THE EFFECTS OF TIER II CHECK-IN CHECK-OUT INTERVENTION AND TIER III FUNCTION-BASED SELF-MANAGEMENT ON THE DISRUPTIVE BEHAVIOR AND ACADEMIC ENGAGEMENT OF SELECTED AFRICAN AMERICAN MALE STUDENTS

by

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ABSTRACT

KIMBERLY RENEE' BUNCH-CRUMP. The effects of tier II check-in check-out intervention and tier III function-based self-management on the disruptive behavior and academic engagement of selected African American male students. (Under the direction of DR. YA-YU LO)

Many African American males experience disproportionate exclusionary discipline actions, disproportionate special education referrals and restrictive placements, poor academic achievement, and poor post-school outcomes, a phenomenon often referred to as the school-to-prison pipeline. Reformists suggest that multi-tiered systems of support (MTSS) such as School-wide Positive Behavior Interventions and Supports (SWPBIS) have the potential to mitigate disproportionality and minimize the effects of the school-to-prison pipeline (e.g., Advancement Project et al., 2011; Florida's Positive Behavior Support Project & University of South Florida, 2011). Check-In Check-Out (CICO), a frequently used Tier II intervention within the tiered framework of SWPBIS, has been shown to reduce problem behaviors and increase academic engagement of targeted students. Although effective with some students, CICO has not provided enough support for approximately 22-33% of students receiving the intervention (Hawken, Bundock, Kladis, O'Keeffe, & Barrett, 2014; Swoszowski, McDaniel, Jolivette, & Melius, 2013b). Tier III interventions are often implemented with Tier II nonresponders. One intervention meeting the characteristics of a Tier III MTSS intervention and demonstrating positive effects on the behaviors of at-risk students, to include African American males, is function-based self-management (Lo & Cartledge, 2006; Stahr, Crushing, Lane, & Fox 2006). This study evaluated the effects of a MTSS using CICO as a tier II intervention and function-based

self-management delivered via an electronic device as a Tier III intervention on the disruptive behaviors and academic engagement of three African American male students. A single-case, multiple baseline across participants design (Cooper, Heron, & Heward, 2007) was conducted to evaluate the effects of CICO on the participants' disruptive behaviors and academic engagement. Additionally, a reversal design (Kazdin, 1982) was used to evaluate the additive effects of function-based self-management with one of the participants. Results indicate a reduction in disruptive behaviors to the level similar to that of comparison peers for the three participants and decreased variability in disruptive behaviors for two of three participants upon introduction of CICO. In addition, two of the three participants increased academic engagement to the level similar to that of comparison peers and experienced decreased variability of academic engagement upon the introduction of CICO. Evaluations of electronic function-based self-management reveal a decrease in disruptive behaviors and inconclusive findings on academic engagement. Implications for practice and suggestions for future research are discussed.

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DEDICATION

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If I have seen further than others, it is by standing upon the shoulders of giants ~Isaac Newton.

We did it!

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CHAPTER 1: INTRODUCTION

Statement of the Problem

The U.S. Department of Education's mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access to quality educational opportunities (U.S. Department of Education, 2011). Unfortunately, the education system in the United States often falls short of this mission for African American males as evident by disproportionate exclusionary discipline actions, disproportionate special education referrals and restrictive placements, poor academic achievement, and poor post-school outcomes (Losen & Gillespie, 2012; Zhang, Katsiyannis, Ju, & Roberts, 2014). The Schott Foundation for Public Education's 2012 publication, *The Urgency of Now*, describes the crisis best in that the conundrum in the American educational system consists of two major problems, a pushout and a lockout problem. The *pushed out* problem involves students who have limited access to quality educational opportunities because they are not in school, whereas the *locked out* problem refers to students who are in school but lack access to resources and student-centered supports needed to foster educational excellence. African American males are often overrepresented in the number of students pushed out and locked out of the U.S. educational system (Holzman et al., 2012), making the U.S. Department of Education's outcome of

academic achievement and global competitiveness a distant reality for many of the nation's African American male students.

Disproportionality in exclusionary discipline actions and special education referrals that often result in restrictive environments have been continual concerns in American education (Holzman et al., 2012; Losen & Gillespie, 2012; Zhang et al., 2014) and contribute to the pushout of African American male students. African American males are more than two times likely than Hispanic males, and more than three times likely than Caucasian males to be suspended (U.S. Department of Education, 2014). African Americans are also overrepresented in school-related referrals to law enforcement and arrests (U.S. Department of Education, 2014). In addition, African American males are more likely to be identified as having behavioral and emotional or mild intellectual disabilities (Losen & Orfield, 2005). Students with emotional and behavioral disabilities and mild intellectual disability are often served in more restrictive environments (U.S. Department of Education, 2012) that have a history of being subpar to general education settings (Knitzer, Steinburg, & Fleisch, 1990). Furthermore, students with behavioral and emotional disabilities are more likely to experience exclusionary discipline practices than students with other disabilities (Achilles, McLaughlin, & Croninger, 2007). These practices often push African American male students out of equitable educational environments, thus limiting access to quality educational opportunities.

The disparate rates of academic achievement, graduation, dropout, and poor school outcomes of African American males compared to their peers show

remnant of the lockout problem, revealing that when African American males are present they are not fully engaged or are unable to access the supports needed to successfully excel academically. Analyses of national education assessment data reveal disparities in reading and mathematics achievement indicating that on average African American males in fourth and eighth grades do not possess mastery of the skills needed for grade level reading and mathematics (National Center for Education Statistics, 2013). Consequently, African American males are more likely to be retained than any other racial group of male students (Roper, 2008). African American males also have a 4-year on-time graduation rate (43%; Orfield, Losen, Wald, & Swanson, 2004) below the national average (80%; Stetser & Stillwell, 2014). Similar disparities are evident when examining post-school outcomes. The 2011 dropout rate for African American males (8.3%) was higher than the national dropout rate (7.1%; National Center for Education Statistics, 2012). Fifty-two percent of African American males who do not complete high school have experienced at least one incarceration by the age of 30 (Zeiderberg & Schiraldi, 2002). Additionally, there are one-third more African American men incarcerated than are enrolled in college (Zeiderberg & Schiraldi, 2002). Reform organizations often refer to these startling statistics as evidence of the school-to-prison pipeline, a concept used to describe the use of policies and practices that force minority students and students with disabilities out of school and into the prison system (Advancement Project, Education Law Center-PA, FairTest, The Forum for Education and Democracy, Juvenile Law Center, & NAACP Legal Defense and Educational Fund, 2011). Initiatives to end the

school-to-prison pipeline and combat both the pushout and lockout problems have suggested several systematic changes to help improve educational quality and combat the school-to-prison pipeline by using multi-tiered systems of support (MTSS) such as School-wide Positive Behavior Interventions and Supports (SWPBIS; Advancement Project et al., 2011).

SWPBIS is an empirically based, multifaceted systems approach consisting of systematic and individual interventions addressing problem behaviors and supporting academic engagement (Lewis & Sugai, 1999). SWPBIS is delivered across three levels, or tiers, of support: (a) Tier I, universal support level; (b) Tier II, small group support level; and (c) Tier III, individual support level (Lewis, Jones, Horner, & Sugai, 2010). Each tier consists of specific interventions, practices, and organizational features. For the majority of students (80% to 90%), Tier I support level, consisting of practices that are implemented across the entire school, will provide sufficient support in the development and sustainment of skills needed to be successful in the school setting (Lo, Algozzine, Algozzine, Horner, & Sugai, 2010). Students who do not respond to Tier I support receive additional support in Tier II through small group interventions. Characteristics of Tier II interventions include enhanced daily supervision, adult attention, specified behavioral expectations, and positive reinforcement (Simonsen, Myers, & Brier, 2012). Tier III, the individual level of support, is for students whose behavior has not responded to Tier I and II interventions. Tier III interventions are personalized to the individual needs of the student.

Check-In Check-Out (CICO) and function-based interventions (such as function-based self-management system) are two practices that have been used within SWPBIS that have shown promise in decreasing the off-task classroom behaviors of students and simultaneously increasing academic engagement (e.g., Campbell & Anderson, 2008; Fairbanks, Sugai, Guardino, & Lathrop, 2007; March & Horner, 2002; Swoszowski, McDaniel, Jolivette, & Melius, 2013b). CICO is a research-based Tier II intervention in which the student uses a daily behavior report card to complete a five-step process: (a) checks in with a designated school staff member in the morning; (b) obtains recorded feedback on his or her behavior throughout the day; (c) checks out with school staff before leaving school; (d) returns home to check in with a parent or guardian to review and discuss his or her daily school behavior, and obtain a parent's signature; and (e) returns the daily behavior report card to the CICO facilitator the following school day at check-in (Todd, Campbell, Meyer, & Horner, 2008). There is the potential for CICO to provide a viable means to help the pushout and lockout effects experienced by many African American male students. The home and school connection (via the daily behavior report card) and mentoring (provided by the CICO facilitator during check-ins and check-outs) components of the CICO intervention have shown positive effects on the social behaviors and academics of African American male students (Anderson, 2007; Campbell-Whatley, Algozzine, & Obiakor, 1997; Gordon, Iwamoto, Ward, Potts, & Boyd, 2009; Hughes, 2010; Izzo, Weissberg, Kasprow, & Fendrich, 1999; Mandara, 2006).

In addition, CICO has been shown to decrease problem behaviors (e.g., Campbell & Anderson, 2011; Campbell et al., 2013; Swoszowski, Jolivette, & Fredrick, 2013a; Swoszowski et al., 2013b), increase prosocial behaviors (e.g., academic engagement; Campbell & Anderson, 2011; Campbell et al., 2013; Fairbanks et al., 2007; Hawken & Horner, 2003), and increase academic performance (Mong, Johnson, & Mong, 2011; Swoszowski et al., 2013a) of at-risk students and those with disabilities. Although there is no published study that directly evaluates the effects of CICO on the behaviors of African American males, several studies that include African American males as participants have shown positive effects on students' social behaviors and academic performance (Dart et al., 2014; Fairbanks et al., 2007; McCurdy et al., 2007; Miller, Dufrene, Sterling, Olmi, & Bachmayer, 2015; Mong et al., 2011; Todd et al., 2008), indicating that CICO shows promise for decreasing behaviors that impede academic success, thereby increasing academic success for African American male students.

