern Mississippi

Consent Document for Research Participants

Title of Study:
The Effects of Check In/Check Out and a Fading Procedure on the Problem Behavior and Academic Engagement of Elementary School Students.

Purpose
Your child is being asked to participate in a study that is evaluating the effects of an intervention in decreasing disruptive classroom behavior, and increasing appropriate classroom behavior. This study is important because it will evaluate the effectiveness of an efficient intervention for schools to implement in order to address the behavioral needs of at-risk students.

Participants:
Your child was selected for participation because he or she was recommended by a teacher or administrator due to presenting behavioral concerns, and because the problem behaviors presented do not include severe or dangerous behaviors.

Procedure:
If you agree to allow your child to participate in this study, your child will participate in the intervention. The intervention consists of your child checking in with a staff member in the morning, and that individual will discuss your child’s behavioral expectations for the day and provide a behavior report card for the child to bring to class. Your child will then go to class and he or she will get feedback on his or her behavior in class and behavioral ratings on his or her report card. At the end of the day, your child will check-out with the staff member, who will provide praise and/or corrective feedback as well as a reward if your child met his or her goal that day. The staff member will then provide your child with a copy of the report card to take home for you to review and sign, which will then be returned to school the following day. The intervention will be withdrawn for a period of time to determine if any behavioral gains are maintained, and will then be re-implemented. When your child is determined to consistently engage in appropriate behavior, the intervention will be slowly removed.

Benefits/Risks to Participant:
Your child’s participation in the study will provide him or her with additional teacher and staff attention and feedback, in an attempt to improve his or her behavior at school. Rewards will be provided to your child for meeting his or her behavioral goals. The potential risks include a possible increase in your child’s inappropriate behavior as the use of these procedures could increase inappropriate behavior.
**Voluntary Nature of the Study/Confidentiality:**
Your child’s participation in this study is entirely voluntary and you may refuse to complete the study at any point during the experiment. In addition, all information obtained during the study will be kept confidential. All information that may identify you will be withheld. Your name and other identifying information will not be used in the research papers, any submission to a professional journal for publication, or presentation. The only circumstances in which we would release information about you or your child would be if he or she tells us he or she is a harm to self or others, if one of your children is abused, if the release of information is court ordered, or if there is a medical emergency in which release of information is important for your child’s safety.

**Contacts and Questions:**
At any time you may withdraw from the study or ask any questions you may have regarding this study. Questions concerning the research should be directed to Leila Mullooly or Dr. Brad Dufrene at (601) 266-5255 or via email at leila.mullooly@eagles.usm.edu or brad.dufrene@usm.edu.

**Parental Consent:**
I have had the purposes and procedures of this study explained to me and have had the opportunity to ask questions. My questions have been answered to my satisfaction, and I am voluntarily signing this form to participate in this research study. My signature shows my willingness to allow my child to participate in this study under the conditions stated.

______________________________________________  ________________
**Names**

This Section to be Completed by Parent

______________________________________________  ________________
Name of Parent                                    Date
APPENDIX B

TEACHER/STAFF CONSENT FORM

University of Southern Mississippi

Consent Document for Research Participants

Title of Study:
The Effects of Check In/Check Out and a Fading Procedure on the Problem Behavior and Academic Engagement of Elementary School Students.

Purpose
You are being asked to participate in a study that is evaluating the effects of an intervention in decreasing disruptive classroom behavior, and increasing appropriate classroom behavior. This study is important because it will evaluate the effectiveness of an efficient intervention for schools to implement in order to address the behavioral needs of at-risk students.

Participation:
You are being asked to participate because one of your students is participating in the study, or you have been nominated to serve as the coordinator of the intervention.

Procedure:
If you agree to participate in this study, you will be participating in an intervention that provides increased attention and feedback to an at-risk student in an attempt to increase his or her appropriate behaviors. The intervention consists of the student checking in with the coordinator in the morning and the coordinator will discuss the students’ behavioral expectations for that day. Depending on the phase of the study, the coordinator may provide the student with a daily behavior report card for him or her to take to each of his or her teachers to fill out during the day. The teacher will rate the students’ behavior at the end of each class period. The teacher may or may not give feedback to the student, again depending on the phase. At the end of the day, the coordinator will total the number of points the student earned throughout the day and will provide praise and/or corrective feedback as well as a reward if the child met his or her goal that day. The coordinator will then provide the student with a home note to take home for a parent/guardian to sign, which will then be returned to school the following day.

Benefits/Risks to Participant:
Your student’s participation in the study will provide him or her with additional teacher and staff attention and feedback, in an attempt to improve his or her behavior at school. Rewards will be provided to your student for meeting his or her behavioral goals. The potential risks include a possible increase in your student’s inappropriate behavior as the use of these procedures could increase inappropriate behavior.
**Voluntary Nature of the Study/Confidentiality:**
Your participation in this study is entirely voluntary and you may refuse to complete the study at any point during the experiment. In addition, all information obtained during the study will be kept confidential. All information that may identify you will be withheld. Your name and other identifying information will not be used in the research papers, any submission to a professional journal for publication, or presentation. The only circumstances in which we would release information about you would be if there is a threat of harm to self or others, abuse, if the release of information is court ordered, or if there is a medical emergency in which release of information is important for someone’s safety.

**Contacts and Questions:**
At any time you may withdraw from the study or ask any questions you may have regarding this study. Questions concerning the research should be directed to Leila Mullooly or Dr. Brad Dufrene at (601) 266-5255 or via email at leila.mullooly@eagles.usm.edu or Brad.Dufrene@usm.edu. This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participant.

**Participant Consent:**
I have had the purposes and procedures of this study explained to me and have had the opportunity to ask questions. My questions have been answered to my satisfaction, and I am voluntarily signing this form to participate in this research study. My signature shows my willingness to participate in this study under the conditions stated.

This Section to be Completed by Teacher/Staff

____________________________  ______________________________
Name of Teacher/Staff       Date
APPENDIX C

FUNCTIONAL ASSESSMENT INFORMANT RECORD FOR TEACHERS – VERSION II

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<td></td>
<td></td>
</tr>
<tr>
<td>Please indicate good days and times to observe. (At least two observations are needed.)</td>
<td></td>
</tr>
<tr>
<td>Observation #1</td>
<td>Observation #2</td>
</tr>
<tr>
<td>Date:</td>
<td>Date:</td>
</tr>
<tr>
<td>Time:</td>
<td>Time:</td>
</tr>
</tbody>
</table>
**Student Information**

<table>
<thead>
<tr>
<th>Gender:</th>
<th>Male</th>
<th>Female</th>
<th>Grade:</th>
<th>Age:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity:</td>
<td>African American</td>
<td>Asian</td>
<td>Caucasian</td>
<td>Hispanic</td>
</tr>
<tr>
<td>Classification:</td>
<td>General Education</td>
<td>Special Education</td>
<td>Ruling:</td>
<td></td>
</tr>
</tbody>
</table>

Please do not reference the student by name. Please put "he" or "she" or the student's initials.

1. Describe the referred student. What is he/she like in the classroom? (Write down what you believe is the most important information about the referred student.)

2. Pick a second student of the same sex who is also difficult to teach. What makes the referred student more difficult than the second student?

3. a. On what grade level is the student reading?  
   b. On what grade level is an average student in the class reading?

4. a. On what grade level is the student performing in math?  
   b. On what grade level is an average student in the class performing in math?

5. a. What is the student's classwork completion percentage (0 - 100%)?  
   b. What is the student's classwork accuracy percentage (0 - 100%)?

6. a. What percentage of adult instructions will the student follow the first time?  
   b. What percentage of adult instructions will the student eventually follow?  
   c. What is the student's accuracy for compliance with adult instructions?

7. Is the student taking any medications that might affect their behavior?  
   Yes  No  If yes, briefly explain:

8. Do you have any specific health concerns regarding this student?  
   Yes  No  If yes, briefly explain:

9. Please describe the student's strengths.

10. What have you tried in the past to deal with this student's problem behavior?
11. Describe your current classroom behavior management plan.


12. When during the day (two academic activities and times) does the student's problem behavior(s) typically occur?
   Academic
   Activity #1: ___________________________ Time: ___________________________
   Academic
   Activity #2: ___________________________ Time: ___________________________
## Problem Behaviors

Please circle **1 to 3** problem behaviors only and rank the behaviors in order of severity with 1 being the most severe and 3 being the least severe.