Although data from most peer-reviewed published studies on CICO show its effectiveness on decreasing problem behaviors, increasing academic engagement, and increasing academic achievement of the majority of participants, there have been participants for whom CICO did not produce substantial effects. A review of literature conducted by Swoszowski et al. (2013b) identified that out of 162 participants involved in their review of 15 peer-reviewed published studies, 36 participants have been nonresponsive to CICO. Swoszowski et al.'s review of literature revealed several reasons for the nonresponsiveness of

participants to include (a) lack of effectiveness for behaviors that are not maintained by adult attention, (b) goal criteria perceived as unattainable (e.g., too high or adjusted) by student, and (c) infrequent reinforcement (e.g., insufficient number of meetings with facilitator and delivery of incentives). Several researchers have evaluated the effects of modifications to CICO (i.e., an additional contact with the CICO facilitator, mid-day point evaluation and rewards, function-based incentives) to increase the responsiveness of participants whose behaviors were less responsive to the traditional five-step CICO process (Campbell & Anderson, 2008; Fairbanks et al., 2007; Swoszowski et al., 2012; Swoszowski et al., 2013b). Other researchers have successfully improved the behaviors of nonresponders to CICO by implementing Tier III function-based interventions (e.g., Briere & Simonsen, 2011; Fairbanks et al., 2007; March & Horner, 2002).

Function-based interventions are Tier III positive behavior supports and interventions that are created using the information identified from a functional behavioral assessment, a systematic assessment of an individual's problem behaviors to identify variables that set the occasion for the occurrence of problem behaviors and the consequences that maintain the behaviors (Sugai et al., 2010). One intervention that can be enhanced through functional behavioral assessment is self-management. Function-based self-management is the use of results from a functional behavioral assessment to enhance the effectiveness and efficiency of the process in which a person is able to observe his or her own behavior and document the occurrence and nonoccurrence of the target behavior, and/or solicit

appropriate reinforcer in order to increase a desired behavior and/or decrease an undesired behavior (Cooper, Heron, & Heward, 2007). The results of functional behavioral assessments offer a chance to personalize interventions that meet the needs of the student. In addition, a functional behavioral assessment provides a good basis on which to determine reinforcements. By identifying the function reinforcing the students' problem behavior (e.g., to obtain or to escape), practitioners can assist students in identifying more appropriate ways to recruit that reinforcement.

Several demonstrations exist documenting the positive effects (e.g., decreased problem behavior, increased academic engagement) of function-based self-management on the behaviors of at-risk students, including African American male students with or at risk for behavioral and emotional disabilities (Lo & Cartledge, 2006; Stahr, Crushing, Lane, & Fox 2006). In these studies, the results of functional behavioral assessments were used to create an individualized intervention package addressing the function of each student's behaviors (e.g., escape from task, teacher attention) to include more appropriate ways to self-recruit reinforcement (e.g., color coded signaling system, a list of verbal cues and a sign to recruit teacher attention and to request a break; Lo & Cartledge, 2006; Stahr et al., 2006).

In addition to implementing individualized interventions, researchers have also employed various methods to allow students to self-observe and self-record their own behaviors. Checklists, cards, and forms have been used to self-record behaviors. Tones, end of activities (e.g., class period, session; Sheffield & Waller,

2010), Sony Walkman (Todd et al., 1999), MotivAider® (Lo & Cartledge, 2006), and clocks have been used to signal students to self-record (Sheffield & Waller, 2010). Regardless of the materials used, results of these studies showed that self-management in the form of self-monitoring (consisting of self-observation and self-recording) and self-recruiting reinforcement had positive effects on student behaviors (Lo & Cartledge, 2006; Sheffield & Waller, 2010; Todd et al., 1999). Recently, the use of handheld devices to help students self-monitor has been evaluated, and although not as a function-based intervention, it was found to be a socially valid method to help students self-monitor and increase on-task behaviors (Bedesem, 2012; Blood, Johnson, Ridenour, Simmons, & Crouch, 2011; Cihak, Wright, & Ayers, 2010; Gulchak, 2008).

In sum, CICO is supported by research as a Tier II intervention effective in decreasing problem behaviors, and increasing academic engagement and achievement of students with and at risk for emotional and behavior disabilities. The components of CICO (i.e., increased home to school communication and mentoring) and the limited research including African American male participants show potential for CICO to be a vital intervention in increasing prosocial behaviors and academic achievement of African American males. As expected with any Tier II intervention, a review of literature revealed that standard implementation of CICO has not been effective for all of participants (Hawken, Bundock, Kladis, O'Keefe, & Barrett, 2014; Swoszowski et al., 2013). Results from the addition of Tier III function-based interventions (Fairbanks et al., 2007; March & Horner, 2002) have had positive effects on the behaviors of

nonresponders to standard CICO procedures. Function-based self-management has demonstrated effectiveness in decreasing classroom problem behaviors and increasing academic engagement of at-risk elementary African American male students (Lo & Cartledge, 2006; Stahr et al., 2006) and warrants consideration as a Tier III, individualized intervention for African American males when Tier II interventions do not provide sufficient support to ensure success in educational environments. Additionally, research evaluating the effectiveness of the use of handheld mobile devices to teach students to self-monitor their behaviors shows initial promise (Bedesem, 2012; Blood et al., 2011; Cihak et al., 2010; Gulchak, 2008). The improvements in participants' behaviors and social validity data of the few studies conducted on self-monitoring with handheld devices warrant additional studies in this area. Multi-tiered support for African American male students through the use of CICO as a Tier II, targeted intervention and function-based self-management via the use of a handheld device as a Tier III, individualized, intervention deserves consideration as a possible means to increase students' academic engagement and decrease students' disruptive behaviors. An increase in academic engagement and a decrease in students' disruptive behaviors may help to reduce pushout and lockout, and alleviate factors contributing to the school-to-prison pipeline for African American male students.

Significance of the Study

This study contributes to the research literature in five ways. First, it extends the findings of the effectiveness of CICO by evaluating the effects of CICO on the academic engagement of at-risk African American male students.

Most studies in CICO literature evaluated the effectiveness of CICO on decreasing problem behaviors (e.g., refusing to complete assignments, off-task, refusing to answer a question, yelling, talking, out of seat; Campbell & Anderson, 2008; Filter et al., 2007; Simosen, Meyers, & Briere, 2011; Swoszowski et al., 2013; Todd et al., 2008). This study extended the findings of Campbell and Anderson (2011), Campbell et al. (2013), Fairbanks et al. (2007), Hawken and Horner (2003), and Miller et al. (2015) on the effectiveness of CICO to increase academic engagement. Second, it adds to the literature of effective interventions for nonresponders to CICO by evaluating the additive effects of function-based self-management on the behaviors of CICO nonresponders. To date, there have been two studies that evaluated the effects of function-based self-management on the behaviors of nonresponders to CICO (i.e., Briere & Simonsen, 2011; March & Horner, 2002). March and Horner (2002) implemented an intervention package that included function-based self-monitoring on the behaviors of nonresponders to CICO. Briere and Simonsen (2011) implemented function-based self-monitoring and nonfunction-based self-monitoring and compared the effects of the two interventions on the behaviors of CICO nonresponders. The current study extends the findings of March and Horner, and Briere and Simonsen in evaluating the effects of function-based self-management (to include self-monitoring and self-recruitment of reinforcement) as a Tier III intervention with CICO nonresponders. Third, this study extends the limited literature on the effectiveness of using mobile devices to help students self-monitor their behavior. Fourth, to date there have been no studies specifically evaluating the effects of CICO on the social and

academic behaviors of African American male students and only two that have specifically studied the effects of function-based self-management on improving social behaviors of African American males in elementary school (Lo & Cartledge, 2006; Stahr et al., 2006). The study contributes to current literature by specifically evaluating the effects of CICO and function-based self-management on the behaviors of African American male students in elementary school. Finally, educational reformists suggest (e.g., Advancement Project et al., 2011; Florida's Positive Behavior Support Project & University of South Florida, 2011; Problem Solving & Response to Intervention Project, Florida's Positive Behavior Support Project, & University of South Florida, 2011) and research supports (Bradshaw et al., 2010; McIntosh et al., 2006; Vincent et al., 2009; Vincent et al., 2011) the use of interventions delivered through MTSS to reduce office discipline referrals, exclusionary discipline practices, and to improve academic performance. This study evaluated the effects of both Tier II and Tier III interventions delivered within multi-tiered framework, specifically SWPBIS, with African American male students.

Research Questions

This study examined the effects of CICO and function-based self-management (i.e., self-monitoring with self-recruitment of reinforcement) via I-Connect (Wills & Kamps, n.d.), a self-monitoring mobile app, on the disruptive behaviors and academic engagement of three African American male elementary students at risk for emotional and behavioral disorders. A multiple baseline across participants design (Cooper, Heron, & Heward, 2007) was conducted to evaluate

the effects of CICO on the participants' disruptive behaviors and academic engagement. Additionally, a reversal design (Kazdin, 1982) was used to evaluate the additive effects of function-based self-management via I-Connect. The study addresses seven research questions.

1. What are the effects of a Tier II CICO intervention on the disruptive behaviors and academic engagement of three African American male elementary students at risk for emotional and behavioral disorders?
2. What are the additive effects of function-based self-management delivered through I-Connect, a self-monitoring mobile app, as a Tier III intervention on the disruptive behaviors and academic engagement of participants who are nonresponsive to Tier II CICO intervention alone?
3. What are the effects of the intervention(s) on the participants' social skills, problem behaviors, and academic performance ratings on the *Social Skills Improvement System* (SSIS, Gresham & Elliott, 2008) as pretests and posttest?
4. To what extent will teachers rate the participants at risk for special education or disciplinary referral before and after the implementation of the intervention(s)?
5. What are the personnel perspectives of the effectiveness, importance, and practicality of the Tier II (CICO) and Tier III (function-based self-management) interventions?
6. What are the participants' perspectives of the effectiveness, importance, and practicality of the Tier II and/or Tier III interventions?

7. What are parents' perspectives of the effectiveness, importance, and practicality of the Tier II and/or Tier III interventions?