### Potential Problem Behaviors (only circle 3; rank in order of severity 1= most; 3 = least )

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Rank Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-task behavior (e.g., looking away from academic work/teacher; failing to complete work)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Inappropriate Vocalizations (e.g., talking without permission; making sounds; calling out)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Fidgeting or playing with objects (e.g., tapping pencil; playing with toys)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Out of Seat or Area (e.g., leaving assigned seat or area; student leaves classroom)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Non-compliant behavior (e.g., failing to follow adult instructions)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Disrespectful behavior (e.g., arguing with adults, using profanity)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Aggressive Behavior (e.g., hitting, kicking, biting others; throwing objects at others)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Self-injurious Behavior (e.g., hurting oneself)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Bullying (e.g., picking on peers; making fun of others; coercive comments)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Tantrum (e.g., yelling, screaming, crying, throwing oneself on the floor)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Inappropriate social behavior (e.g., staring at others; too close in physical proximity)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Failure to speak/talk in class (e.g., will not talk to others despite ability to do so)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Emotionally behavioral (e.g., student shuts down; student cries excessively outside of tantrums)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Sleeping in class (e.g., student lays head down or sleeps during instruction)</td>
<td>1 2 3</td>
</tr>
<tr>
<td>Other behavior:</td>
<td></td>
</tr>
</tbody>
</table>

### Rate how *manageable* the behavior is:

<table>
<thead>
<tr>
<th>Behavior</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Problem Behavior 1</td>
<td>Manageable</td>
<td>Manageable</td>
<td>Unmanageable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Problem Behavior 2</td>
<td>Manageable</td>
<td>Manageable</td>
<td>Unmanageable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Problem Behavior 3</td>
<td>Manageable</td>
<td>Manageable</td>
<td>Unmanageable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Rate how *disruptive* the behavior is:

<table>
<thead>
<tr>
<th>Behavior</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Problem Behavior 1</td>
<td>Mildly</td>
<td>Mildly</td>
<td>Very</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Problem Behavior 2</td>
<td>Mildly</td>
<td>Mildly</td>
<td>Very</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Problem Behavior 3</td>
<td>Mildly</td>
<td>Mildly</td>
<td>Very</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### How often does the behavior occur *per day* (please circle)?

<table>
<thead>
<tr>
<th>Behavior</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Problem Behavior 1</td>
<td>&lt;1 - 3</td>
<td>4 - 6</td>
<td>7 - 9</td>
<td>10 - 12</td>
<td>&gt;13</td>
</tr>
<tr>
<td>a. Problem Behavior 2</td>
<td>&lt;1 - 4</td>
<td>5 - 6</td>
<td>8 - 9</td>
<td>11 - 12</td>
<td>&gt;14</td>
</tr>
<tr>
<td>a. Problem Behavior 3</td>
<td>&lt;1 - 5</td>
<td>6 - 6</td>
<td>9 - 9</td>
<td>12 - 12</td>
<td>&gt;15</td>
</tr>
</tbody>
</table>
4. How many months has the behavior been present?
   a. Problem Behavior 1
   b. Problem Behavior 2
   c. Problem Behavior 3

5. How long does the problem behavior last in duration?
   a. Problem Behavior 1
   b. Problem Behavior 2
   c. Problem Behavior 3

6. For each problem behavior, provide an appropriate replacement behavior that you would like the student to perform instead of the current problem behavior.
   a. Problem Behavior 1
   b. Problem Behavior 2
   c. Problem Behavior 3
## Antecedents:

<table>
<thead>
<tr>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = never happens</td>
<td>1 = happens a little</td>
<td>2 = happens some</td>
</tr>
</tbody>
</table>

Please circle the corresponding number for each of the three behaviors listed.

### I. Academic Task Demand

<table>
<thead>
<tr>
<th>1. Does the behavior occur during a certain type of task?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Does the behavior occur during easy tasks?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Does the behavior occur during difficult tasks?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Does the behavior occur during certain subject areas?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Does the behavior occur during new subject material?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### II. Transitions

<table>
<thead>
<tr>
<th>6. Does the behavior occur when a request is made to stop an activity?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Does the behavior occur when a request is made to begin a new activity?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Does the behavior occur during transition periods (academic subjects or locations)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### III. Academic Settings

<table>
<thead>
<tr>
<th>9. Does the behavior occur in certain settings?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Does the behavior occur in large group?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. Does the behavior occur in small group?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. Does the behavior occur in independent work?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. Does the behavior occur in one-to-one interaction?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### IV. Non-Classroom Settings

<table>
<thead>
<tr>
<th>14. Does the behavior occur in the bathroom?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Does the behavior occur at recess?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. Does the behavior occur in the cafeteria?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. Does the behavior occur on the bus?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. Does the behavior occur in other situations? Specify other:</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### V. Presentation Style

<table>
<thead>
<tr>
<th>19. Does the behavior occur when items are presented auditorily?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>20. Does the behavior occur more often during motor activities?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21. Does the behavior occur when items are presented visually?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### VI. Time of Day