Limitations/Delimitations

This study examined the effects of a Tier II intervention, CICO, on the disruptive behaviors and academic engagement of African American males in upper elementary grades and the effects of a Tier III intervention, function-based self-management using a handheld computer device, I-Connect, of nonresponders to CICO. It is important to define the potential limitations of the study so that the results may be interpreted accurately. Six limitations/delimitations are worth noting. First, the experimenter did not conduct a functional behavioral assessment prior to implementing CICO, as has been the practice of several researchers in CICO studies (Campbell & Anderson, 2008; Ennis et al., 2012; Lane et al., 2012; McIntosh et al., 2009; Mong et al., 2011; Simonsen et al., 2011; Swoszowski et al., 2013a; Swoszowski et al., 2012; Todd et al., 2008; Turtura, Anderson, & Boyd, 2014), because the primary purpose of this study was to evaluate the impact of traditional CICO on disruptive behaviors and academic engagement opposed to investigating the effects of CICO on behaviors maintained by various functions or modifying CICO according to behavior function. Without conducting a functional behavioral assessment prior to implementation of CICO, the function of the participants' behavior was not verified experimentally. Second, the implementation of the Tier II and Tier III interventions occurred in the context of a school with 5-year of SWPBIS implementation. Additionally, the school earned state recognition for exemplar implementation of SWPBIS for the last 3 years,

indicating the completion of team trainings, at least 2 consecutive years of academic and behavioral improvement as indicated by data, and a score of 95% or better on implementation fidelity assessments (Public Schools of North Carolina, 2014). Without high implementation fidelity of Tier I, examination of Tier II and III effects are not possible. Therefore, results may be different if the study were conducted in a school with a different level of SWPBIS implementation fidelity. Third, due to limited resources, observation data were only collected in the class in which each participant experienced the most occurrences of disruptive behaviors; therefore it is difficult to determine the effects of the intervention(s) in other classroom settings. Fourth, the study was conducted in a school without an African American male teacher. Being that teachers from minority groups can serve as role models, cultural translators, and cultural mediators for minority students (Smith et al., 2000), results may have been different if the selection of a CICO facilitator of the same ethnicity and gender as the participants was possible. Fifth, the factors contributing to the school-to-prison pipeline are many and addressing them all is beyond the scope of this study. This study evaluated a proactive approach to address the needs of a small group of African American male students in an attempt to address four factors contributing to the school-to-prison pipeline, including (a) the use of exclusionary discipline, (b) the use of referrals to special education services, (c) student and parent engagement, and (d) access to needed supports. Sixth, the research design used in this study did not include a maintenance phase. Due to ethical consideration, the CICO was not withdrawn during the study. This design limitation restricted the ability to

evaluate any long-term effects the CICO intervention may have had on the participants' behaviors and the extent to which these participants may have been able to maintain the same level of academic engagement and disruptive behaviors with the sole implementation of universal level of support (Tier I).

Definition of Terms

Terms that are used in this study and their definitions are presented in the following section. The terms are critical for understanding the conceptualization of the study, its implementation procedures, and observed results.

Academic engagement: the student is appropriately engaged in working on assigned academic material that is geared to her or his ability and skill levels. While academically engaged, the student is (a) attending to the material, assigned task, or listening to teacher directions/instructions, (b) making appropriate motor responses (e.g., writing, computing), (c) asking for assistance (where appropriate) in an acceptable manner, or (d) interacting with the teacher or classmates about academic matters (Walker et al., 1990). In this study, the learning styles of African American students as described by Boykin (1983) with specific attention given to verve (being energetic, having expressive body movements, and attend to several things at once) and the established classroom expectations within the context of school were considered in the creation of the definition of academic engagement for the purpose of this dissertation. Academic engagement is defined as students' behaviors meeting the following criteria: (a) oriented toward the classroom presenter (e.g., teacher, teacher assistant, guest speaker, student presenter) or demonstration materials (e.g., white board, computer, map); or (b)

actively using instructional materials to complete assigned work (e.g., reading book, using computer, writing with pencil and paper), responding to the presenter's question or comment, or engaging in self-management behaviors (e.g., the use of electronic device).

Applied behavior analysis: the science of applying principles of behavior to enhance socially significant behaviors (Cooper et al., 2007).

Check-In/Check-Out (CICO): an evidenced-based Tier II intervention in which the student uses a daily behavior report card to complete a five-step process: (a) checks in with a designated school staff member in the morning; (b) obtains recorded feedback on his or her behavior throughout the day; (c) checks out with school staff before leaving school; (d) returns home to check in with a parent or guardian to review and discuss his or her daily school behavior, and obtain a parent's signature; and (e) returns the daily behavior report card to the CICO facilitator the following school day at check-in (Todd et al., 2008). In literature, CICO is also referred to as The Behavior Education Program (Crone et al., 2010). The daily behavior report card has alternate names as daily progress report (DPR, Crone et al., 2010), point card or point sheet (Swoszowski et al., 2013a), CICO card (Ruiz, Smith, Naquin, Morgan-Datrio, & Dellinger, 2013), daily report card (Campbell & Anderson, 2008), daily behavior progress report (Simonsen et al., 2011), and Check In Check Out Progress Report (March & Horner, 2002).

CICO facilitator: the individual who implements the check-in and check-out meetings during the implementation of CICO.

Disruptive behavior: students' display of behaviors that interferes or disrupts teacher's instruction and/or the learning of peers. Verve, the tendency for active, intense, stylistic body language and countenance (Boykin, 1983), was considered in identifying disruptive behaviors for the African American participants. Therefore, behaviors such as sitting on knees, standing while working, self-talk or tapping while completing assignments were not counted as disruptive behavior if it was not disruptive to other student's learning. The term, "disruptive behaviors," is used throughout this dissertation in place of the more common term "problem behaviors" as it provides a more objective view of student behaviors.

Disproportionality: the overrepresentation or underrepresentation of a given population in an identified group of people (Losen & Orfield, 2005). In this study, disproportionality refers to the overrepresentation of African American male students in exclusionary discipline, students identified as performing below grade level standards, retention rates, special education and restrictive placements, and high school dropout and incarceration rates.

Emotional or behavioral disability (EBD): a special education disability category (namely, emotional disturbance) defined by the Individuals with Disabilities Education Act (2004) as "a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance: (a) an inability to learn that cannot be explained by intellectual, sensory, or health factors, (b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers,

(c) inappropriate types of behavior or feelings under normal circumstances, (d) a general pervasive mood of unhappiness or depression, (e) a tendency to develop physical symptoms or fears associated with personal or school problems… includes schizophrenia… does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance (IDEA, 2004, § 300.8 [a][4][i]).

Exclusionary discipline: discipline practices that exclude students from engaging in school activities. Types of disciplinary exclusion include in-school suspension, out-of-school suspension, placement in an alternative setting, and expulsion.

Functional behavioral assessment (FBA): a systematic assessment of an individual's problem behaviors to identify variables that set the occasion for the occurrence of problem behaviors and the consequences that maintain the behaviors (O'Neil et al., 1997).

Function-based interventions: positive behavior supports and interventions that are created using the information identified from a functional behavioral assessment to attend to the behavioral function of the student's problem behaviors (Cooper et al., 2007).

Function-based self-management: conducting a functional behavioral assessment to create an intervention that includes one or more self-management strategies to address the function of the student's behavior (Kern, Ringdahl, Hilt, & Sterling-Turner, 2001). In this dissertation, function-based self-management consisted of attending to the student's behavioral function in the development of

an intervention package that included self-observation, self-recording, and self-recruitment of reinforcement.

Lockout: a term used by the Schott Foundation for Public Education to describe the need to improve learning and transition opportunities for students who are present but not fully engaged and are unable to access the supports to fully excel (Holzman et al., 2012).

Multi-tiered systems of support (MTSS): a systematic data-based problem-solving framework that integrates academic and/or behavioral instruction and interventions matched to students' needs (Problem Solving & Response to Intervention Project, Florida's Positive Behavior Support Project, & University of South Florida, 2011).

Overrepresentation: occurs when a group's membership in an identified program or defined cluster is larger than the percentage of that group in the population (U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs, 2012).

Pushout: a term used by the Schott Foundation for Public Education to describe exclusionary practices (e.g., suspensions and expulsions) that prevent students from receiving critical educational services (Holzman et al., 2012).

Self-management: the process in which a person is able to observe and document the occurrence and nonoccurrence of a target behavior to increase a desired behavior and/or decrease an undesired behavior (Cooper et al., 2007). There are several components of self-management to include (a) a self-selected target behavior, (b) self-identified definition of the target behavior, (c) self-

selection of primary reinforcers, (d) self-identification of a performance goal, (e) self-delivered prompts for target behavior, (f) self-observation of targeted behavior, (g) self-recording, (h) self-evaluation, (i) self-administration of secondary reinforcers, (j) self-administration of primary reinforcers, and (k) self-charting of behaviors (Fantuzzo et al., 1988).

School-to-prison pipeline (SPP): a concept used to describe the use of policies and practices that force minority students and students with disabilities out of school and into the prison system (Advancement Project et al., 2011).

Tier I interventions: interventions that focus on prevention of risk factors for all students (Walker et al., 1996). The instruction and interventions are implemented based on the needs of the student population at an identified school and are received by all students (Problem Solving & Response to Intervention Project et al., 2011).

Tier II interventions: interventions based on the needs of a targeted group of students to provide supplemental support, in addition to supports provided at Tier I level, to improve students' academic and/or behavioral performance under Tier I supports so that grade-level national, state, and/or district proficiencies will be met (Problem Solving & Response to Intervention Project et al., 2011).

Tier III interventions: the most intense support an organization offers within the multi-tiered systems of support. These interventions are provided in addition to Tier I and Tier II supports and are personalized to meet the individual needs of individuals for whom secondary/Tier II supports were not sufficient to

promote success (Walker et al., 1996; Problem Solving & Response to Intervention Project et al., 2011).

CHAPTER 2: LITERATURE REVIEW

This chapter consists of a review of the literature relevant to the disproportionality of African American male students in exclusionary discipline and referrals to special education, the effects of disproportionate representation on academic achievement and post-school outcomes, and tiered interventions within the school-wide positive behavior interventions and support (SWPBIS) approach that have been shown to produce positive effects on the academic and social behaviors of students, particularly African American male students. The first section includes examination of the disproportionality of African American males in schools in the United States and the resulting disparate post-school outcomes. The second section addresses the importance and application of multi-tiered interventions as systems of support within a school-wide setting. The final two sections present literature on Check-In Check-Out (CICO), a Tier II intervention, and function-based self-management strategy, a Tier III intervention, that have decreased disruptive behaviors and increased on-task behaviors of students, including African American males. Figure 1 presents the theory of change for reducing factors contributing to the school-to-prison pipeline for African American male students; the theory of change serves as the foundation for review of literature for this chapter.

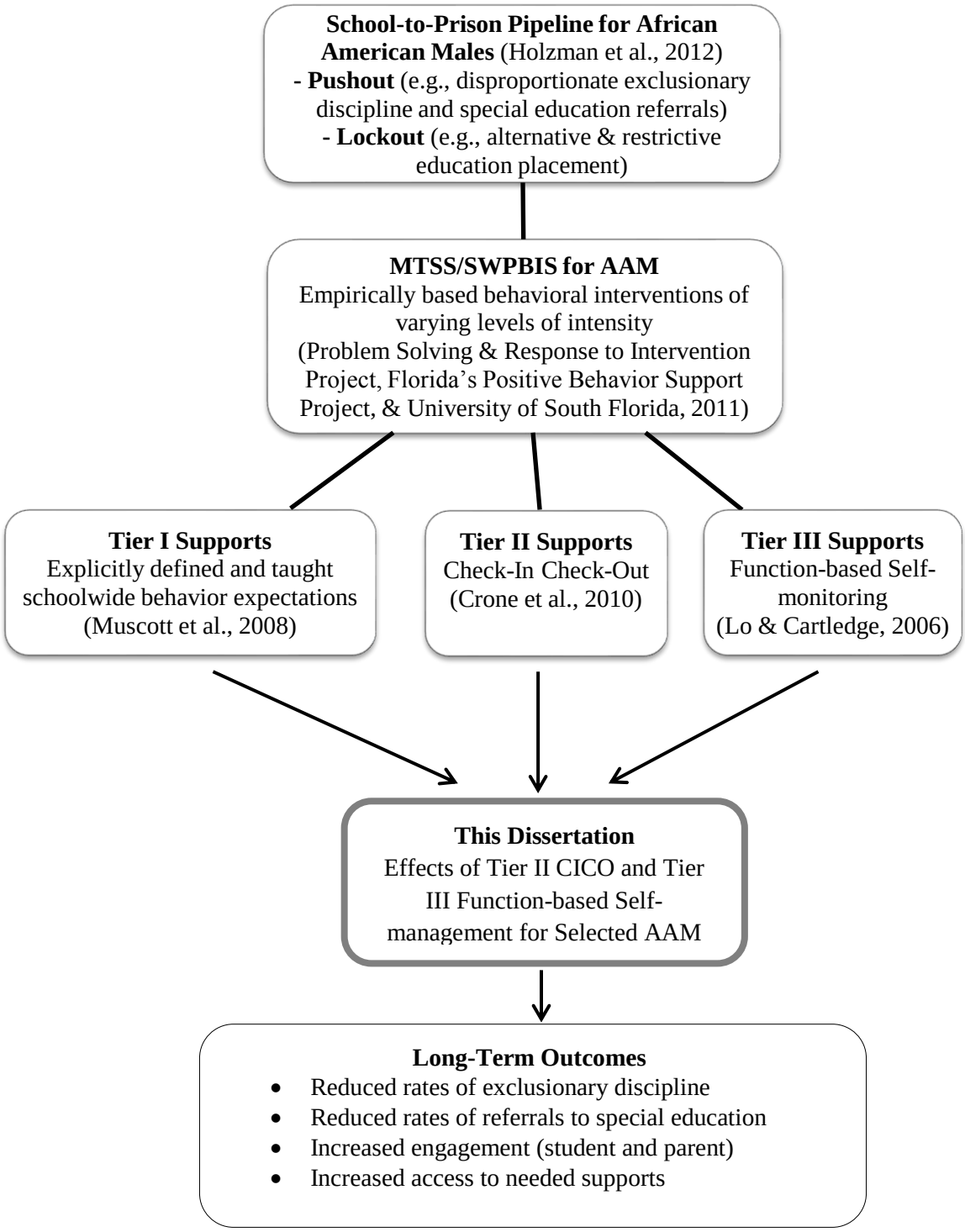

Figure 1. Theory of change for reducing factors contributing to the school-to-prison pipeline for African American male students.

Disproportionality of African American Male Students

The disparities in exclusionary discipline practices, standardized measures of academic performance, special education referrals and restrictive placements, and post-school outcomes have been a persistent concern for African American male students in the United States for the past 4 decades (Losen, Gillespie, & University of California, 2012; Zhang, Katsiyannis, Ju, & Roberts, 2014). Disparity in terms of disproportionality is defined as the overrepresentation or underrepresentation of a given population in an identified group of people (Losen & Orfield, 2002). The Schott Foundation, an organization focused on public education reform, describes the conundrum of disproportionality as consisting of two main problems, a *pushout* problem and a *lockout* problem. The pushout problem occurs when students have limited access to quality educational opportunities because they are out of school due to exclusionary discipline (e.g., out-of-school suspensions, in-school suspensions, expulsion). The lockout problem refers to situations in which students who are in school have limited access to the resources and supports needed to excel academically (e.g., alternative and restrictive education placements; Holzman et al., 2012). Despite the efforts of federal legislation (e.g., Elementary and Secondary Education Act and the Individuals with Disabilities Education Act to include its reauthorizations) to mitigate the pushout and lockout problems, minority students and African American males in particular are continually being pushed out and locked out of quality educational opportunities by receipt of disproportionate rates of exclusionary discipline and special education referrals and identification that lead

to placements in restrictive educational environments and often result in poor academic and post-school outcomes.

Exclusionary Discipline

Originating from zero tolerance policies, exclusionary discipline practices contribute to the pushout problem. Since the 1990s, zero tolerance policies were put in place to ensure safety of students and school personnel. As a result, exclusionary discipline has been frequently used (Fenning & Rose, 2007). Zero tolerance policies were first initiated with the Drug-Free Schools and Campuses Act of 1989 and the Gun-Free Schools Act of 1994 requiring mandatory expulsion for drug violations, weapon violations, and violence. Since the implementation of these acts in the 1990s, terms and practices have evolved. Losen (2011) provides the following as a definition of zero tolerance that best fits the current practices:

> A school discipline policy that typically results in an automatic disciplinary consequence, including, but not limited to, out-of-school suspension, expulsion, and involuntary school transfer for disciplinary purposes, usually in response to a first offense. A school discipline policy is a zero tolerance policy, even if invoking the prescribed consequence is not mandatory. (p. 21)

The available research and data reviewing disciplinary actions by race and gender suggests that African American males are more likely to experience exclusionary discipline as a result of zero tolerance policies (Losen et al., 2012). According to the U.S. Department of Education Office for Civil Rights (2014), 20% of African

American male students are suspended compared to 9% of Hispanic males and 6% of Caucasian males. This equates to about one in every five African American male students receiving at least one out-of-school suspension. In addition, although African Americans represent 16% of student enrollment across the nation, they represent 27% of students referred to law enforcement, and 31% of students subject to school-related arrests (U.S. Department of education Office for Civil Rights, 2014). African American youth are also two times more likely to experience court involvement than Caucasian youth (National Council on Crime and Delinquency, 2007). Additionally, research suggests that African American males are referred for more subjective offenses such as disrespect, defiance, or perceived threat (Skiba et al., 2011; Wallace, Goodkind, Wallace, & Bachman, 2008); even when behavior violations are similar, African American males receive harsher and more exclusionary penalties than other student groups (Cartledge, et al., 2002; Skiba, Michael, Nardo, & Peterson, 2002).

Exclusionary discipline has unfavorable effects on students. First, suspensions lead to missed learning opportunities. Students who are suspended from school miss instruction and positive peer interactions, often causing them to fall behind their peers academically and socially. An even more concerning issue is that about 95% of these missed learning opportunities result from suspensions for nonviolent violations, such as tardiness, disrespect, and minor disruptions (Fabelo et al., 2011). Second, suspensions have consequences that can be detrimental to students while in school and post school. Research indicates that students who have been suspended are more likely to be retained, suspended

again, involved with the juvenile justice system, and dropout of school (Arcia, 2006; Balfanz, Herzog, & MacIver, 2007; Carpenter & Ramirez, 2007; Fabelo et al., 2011; Skiba & Sprague, 2008; U.S. Department of Education Office for Civil Rights, 2014), supporting the pushout effect. Perhaps the most compelling signs of the pushout effect of exclusionary discipline are those captured by qualitative research conducted by Canton (2012) and Townsend Walker (2012) where African American males who dropped out of school gave their accounts of the effects that zero tolerance policies and exclusionary discipline had on their school experience. Specifically, Townsend Walker conducted focus groups with nine African American males between the ages of 14 and 17 who received multiple suspensions, dropped out of middle school, and had at least one arrest to identify factors that contribute to the school-to-prison pipeline. A negative schooling experience was one of the four themes that emerged. The participants perceived that they were not liked and not welcomed in schools by school staff stating that once they begin getting in trouble they were constantly being accused for rule violations that they did not commit. The participants also reported that teachers often provoked them in an attempt to have them suspended. Similarly, Canton used counter-storytelling within a critical race theory framework to evaluate the influence of zero tolerance policies on school experiences and outcomes of 10 African American males who dropped out of high school. Canton conducted several one-on-one 60-min interviews with participants resulting in several emerging themes: (a) security measures used by the school created an unwelcoming and often times hostile environment; (b) a strong teacher-student

relationship is important for academic success; however, this relationship was often stifled by teachers' emphasis on or overreaction to participants' disruptive behaviors; (c) exclusionary discipline negatively affected participants' schoolwork as they were always behind due to being excluded from class; and (d) the schools' exclusionary practices contributed to participants' high school failure and parent mistrust of the school and their commitment to educating African American students.

Special Education Identification

Similar to discipline data, African Americans are disproportionately identified for special education. African Americans are 1.45 times more likely to be identified in need of special education services than other student ethnic groups and this disproportionality is usually in high incidence disabilities (e.g., behavior and emotional disabilities, mild intellectual disability, learning disabilities; U.S. Department of Education, 2012). Of African Americans served in special education, 10.5% are receiving services for emotional and behavior disorders making them 2.29 times more likely than any other subgroup to be identified as having behavior and emotional disabilities (U.S. Department of Education, 2012). With 12.8% of African Americans served in special education receiving services for intellectual disability and 43.7% receiving services for specific learning disabilities, African Americans are 2.64 times more likely to be identified as having an intellectual disability and 1.47 times more likely to be identified for a learning disability when compared to other subgroups (U.S. Department of Education, 2012). In addition, males comprise 66.8% of individuals between the

ages of 6 through 21 served in special education (U.S. Department of Education, 2012).

According to 2009 Office of Civil Rights data, most recent data available, African American males accounted for 8% of students enrolled in public schools, but 18% of students served under the Individuals with Disabilities Education Act (U.S. Department of Education Office for Civil Rights, 2009). Additionally, Losen and Orfield (2002) examined the effects of gender, ethnicity, and sociodemographic factors on students identified with behavior and emotional disabilities, intellectual disability, and learning disabilities. They found that without taking into account the effects of social, demographic, and school-related factors, gender and ethnicity are significantly associated with the risk of being identified for special education services. Specifically, Losen and Orfield compared gender and ethnic subcategories to a white female comparison group and found that African American males were more likely to be identified as having a behavior and emotional disability and intellectual disability than any other gender/ethnic subgroup. Specific findings also revealed that while Caucasian males were 3.8 times more likely than the comparison group to be identified as a student with a behavior and emotional disability, 1.36 times more likely to be identified with an intellectual disability, and 2.27 times more likely to be identified with a learning disability, African American males were 5.5 times, 3.26 times, and 2.3 times more likely than the comparison group to be identified as a student with a behavior and emotional disability, an intellectual disability, and a learning disability, respectively (Losen & Orfield, 2002).