<table>
<thead>
<tr>
<th>22. Does the behavior occur in the morning (before lunch)?</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>23. Does the behavior occur in the afternoon (after lunch)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
### VII. Physiological

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Does the behavior occur when the student is having complications with a medical condition?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25 Does the behavior occur if the student appears to be hungry?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26 Does the behavior occur if the student appears to be tired?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### VIII. Other

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>27 Does the behavior occur when a disruption occurs in the normal routine?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>28 Does the behavior occur when the student’s request has been denied?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>29 Does the behavior occur when a specific person is in the room?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>30 Does the behavior occur when a specific person is absent from the room?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>31 Are there any other behaviors that usually precede the problem behavior?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>32 Is there anything you could do that would ensure the occurrence of the behavior? What?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>33 Are there any events occurring in the child’s home that seem to precede the occurrence of the behavior at school? What?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>34 Does anything else precede the problem behavior that is likely to “set it off”?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### Consequences:

<table>
<thead>
<tr>
<th>Behavior 1:</th>
<th>Behavior 2:</th>
<th>Behavior 3:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = never happens</td>
<td>1 = happens a little</td>
<td>2 = happens some</td>
</tr>
</tbody>
</table>

*Please circle the corresponding number for each of the three behaviors listed.*

### I. Positive Reinforcement: Access to Preferred Activities or Items

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does someone provide the student with access to an activity after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does someone provide the student with access to a toy or item after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the student take possession of an activity after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the student take possession of a toy or item after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the student bring activities, toys, or items to school that are associated with the behavior?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### II. Negative Reinforcement: Escape,Delay,Reduction or Avoidance of Demands

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are ongoing task demands removed or terminated during or after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Are ongoing task demands reduced during or after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Is the start of a new task demand delayed after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Is the start of a new task demand completely avoided after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### III. Positive Reinforcement: Attainment of Peer and Teacher Attention

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the student receive positive attention from peers during or after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does the student receive negative attention from peers during or after the behavior has occurred?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>13. Does the student receive positive attention from adults during or after the behavior has occurred?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Does the student receive negative attention from adults during or after the behavior has occurred?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<tr>
<td>15. Does the teacher re-direct or interrupt the child during or after the behavior is exhibited?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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### IV. Negative Social Reinforcement: Escape, Delay, Reduction or Avoidance of Attention

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<tr>
<td>16. Are ongoing social interactions with peers stopped during or after the behavior has occurred?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<td>17. Are upcoming social interactions with peers avoided after the behavior has occurred?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<tr>
<td>18. Are ongoing social interactions with adults stopped during or after the behavior has occurred?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<tr>
<td>19. Are upcoming social interactions with adults avoided after the behavior has occurred?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<td>20. Specific individuals stopped interacting with this student due to the behavior?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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### V. Automatic Reinforcement

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<tr>
<td>21. Does the student display the behavior when alone without interaction from others?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<td>22. Does the student appear to be calm or relaxed as a result of performing the behavior?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<td>23. Does the student appear to be excited or aroused as a result of performing the behavior?</td>
<td>0 1 2 3</td>
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<td>24. Does the student appear to obtain pleasure or enjoyment from performing the behavior itself?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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<tr>
<td>25. Does the student appear to obtain stimulation (visual, auditory, motor) as a result of performing the behavior?</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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### VI. Other Problems

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<tr>
<td>26. Are there other problem behaviors that often occur after the behavior is exhibited? If yes, describe:</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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### VII. Intervention

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<tr>
<td>27. Does the student typically receive praise or any positive consequence when behavior occurs that you would like to see instead of the problem behavior? If yes, describe:</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
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</table>
# 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>Period</th>
<th>Be Safe (remain in seat)</th>
<th>Be Respectful (raise hand and be called on before speaking)</th>
<th>Be Responsible (remain on task and complete assignments)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<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>
<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
</tr>
<tr>
<td>1</td>
<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>
<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
</tr>
<tr>
<td>2</td>
<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>
<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
</tr>
<tr>
<td>3</td>
<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>
<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
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<tr>
<td>4</td>
<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>
<td>0% 1-20% 21-40% 41-60% 61-80% 81-100%</td>
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<tr>
<td>5</td>
<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>
<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 E

CICO TREATMENT INTEGRITY CHECKLIST

☐ Student attended morning check in

☐ Parent initialed the DBRC indicating they had reviewed the previous day’s data

☐ Teachers provided appropriate feedback throughout the school day

☐ Student attended check out at the end of the school day

☐ Teachers accurately filled out the DBRC

☐ CICO staff mentor accurately tallied points

☐ Student was allowed access to rewards when criterion was met
APPENDIX F

SELF-MONITORING TREATMENT INTEGRITY CHECKLIST

Student Self-Monitoring:

☐ Student has his or her own DBRC

☐ Student rates his or her behavior at the end of the period
APPENDIX G

PROCEDURAL INTEGRITY TRAINING SCRIPT

Introduction:

☐ “Check in/Check out is an easily implemented intervention that provides students with additional structure and feedback on their behavior. In this training, we are going to cover the basics of CICO implementation, and you will have the opportunity to practice the CICO procedures.”