Misidentifying a student as needing special education services can result in the lockout effect by limiting students from receiving a quality education. Misidentified students are likely to experience lowered expectations and a less rigorous curriculum due to perceived impressions of reduced intellectual ability and academic potential (National Education Association, 2007). Students served in special education are often socially stigmatized and may have fewer opportunities to interact with peers who are typically developing (Donovan, Cross, & National Academy of Sciences – National Research Council, 2002). Additionally, once a student is placed in special education services, he or she seldom exits (Harry & Klingner, 2006).

In an attempt to ensure proper identification and mitigate disproportionality of minority students, the 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA 1997, Public Law No. 105-17) emphasized the need for greater efforts "to prevent the intensification of problems connected with mislabeling and high dropout rates among minority children with disabilities" (Individuals with Disabilities Education Improvement Act of 2004, p. 5). The 2004 reauthorization of the Individuals with Disabilities Education Act imposed mandates such as requiring states to report on procedures and practices that prevent overidentification and disproportionate representation by racial/ethnicity group. These legislative efforts have made some impact on the state-reported numbers used to identify disproportionality and overrepresentation. Zhang et al. (2012) used growth models to analyze data from all 50 states and the District of Columbia to investigate the status of minority overrepresentation in

special education since the mandates outlined in the Individuals with Disabilities Education Act and found a decrease in the number of African American students categorized as having an intellectual disability; however, the trend in the representation of African American students served under the category of emotional and behavioral disabilities remained the same.

Behavioral and emotional disability classification. In addition to the previously mentioned long-lasting harmful effects of an inappropriate special education label, the effects are exacerbated with a classification of a behavioral and emotional disability, recognized by IDEA as emotional disturbance. According to Achilles, McLaughlin, and Croninger (2007), students with behavior and emotional disabilities are often more likely to experience exclusionary discipline practices than any other disability group. Achilles et al. used data from the Special Education Elementary Longitudinal Study to conduct a logistic regression analysis examining factors associated with higher likelihood of exclusionary discipline on participants with behavioral and emotional disabilities, learning disabilities, and attention deficit hyperactivity disorder. They found that students with behavioral and emotional disabilities and attention deficit hyperactivity disorder were more likely than students with learning disabilities to be suspended or expelled. Further findings indicated a greater risk of exclusion of African Americans and males categorized as having behavioral and emotional disabilities than other student groups (Achilles et al., 2007).

In addition to the higher suspension and exclusion rates, students with behavioral and emotional disabilities are often served in more restrictive

environments with 24.1% spending 60% or more of their day outside of the general education classroom (U.S. Department of Education, 2012). Restrictive environments reduce students' access to typically developing peers and can create lowered expectations for students with behavioral and emotional disabilities. Lowered expectations due to false impressions of academic potential not only lead to reduced classroom opportunities, but also result in lessened post-school opportunities (Donovan et al., 2002; Harry & Klingner, 2006). Research has shown that students with behavioral and emotional disabilities have the highest dropout rate (44%) of any other disability category (Wagner, Newman, Cameto, Garza, & Levine, 2005). Criterion for determining eligibility for a behavioral or emotional disability includes documentation of a student's inability to succeed academically (Individuals with Disabilities Education Improvement Act of 2004). Unfortunately, analyses of nationally administered standardized test data reveal that African American male students often struggle to compete with their peers academically (U.S. Department of Education, National Center for Education Statistics, 2013) putting them at greater risk of special education referral.

Academic Achievement

The effects of the lockout problem are evident in the achievement data of African American male students. African Americans are often underrepresented in gifted and talented programs; although African American males represent 8% of the total student population in the United States, they account for only 4% of students identified as gifted and talented (U.S. Department of Education Office for Civil Rights, 2009). In comparison, Caucasian males account for 28.5% of the

student population, and 32% of individuals identified as gifted and talented (U.S. Department of Education Office for Civil Rights, 2009).

Analyses of national education data reveal disparities in reading and math achievement between African Americans and other subgroups (U.S. Department of Education, National Center for Education Statistics, 2013). For example, a review of the 2013 National Assessment of Education Progress (NAEP) reveals that only 60% of African Americans in the eighth grade and 50% in the fourth grade were at or above a score of basic, indicating partial mastery of the prerequisite knowledge and skills need to be successful in grade level reading compared to 85% and 79% of Caucasians in eighth and fourth grades, respectively. Further analysis of NAEP reading scores by race and gender reveals an average score of below basic level for African American fourth and eighth grade males, indicating that they do not possess partial mastery of the prerequisite skills needed for grade level reading. In comparison, Caucasian fourth and eighth grade males attained an average score of basic level. Math scores reveal similar patterns. Caucasian males on average scored proficient in fourth grade, indicating solid academic grade level math performance, and basic in eighth grade; whereas African American males' average scores in math were basic in fourth grade and below basic in eighth grade (U.S. Department of Education, National Center for Education Statistics, 2013).

Due to retention policies created around high-stakes testing, poor performance on standardized testing often leads to grade level retention (Green & Winters, 2007). Although grade retention can potentially help students with

preparation for the next grade level, research indicates that retention is not effective at remediating academic achievement (Larsen & Akmal, 2007) in that any academic gains acquired by students who are retained usually weaken within 2 to 3 years (Jimerson, Pletcher, & Kerr, 2005; Xia & Kirby, 2009). Further, it has been shown that grade retention has no motivating effect on a significant number of low-achieving students (Roderick & Engel, 2001) and that it is seen as more of a punitive measure for poor performance than a remediation measure or motivational factor (Roper, 2008). Despite findings that retention is an ineffective practice to increase academic achievement (Jimerson et al., 2005; Larsen & Akmal, 2007; Xia & Kirby, 2009), grade retention continues to be commonly used in schools, particularly with African American students (Huddleston, 2014; Roper, 2008).

Retention

A review of the most recent nationwide data collected by the U.S. Department of Education, Office of Civil Rights (2009) reveals racial/ethnic disparities in student retention, indicating that African Americans are more likely to be retained than any other racial/ethnic group. For example, at the end of the 2009-2010 academic year, African Americans accounted for less than a fourth of the student population but over half (56%) of the fourth grade students and just less than half (49%) of the third grade students retained (Adams, Robelen, & Shah, 2012). Additionally, by ninth grade 29% of African American males had been retained at least once in their school careers, compared to 20% of Hispanic males and 11% of Caucasian males (Ross et al., 2012). Although the average 4-

year on-time graduation rate for male students in 2009 was 72%, African American males had a 4-year on-time graduation rate of 57%, the lowest of all race/gender subgroups (Ross et al., 2012). There is evidence to suggest that retention is a predictor of dropout (Balfanz et al., 2007; Carpenter & Ramirez, 2007; Xia & Kirby, 2009) and lowered enrollment in postsecondary education after graduation (Ross et al., 2012). African American male students are less likely to attain college benchmark scores on standardized tests, and less likely to apply, attend, and complete a 4-year college than their Caucasian male peers (Ross et al., 2012).

Post-school Outcomes

When students are pushed and locked out of schools, the resulting effects are poor post-school outcomes. According to 2011 U.S. Department of Education, Institute for Education Statistics data (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2012), the dropout rates for African Americans declined from 13% to 8% from 1990 to 2012; unfortunately, the gap between rates of African American and Caucasian dropouts was not measurably different. Specifically, African American male students had a dropout rate of 8.3% compared to a 5.4% dropout rate for Caucasian male students. African American males who drop out of high school face a higher chance of going to prison than being employed (Kearney & Harris, 2014). Based on a study conducted by The Hamilton Project (2014), there is a 70% chance that an African American male high school student who drops out will be incarcerated

by age 35 (Kearney & Harris, 2014). These dropout rates and subsequent poor post-school outcomes for African American students are concerning.

The disproportionate in-school and post-school outcome of the pushout and lockout effects are often denoted by school reformists as evidence of a cyclic problem referred to as the school-to-prison pipeline. The school-to-prison pipeline is a term used to describe the concept of adopting policies and practices that force minority students and students with disabilities out of school and into the prison system (Advancement Project, Education Law Center-PA, FairTest, The Forum for Education and Democracy, Juvenile Law Center, & NAACP Legal Defense and Educational Fund, 2011). Reform initiatives to end the school-to-prison pipeline and combat both the pushout and lockout problems, particularly for African American male students, have suggested several systematic changes to help improve educational quality and reduce factors of the school-to-prison pipeline such as using multi-tiered systems of supports (MTSS) like School-Wide Positive Behavior Interventions and Supports (SWPBIS; Advancement Project et al., 2011).

Summary

The pushout and lockout of African American male students supports the school-to-prison pipeline. African American males are being pushed out and locked out of quality educational opportunities by receipt of disproportionate rates of exclusionary discipline and special education referrals and placements, leading to poor academic and post-school outcomes (Holzman et al., 2012). African American males account exclusionary discipline as the reason for their school

failure (e.g., falling behind in coursework; Canton, 2012; Townsend Walker, 2012). This school failure often leads to referrals to and placement in restrictive special education programs or grade-level retention, which contribute to poor post-school outcomes (e.g., dropout, unemployment, and incarceration). The school-to-prison pipeline is a complex societal problem consisting of civil rights issues, zero tolerance policies, and practices, and will therefore require societal changes to dismantle. This may be why legislative efforts alone have had little to no effect on preventing the school-to-prison pipeline. School reformists suggest that the addition of multi-tiered systems of support could help to mitigate some of the effects of the school-to-prison pipeline through a positive and preventive approach (Advancement Project et al., 2011).

Multi-Tiered Systems of Support and School-Wide Positive Behavior Interventions and Supports

Modeled after the U.S. Public Health Service's conceptual model of prevention (Walker et al., 1996), multi-tiered systems of supports (MTSS) is a systematic data-based problem-solving framework that integrates academic and/or behavioral instruction and interventions matched to students' needs (Problem Solving & Response to Intervention Project, Florida's Positive Behavior Support Project, & University of South Florida, 2011). SWPBIS is an approach of implementing behavioral interventions based on students' needs through a tiered level of support to improve students' success in the total school environment. SWPBIS has been shown to decrease the number of office discipline referrals received by African American male students (Vincent, Cartledge, May, & Tobin,

2009; Vincent, Swain-Bradway, & Tobin, 2011) and thus shows promise in preventing some of the pushout and lockout problems.

Multi-tiered Systems of Supports

MTSS is based on the U.S. Public Health Service's conceptual model of prevention incorporating primary, secondary, and tertiary prevention approaches (Walker et al., 1996). The U.S. Public Health Service's conceptual model is based on the premise of identification and reduction of risk factors (e.g., smoking, poor diet, physical inactivity, excessive alcohol consumption, unprotected sex) and the creation of protective factors (e.g., exercise, stress management, proper nutrition, routine visits) that serve to shield and counteract the effects of those risk factors (Walker et al., 1996). MTSS applies this concept to education.

MTSS is a systematic data-based problem-solving framework that integrates academic and/or behavioral instruction and interventions matched to students' needs (Problem Solving & Response to Intervention Project, Florida's Positive Behavior Support Project, & University of South Florida, 2011). When instruction and interventions are academic focused, MTSS is usually referred to as *Response to Intervention*; when the focus of instruction and interventions are behavior focused, the terms *Response to Intervention for Behavior* or *School-wide Positive Behavior Interventions and Supports* (SWPBIS) are commonly used. Regardless of the focus (i.e., academic or behavior), the MTSS framework's data-based problem solving involves a four-step process, including (a) defining measurable goals, (b) using data to hypothesize current barriers to goal attainment (risk factors), (c) using data to design and execute a plan to attain the goals

(protective factors), and (d) using data to evaluate the plan in comparison to identified measurable goals (Problem Solving & Response to Intervention Project et al., 2011). In MTSS, prevention and intervention are not viewed separately; instead, different types of instruction and intervention are used to achieve specific prevention goals (Walker et al., 1996). Integrated academic and/or behavioral interventions are delivered to students in varying intensities and focus through multiple tiers based on the identified student needs ensuring that all students receive the level of support needed to promote academic success and positive social outcomes (Problem Solving & Response to Intervention Project et al., 2011). Each tier is defined by a set of specified organizational features, practices, and interventions.

Tier I. In MTSS, Tier I would be the equivalent of the primary prevention approach in the U.S. Public Health Service's conceptual model (Walker et al., 1996). Tier I's focus is on prevention of risk factors for all (Walker, et al., 1996; Problem Solving & Response to Intervention Project et al., 2011). In the U.S. Public Health Service's conceptual model, creation of smoking cessation advertisements and laws would be a type of primary prevention protective factor. In education, instructions and interventions are implemented based on the needs of the student population at the identified school and are received by all students (Problem Solving & Response to Intervention Project et al., 2011). Considerations of student population needs may include student demographics (e.g., socioeconomic status, learning English as a second language) and performance levels (Problem Solving & Response to Intervention Project et al., 2011).

In Tier I of a MTSS framework, the focus and the amount of instruction is based on state, district, and nationally defined grade-level academic and behavior standards, and school identified goals. Instruction and interventions are delivered using large and small group strategies and are differentiated based on the needs of the group and the skill level of the teacher. Evaluation at Tier I include formative and summative assessments administered at the classroom (e.g., skills test, unit assessment), district (e.g., benchmark assessment), and state (e.g., end-of-grade tests) level to help guide the school in data-based problem solving (Problem Solving & Response to Intervention Project et al., 2011). For the majority of students (80% to 90%), Tier I support will provide sufficient support in the development and sustainment of skills needed to be successful in the school setting (Lo, Algozzine, Algozzine, Horner, & Sugai, 2010). Students who do not respond to Tier I support receive additional support in Tier II, small group interventions.

Tier II. In MTSS, Tier II would be the equivalent of the secondary prevention approach in the U.S. Public Health Services conceptual model (Walker et al., 1996). The focus of Tier II is to provide support, in addition to supports provided at Tier I, to a targeted group of individuals to improve their academic or behavioral performance under Tier I supports so that grade-level national, state, and/or district proficiencies will be met (Problem Solving & Response to Intervention Project et al., 2011; Walker et al., 1996). In the U.S. Public Health Service's conceptual model, increasing visits to a respiratory specialist for children who live in the home with a smoker because of increased susceptibility

for respiratory related illnesses would be a type of secondary prevention strategy. In education, instruction and interventions are implemented based on the needs of a targeted group of students. An example of a Tier II school intervention would be the formation of a small reading group conducted by a reading specialist to enhance students' phonemic awareness skills, or the creation of a social skills group to address bullying. Tier II instruction and interventions are more focused and time involved, can be delivered by various school personnel (e.g., general education teachers, specialist, special education teachers), and can be delivered in numerous settings (e.g., general education classroom, pull-out; Problem Solving & Response to Intervention Project et al., 2011).

In Tier II of a MTSS framework, the focus and amount of instruction is based on the skills (academic and behavior) that present a challenge to learning. Instruction and interventions are delivered based on student needs. Data are used to identify groups of students who share the same academic and/or behavior deficits and evidenced-based instruction and interventions are used to help enhance those skills (Fuchs & Fuchs, 2007; Problem Solving & Response to Intervention Project et al., 2011). Of the 10-20% of students for whom Tier I, universal interventions, have not provided sufficient support for their academic, social, and behavioral success in the school environment, it is estimated that 5-10% will experience academic success through Tier II, targeted group, supports (Problem Solving & Response to Intervention Project et al., 2011). Yet for some (about 1-5%), Tier II supports are insufficient for their success in the school environment (Problem Solving & Response to Intervention Project et al., 2011).

These students will need individualized instruction and interventions to experience academic, social, and behavioral success (Lo et al., 2010).

Tier III. In MTSS, Tier III interventions would be the equivalent of the tertiary prevention approach in the U.S. Public Health Service's conceptual model (Walker et al., 1996). Tertiary or Tier III interventions are usually the most intense that an organization can provide and are personalized to support individuals with the most severe needs for whom Tier II supports were insufficient to promote success (Problem Solving & Response to Intervention Project et al., 2011; Walker et al., 1996). In keeping with the respiratory analogy of the U.S. Public Health Service's conceptual model, individuals at this level would be candidates for respiratory treatment (e.g., medication, breathing treatments, and surgery). These individuals would continue to benefit from the smoking cessation advertisements and laws implemented as a primary prevention as well as the routine visits to the respiratory specialist that were implemented as a secondary prevention, but receive the additional benefit of respiratory treatment specific to their need. In education, Tier III instruction and interventions are more focused and time involved than those provided at Tier II. These intensive supports are usually provided by collaborating school personnel (e.g., general and special education) to help students overcome or remediate individual challenges in order to improve academic and/or behavior skills required for success in school (Problem Solving & Response to Intervention Project et al., 2011). An example of a Tier III school intervention would be the implementation of a reading tutor to focus on specific skills in which the student is lacking proficiency (e.g., decoding,

fluency, identifying the main idea), or the creation of an individualized behavior support plan to address specific disruptive behaviors (e.g., aggression, defiance). The goal of Tier III support is for the student to master the Tier I grade-level proficiency (academic and behavior) established by the nation, state, and/or district through intensified, multi-levels of support (Problem Solving & Response to Intervention Project et al., 2011).

In Tier III of a MTSS framework, the focus and amount of instruction and intervention is based on skills (academic and behavior) that present the greatest hindrance to learning. Students receive individualized instruction and interventions focusing on the specific skills that impede students' learning determined by application of the four-step data-based problem solving approach described previously (see description under Multi-tiered Systems of Support). Instruction and interventions are delivered in addition to Tier I and Tier II supports. Tier III instruction is usually delivered with more clear and detailed explanations, delivered in a more systematic sequence, offers more opportunities for students to practice the skills, and offers more opportunities for error correction and feedback (Problem Solving & Response to Intervention Project et al., 2011). Progress monitoring is used to assess student progress at the Tier III level; it is usually personalized with skills that are well defined and is administered frequently.

By addressing grade level academic and behavior competencies, MTSS can simultaneously address the pushout and lockout problems in schools leading to improved academic achievement, reduced disruptive behaviors, and

consequently better post-school outcomes for all students, particularly African American males who experience heightened levels of risk factors. Whether the focus of the MTSS is on academic interventions or behavioral interventions, the ultimate goal is maximized student learning. Response to Intervention for Behavior, or SWPBIS, looks to increase school success by addressing social behaviors that hinder the learning process. The application of SWPBIS is most relevant to our efforts in reducing the use of exclusionary practices, in preventing unnecessary referrals of students for behavioral and emotional disabilities, and in supporting all students in academic and social learning in the school environments.

School-wide Positive Behavior Interventions and Supports

SWPBIS evolved from positive behavior support for individual students. Positive behavior support has a foundation in applied behavior analysis, the science of applying principles of behavior to enhance socially significant behaviors (Cooper et al., 2007). Positive behavior support originated as an alternative to harsh interventions (e.g., physical restraints, punishment, seclusion) initially used to manage challenging behaviors of individuals with intellectual disability (Horner et al., 1990). The positive behavior support alternative provided a more holistic and person-centered approach to managing challenging behaviors. Today, the term refers to "the application of positive behavioral interventions resulting in socially important behavior changes" (Lo et al., 2010, p. 35). In the past 15 years, the application of positive behavior support has been extended and scaled up from individual levels to a multi-tiered framework within an

organization system (Lo et al., 2010). The application of positive behavior support in schools is referred to as SWPBIS (Lewis & Sugai, 1999; Lo et al., 2010).

Grounded in years of behavior analysis, positive behavior support, and prevention and implementation science research, SWPBIS uses the four steps of data-based problem solving to analyze environmental elements and behavior functions to implement positive behavior support aimed at reducing disruptive behaviors and replacing them with prosocial behaviors within a school environment (Lewis & Sugai, 1999; Problem Solving & Response to Intervention Project et al., 2011). Data collected are used to make system decisions about practices affecting the total school environment (i.e., classroom and non-classroom environments), groups of students, and individual students. Data are also used to: (a) identify, define, and evaluate disruptive behavior; (b) identify antecedents that trigger disruptive behaviors; and (c) identify the consequences that follow disruptive behavior (Lo et al., 2010; Positive Behavior Support Project & University of South Florida, 2011).