Morning Check In:

☐ “When the student arrives, you will want to greet them and engage in some conversation to establish a rapport. You might start off saying, for example, ‘Good morning, Jimmy! How are you today?’”

☐ “You will then ask if the student has materials needed 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 praise him or her and say something like ‘Good job coming prepared!’”

☐ “Next you would ask the student if they have their report card from the previous day. 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 card, review their point goal. You can offer tips on how to meet their goal as well. For example, ‘Jimmy, your point goal for today is 80% or 60 points. Yesterday, you had trouble remaining on-task in first period; so,”
remember to look at the teacher when she is talking and to complete your assignments.”

☐ “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. You should then record check in on the CICO Student Record Form. On the Record Form, you should report the date and the student’s name, and then indicate if the student had their materials, turned in the previous day’s report card, and that you reviewed the goals for the day with the student.”

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

☐ Have the teacher 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.

Teacher CICO:

☐ “When the student arrives for class, you will want to collect the behavior report card. If the student forgets to bring it to you, prompt the student for the card. I will provide you with extra cards in case the student loses it during the day.
Don’t penalize the student for forgetting to give you the card; but if they lose the card, they must start over, and they do not get any points previously earned.”

□ “At the end of the period, use the card to rate the student’s behavior during the class period. Each rating has corresponding descriptors and percentages to aid you in making an accurate estimate of behavior. Please do your best to rate the child’s behavior for the class period immediately preceding your rating.”

□ “At this time, you should meet with the student to review the report card. Review the student’s points earned, and provide feedback on their behavior. When providing feedback, try to use positive statements. Even if the student had a bad day, try to think of something they did well. For example, ‘Jimmy, you earned 2 points for “Be Responsible,” you had some trouble staying on task today, but I loved how you remained in your seat raised your hand to ask questions!’”

□ “After reviewing the report card, check in is complete. You simply return the card to the student and send them off to their next class.”

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

□ Have the teacher 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.

**Check Out:**

□ When the student arrives at check out, collect the report card and provide praise for appropriate 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 seat during 3rd period, Jimmy!’

“If the student seemed to have trouble in a particular area, provide constructive feedback. Again, try to phrase feedback in a positive manner. For example, ‘Jimmy, you seemed to have trouble completing your assignments 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.”

“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.”

“Make a copy of the behavior report card for the child to bring home for parent signature, and file the original. Remind the student to get the report card signed prior to releasing them from check out.”

“At this time the student is finished checking out, and you may allow them to leave. Record on the Student Record form that you filed the original copy of the report card, and also record the percentage of points earned.”
☐ “Do you have any questions? Let’s practice a typical check out.”

☐ Have the teacher 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 H

SELF-MONITORING PROCEDURAL INTEGRITY 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. During check-out, your ratings will be compared to your teachers’ ratings to be sure you are being accurate. 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, and use the Treatment Integrity Form to determine if all steps are completed.

☐ Provide feedback on the practice session.
### APPENDIX I

**CHECK-IN/CHECK-OUT STUDENT RECORD FORM**

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>CICO Mentor:</th>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Had Materials</th>
<th>Signed Parent Copy</th>
<th>Reviewed Goals</th>
<th>School Copy Retained</th>
<th>Daily Points %</th>
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Adapted from Crone, Horner, Hawken, 2004
APPENDIX J

INSTITUTIONAL REVIEW BOARD LETTER OF APPROVAL

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 26, 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 Effect 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: 11091905
PROJECT TITLE: Effects of Check In/Check Out with a Fading Procedure on the Academic Engagement and Problem Behavior of Elementary School Students
PROJECT TYPE: Dissertation
RESEARCHER(S): Leila Mullooly Miller
COLLEGE/DIVISION: College of Education & Psychology
DEPARTMENT: School Psychology
FUNDING AGENCY: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF PROJECT APPROVAL: 09/20/2011 to 09/19/2012

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair

9.22.2011
REFERENCES