SWPBIS is a philosophical shift from biophysical, biochemical, and cognitive explanation of behavior where behaviors are believed to be innate, to a behavioral explanation in which behavior is viewed as a learning process controlled by an individual's interactions with his or her environment (Alberto & Troutman, 2012). Schools can adjust the school environment to encourage positive behavior changes. Based on the premise that disruptive behavior is predictable and predictable behavior is preventable (Scott, Park, Swain-Bradway, & Landers, 2007), schools can use data to predict antecedents triggering

disruptive behaviors, identify disruptive behaviors, hypothesize why behaviors are occurring, implement strategies to address the disruptive behaviors, and evaluate the effects of the strategies being implemented. By predicting the antecedents of disruptive behaviors, school staff can manipulate events or situations in the environment to decrease the need for the disruptive behavior making the behavior irrelevant (e.g., increased adult supervision in certain areas at certain times of the day; Florida's Positive Behavior Support Project & University of South Florida, 2011). By identifying the disruptive behaviors occurring in the school, school staff can also teach appropriate replacement behaviors increasing the likelihood that students will use a more socially acceptable behavior, thereby making the disruptive behavior inefficient (e.g., character education lessons; Florida's Positive Behavior Support Project & University of South Florida, 2011). Once the consequence maintaining the disruptive behaviors of students has been identified, school staff can change their typical response so that there is a decreased likelihood of the disruptive behavior occurring and an increased chance of performance of the replacement behavior, making the disruptive behavior ineffective because it is no longer reinforced (e.g., school-wide recognition or incentive programs for students displaying appropriate behaviors; Florida's Positive Behavior Support Project & University of South Florida, 2011).

The SWPBIS approach is sustained through a self-checking process that includes the interaction of four key elements, including (a) outcomes, (b) practices, (c) data, and (d) systems (Sugai et al., 2010). Outcomes refer to the measurable academic and behavioral goals agreed upon by stakeholders (e.g.,

school staff, students, parents). These outcomes drive school practices, support data collection, and are supported by systems. Practices refer to the implementation of evidenced-based instructional practices and interventions; practices are selected based on identified outcomes and data and are supported by systems. Systems are the supports that enable the implementation of practices that support desired outcomes and data collection. Data refer to the collection and use of data to identify the current status in relation to desired outcomes, hypothesize current barriers to outcomes (risk factors), inform practices, evaluate practices in comparison to outcomes, and define systems. These four key features interact to support (a) decisions made by the school, (b) student and staff behavior, and (c) the social competence and academic achievement of students (Sugai et al, 2010).

In the multi-tiered framework of SWPBIS, instruction and interventions are focused on a data-driven behaviorally-based systematic approach to creating and sustaining positive school environments through the application of positive behavior supports (Florida's Positive Behavior Support Project & University of South Florida, 2011) to promote socially appropriate behaviors and to prevent and decrease inappropriate behaviors. Each tier within SWPBIS is defined by a set of specified organizational features and practices defined by the multi-tiered system framework, as outlined previously in the MTSS section of this chapter. Instruction and interventions at Tier I focus on school-wide universal supports; at Tier II, the focus is on targeted group supports; and at Tier III, the focus is on individualized supports.

SWPBIS Tier I interventions. In SWPBIS, Tier I, universal instruction and interventions are implemented across the entire school to support a positive school environment. These supports include school-wide discipline plans, social/emotional instruction (e.g., conflict resolution, social skills training), and effective teaching and schooling procedures (Lo et al., 2010; McIntosh, Chard, Boland, & Horner, 2006; Sugai & Horner, 2009; Sugai et al., 2010; Walker et al., 1996). The school-wide discipline plan includes (a) a set of school rules and expectations that are explicitly taught, (b) active monitoring of student behaviors, (c) a school-wide system for rewarding appropriate behaviors, (d) a continuum of consequences for disruptive behaviors, (e) a unified error correction system, and (f) a system for recording disruptive behaviors (Lo et al., 2010; McIntosh et al., 2006; Sugai & Horner, 2009; Sugai et al., 2010; Walker et al., 1996).

SWPBIS Tier II interventions. In SWPBIS, instruction and interventions at the Tier II level, also referred to as targeted supports, are designed to reduce disruptive behavior and promote the social and emotional wellbeing of students for whom universal school-wide efforts have not provided sufficient support. Characteristics of Tier II interventions include: (a) enhanced daily supervision and other methods to increase structure and predictability; (b) increased adult attention and feedback, increased communication between home and school; (c) specified behavioral expectations; and (d) ways to link academic and behavior performance (McIntosh et al., 2006; Simonsen, Myers, & Briere, 2012). In addition, Tier II behavior supports should be readily available and accessible to students in need, implemented with minimal resources (e.g., teacher time, teacher training, costs),

adaptable to students' needs, and corresponds to the perceived function of the students' behaviors (Florida's Positive Behavior Support Project & University of South Florida, 2011; Hawken, Adolphson, MacLeod, & Schumann, 2009). When determining students' need for Tier II support, students are compared to their peers using multiple methods of assessment (e.g., office discipline referrals, school personnel and parent nominations, screenings; Florida's Positive Behavior Support Project & University of South Florida, 2011; McIntosh et al., 2006). In addition, progress monitoring is used to determine how students are progressing. Examples of Tier II interventions include CICO, Check and Connect, targeted group social skills training, and First Steps to Success skill training (McIntosh et al., 2006).

SWPBIS Tier III interventions. Tier III, individual level, support in SWPBIS is for students whose behavior has not responded to Tier I and II interventions. Instruction and interventions (e.g., self-management, wrap around services, and parent involvement) are individualized and based on the function of behavior as determined by a team-based comprehensive functional behavioral assessment (Florida's Positive Behavior Support Project & University of South Florida, 2011; Lo et al., 2010; McIntosh et al., 2006; Sugai et al., 2010). Progress monitoring is used to monitor the effects of the behavioral intervention on targeted student behaviors. A team approach, involving various stakeholders in the student's life, is often used because students who are in need of Tier III interventions often have needs that can best be met with the collaboration of

outside agencies (Florida's Positive Behavior Support Project & University of South Florida, 2011).

It is important to note that SWPBIS is not a prescriptive curriculum package; it is a systems approach that can be customized to meet the needs of individual schools as long as the core features of SWPBIS are integrated. Although the ability to customize interventions in SWPBIS has advantages at the school level, it has made the identification of SWPBIS as an evidence-based practice difficult (McIntosh et al., 2006). Nevertheless, there is clear evidence to suggest that implementation of SWPBIS interventions delivered at each tier not only have resulted in improvements in school climate (Caldarella, Shatzer, Gray, Young, &Young, 2011), organizational health (e.g., institutional integrity, staff affiliation, academic emphasis, collegial leadership, resources influence; Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008; Bradshaw, Koth, Thorton, & Leaf, 2009), students' social behaviors (e.g., Nelson et al., 2009), and academic performance (e.g., Bradshaw, Mitchell, & Leaf, 2010; Calarella, 2011; Horner et al., 2009; Muscott et al., 2008), but also have produced reductions in office discipline referrals (Bradshaw, Mitchell, & Leaf, 2010; Caldarella, 2011; Muscott, Mann, & LeBrun, 2008; Horner et al., 2009) and varying problem behaviors such as bullying (Waasdorp, Bradshaw, & Leaf, 2012), disruptive behavior (Nelson, et al., 2009), and absenteeism (Caldarella, 2011).

SWPBIS with African American students. The effects of SWPBIS have also been evaluated for African American students. Vincent et al. (2009) analyzed 3 years of office discipline referral data to examine if elementary schools

implementing SWPBIS and reporting decreased in overall office discipline referrals show similar decreases in office discipline referrals for students from different racial and ethnic backgrounds. Findings indicate that although African American males were still overrepresented in the number of office discipline referrals received, there was a noticeable reduction in the number of office discipline referrals they received across the 3 years of investigation. In a similar study, Vincent et al. (2011) comparatively analyzed 3 years of office discipline referral data of elementary schools engaged in SWPBIS (n = 72) and those not engaged in SWPBIS (n = 81) to investigate the effects of SWPBIS on the ethnic discipline gap. Researchers found that across the 3 years, the magnitude of the gap when comparing the number of African American students enrolled in SWPBIS schools and the number of office discipline referrals received by African American students in those schools remained very similar (+13.05 percentage points in year 1, +13.91 in year 2, and +12.71 in year 3) despite SWPBIS implementation. According to Vincent et al. (2011), although African American students were still overrepresented, the gap across the 3 years was statistically significantly smaller for schools implementing SWPBIS.

Within the system of SWPBIS, CICO and function-based self-management systems are two empirically-based interventions that have shown promise in decreasing disruptive behaviors such as off-task classroom behaviors of students and simultaneously increasing positive behaviors such as academic engagement (e.g., Campbell & Anderson, 2008; Fairbanks, Sugai, Guardino, & Lathrop, 2007; March & Horner, 2002; Miller et al., 2015; Swoszowski,

McDaniel, Jolivette, & Melius, 2013; Turtura, Anderson, & Boyd, 2014). Adoption of these strategies for African American male students may help to mitigate the pushout and lockout problems fueling the school-to-prison pipeline.

Summary

SWPBIS is an approach within a MTSS framework that shows promise for reducing the lockout and pushout effects of African American male students. SWPBIS has been effective in improving school climate, organizational health of the school, and students' social skills and academic performance, as well as reducing disruptive behaviors and office disciplinary referrals. Although schools implementing SWPBIS continue to refer African American male students for discipline-related incidents at disproportionate rates, analyses of elementary office discipline referral data across years have shown a decline in the number of office discipline referrals received by African American male students (Vincent et al., 2009; Vincent et al., 2011), supporting the promise of tiered interventions.

Check-In Check-Out

Check-In Check-Out (CICO) is an intervention meeting the characteristics of a Tier II intervention to support students who are nonresponsive to Tier I supports within SWPBIS. CICO has the potential to address the pushout and lockout problem leading to the school-to-prison pipeline for African American male students.

Origins, Theory, and Characteristics of CICO

CICO, originating as the Behavior Education Program (Crone, Horner, & Hawken, 2010; Hawken & Horner, 2003; Hawken, MacLeod, & Rawlings, 2007;

March & Horner, 2002), is an empirically based practice that has been successfully implemented as a Tier II, targeted, support within SWPBIS. CICO has shown positive behavior changes for students who continue to display disruptive behaviors that impede academic success after the implementation of universal supports (Campbell & Anderson, 2008; Campbell, Rodriguez, Anderson, & Barnes, 2013; Ennis, Jolivette, Swoszowski, & Johnson, 2012; Fairbanks et al., 2007; Filter et al., 2007). The components of CICO include (a) daily documentation of student behavior, (b) increased provision of behavior-related feedback to students and parents, (c) increased school and home connection through the use of a behavior report card, and (d) mentoring (Crone et al., 2010). Behavior report cards have been dependable in documenting student behaviors, providing behavior-related feedback to students and parents, and increasing the school and home connection (Chafouleas, McDougal, Riley-Tilman, Panahon, & Hilt, 2005; Riley-Tillman, Chafouleas, Briesh, & Eckert, 2008). Evidence has existed in literature since the late 1970s that supports the use of behavior report cards to increase desired behaviors such as assignment completion (Davies & McLaughlin, 1989; Dougherty & Dougherty, 1977; Schumaker, Hovell, & Sherman, 1977) and to decrease disruptive behaviors (Crone et al., 2010; Davies & McLaughlin, 1989; Dougherty & Dougherty, 1977; Hawken & Horner, 2003; Schumaker et al., 1977). Although CICO includes the use of a behavior report card, CICO differs from the original use of behavior report cards in several ways. First, CICO is delivered within a MTSS and is not a stand-alone strategy. Second, the implementation of most behavior report cards

are reinforced by contingencies delivered at home by parents (Davies & McLaughlin, 1989; Dougherty & Dougherty, 1977; Schumaker et al., 1977), whereas CICO incorporates contingencies delivered at school. Third, CICO incorporates a mentor to help encourage positive interactions and appropriate behavior throughout the day. The mentor or CICO facilitator provides mentoring to the student participant at the school via brief morning and afternoon meetings. When implementing CICO, the student uses a behavior report card to complete a five-step process daily throughout the implementation of the intervention: (a) checks in with a designated school staff member in the morning (mentor, CICO facilitator) to provide needed supplies, prompt to have a good day and class period, and review behavior expectations; (b) obtains recorded feedback from teachers or school staff on his or her behavior throughout the day; (c) checks out with school staff before leaving school to summarize the day according to recorded data and give feedback; (d) returns home to check in with a parent/guardian to review and discuss his or her daily school behavior, and obtain a parent/guardian's signature on the daily behavior report card; and (e) returns the daily behavior report card to the CICO facilitator or mentor the following school day at check-in (Crone et al., 2010; Todd, Campbell, Meyer, & Horner, 2008; Swoszowski, 2014). CICO incorporates principles of positive behavior support such as social skill instruction, clearly defined behavior expectations, contingent reinforcement, positive adult interactions, and collaboration between home and school to promote socially important behavior changes (Crone et al., 2010).

CICO is based on behavior analysis principles of antecedent variables and reinforcement. The antecedent features of CICO help to make the intervention successful in reducing disruptive behaviors by making certain disruptive behaviors irrelevant. At check-in, antecedent strategies (i.e., students are given the school supplies needed for the day, reminded of behavior expectations, and prompted to have a good day) help to eliminate events or situations that may trigger disruptive behaviors (e.g., not having needed supplies) and reestablish the school-wide behavioral expectations (Crone et al., 2010). In addition, CICO has components that may serve as positive reinforcement to affect behavior change. Students participating in CICO receive increased adult attention via the check-in and check-out meetings with the facilitator, from the teacher via behavior feedback, and from parents during home check-ins. Typically, adult attention serves as a positive reinforcer for students with adult-maintained behaviors. Further, students receive social and tangible reinforcers (e.g., high five, "good job," hand shake, sticker, points, homework pass) for meeting their behavior goals (e.g., daily, weekly) that serve to sustain behaviors maintained by obtaining tangibles and social reinforcement. By assessing students' behaviors on the daily behavior report cards, students are able to visually see and track their progress towards meeting daily behavior goals which could also serve as a reinforcer for students (e.g., seeing own success).

CICO as a Tier II intervention. As mentioned previously in this chapter, the characteristics of a SWPBIS Tier II support include the provision of (a) enhanced daily supervision and other methods to increase structure and

predictability, (b) increased adult attention and feedback, (c) increased communication between home and school, (d) specified behavioral expectations, and (e) ways to link academic and behavior performance (McIntosh et al., 2006; Simonsen et al., 2012). CICO meets these characteristics. Enhanced daily supervision and structure is provided by an adult mentor (e.g., CICO facilitator) who not only provides supervision, but helps set the structure for supervision by presenting the student with the daily report card that the student's teachers will use to assess the student's behavior. Increased adult attention and feedback is provided to the student by the CICO facilitator through morning check-ins and afternoon check-outs, from teachers through their documentation on the behavior report card throughout the day, and from parents/guardian's daily review and discussion of the report card. Increased communication between home and school occurs through daily documentation and reviews of the behavior report card by involved school personnel (e.g., facilitator, teacher) and the student's parent/guardian. Behavioral expectations are specified at the initiation of CICO and reiterated daily by the CICO facilitator at check-in. The student can earn points and is rewarded for meeting his or her specified behavior goal(s). During the check-out at the end of the day, the CICO facilitator and the student discuss the student's daily progress on the specified daily behavior goals and the points earned. The link between academic and behavior performance occurs through specified goals recorded on the daily behavior report card. In the majority of CICO studies, CICO has been used to decrease disruptive behaviors that impede learning (e.g., off task, out of seat, disruptions, negative verbal and physical

interactions, failing to follow directives, internalized behaviors; Campbell & Anderson, 2008; Campbell & Anderson, 2011; Campbell et al., 2013; Dart, Furlow, Collins, Brewer, Gresham, & Chenier, 2014; Hunter, Chenier, & Gresham, 2014; March & Horner, 2002; Swoszowski et al., 2013b). In several studies, CICO has been used to directly promote behaviors that increase academic engagement (Campbell & Anderson, 2011; Campbell et al., 2013; March & Horner, 2002; Miller et al., 2015; Turtura, Anderson, & Boyd, 2014).

In addition to the aforementioned Tier II intervention characteristics, Tier II targeted supports should be (a) readily available and accessible to students in need, (b) implemented with minimal resources (e.g., teacher time, teacher training, costs), (c) adaptable to students' needs, and (d) corresponds to the function of the students' behaviors (Florida's Positive Behavior Support Project & University of South Florida, 2011). CICO can be implemented so that it is readily accessible to students in need. There is no wait time for students to begin CICO intervention; therefore, students in need of CICO can begin the intervention at any time and those who are no longer in need of Tier II support can exit when appropriate. CICO requires minimal resources as the intervention can be implemented with the materials and personnel readily available at the school. The behavior goals for CICO implementation are selected to address students' disruptive behavior and specific needs based on baseline data (Crone et al., 2010). Reinforcement is contingent on points earned for meeting identified behavior goals. The length of the intervention also is individualized and based on routine

reviews of data. Finally, CICO can be tailored to correspond to the function of a student's behaviors through the selection of incentives as reinforcement.

CICO and behavior function. There is ongoing controversy in the field as to which function-maintained student behaviors (e.g., obtaining attention, obtaining tangible, obtaining sensory stimulation, escaping demand, escaping attention, escaping sensory) may benefit best from CICO. Based on the increased positive adult attention provided in CICO, some researchers (Campbell & Anderson, 2008; Crone et al., 2010; March & Horner, 2002; McIntosh, Campbell, Carter, & Dickey, 2009) have hypothesized that the function of students' disruptive behavior may coincide with the students' responsiveness to CICO and concluded that the intervention may have a better effect on students' behaviors that are maintained by adult attention. On the contrary, other researchers have shown that standard CICO can be successful with participants whose behaviors are maintained by other behavioral functions, including escape from task (Hawken, O'Neill, & MacLeod, 2011; Turtura, Anderson, & Boyd, 2014), peer attention (Ennis et al., 2012; Hawken, O'Neill, & MacLeod, 2011), and access to tangibles (Campbell & Anderson, 2008; Hawken et al., 2011; Lane, Capizzi, Fisher, & Ennis, 2012). To evaluate the effects of CICO on disruptive behaviors of varying functions, Swoszowski, Jolivette, Fredrick, and Heflin (2012) used a nonconcurrent multiple baseline across participants design to determine if attention-maintained disruptive behaviors were affected differently by CICO than the escape-maintained disruptive behavior of students with emotional and behavioral disorders. These researchers conducted an a priori functional

behavioral assessment consisting of a review of office discipline referrals, teacher interviews, creation of an operational definition of the disruptive behavior, creation of a hypothesis based on the functional behavior data collected, and direct observations. Participants were six middle school students with emotional and behavioral disorders in a residential facility; three had disruptive behavior maintained by attention and three had disruptive behavior maintained by escape from demands. Swoszowski et al. found that participants whose behaviors were maintained by attention and those whose behaviors were maintained by escape both experienced decreases in disruption and noncompliance. Specifically, there was a 50% or more change in disruptive behavior from baseline to intervention for two of three participants with attention-maintained behavior and two of three participants with escape-maintained behavior, demonstrating that CICO is effective in decreasing disruptive behaviors of both attention- and escape-maintained behaviors. The effects of CICO for behaviors with varying functions remain controversial in the field.

Comprehensive Literature Review

The effectiveness of CICO has been documented. Maggin et al. (2015) conducted a review of the CICO literature to evaluate its strengths, limitations, and generality. Researchers identified 22 CICO studies, 5 group studies and 17 single-case studies that met their inclusion criteria and evaluated the studies according to What Works Clearinghouse design standards. Researchers found mixed reviews. While single-case studies met What Works Clearinghouse evidence for best practice with reservations and moderate visual and quantitative

support; group studies lacked rigor and results providing no evidence. To provide a comprehensive literature review on CICO, a literature search of scholarly peer-reviewed journals using all databases available in EBSCO (including, but not limited to, PsycINFO, ERIC, Teacher Reference Center, ScienceDirect, Social Sciences Citation Index, Educational Administration Abstracts, Criminal Justice Abstracts, Directory of Open Access Journals, PsycARTICLES, Education Index Retrospective: 1929-1983, Digital Access to Scholarship at Harvard) was conducted. The original search included time periods from 1973 to the current date. Search terms included *CICO, check in check out,* and *behavior education program*. The search revealed a total of 40 articles after eliminating duplicates. These articles were then reviewed to ensure that they were research related and that the independent variable included CICO or the Behavior Education Program. Information articles were excluded (e.g., Ruiz, Smith, Naquin, Morgan-Datrio, & Dellinger, 2013; Swoszowski, 2014; Swoszowski, Patterson, & Crosby, 2010); this resulted in a total of 13 articles. The reference lists of the 13 articles were then reviewed to determine additional literature articles and authors. An additional search was conducted using the authors' names (e.g., Mong) combined with keywords (i.e., *CICO* or *behavior education program*). This resulted in a total of 23 peer-reviewed studies on CICO (i.e., Campbell & Anderson, 2011; Campbell & Anderson, 2008; Campbell et al., 2013; Dart et al., 2014; Ennis et al, 2012; Fairbanks et al., 2007; Filter et al., 2007; Hawken et al., 2007; Hawken & Horner, 2003; Hawken et al., 2011; Lane et al., 2012; Hunter, Chenier, & Gresham, 2014; March & Horner, 2002; McCurdy, Kinsch, & Reibstein, 2007;

McIntosh et al., 2009; Miller et al., 2015; Mong, Johnson, & Mong, 2011; Simonsen et al., 2011; Swoszowski, Jolivette, & Fredrick, 2013a; Swoszowski et al., 2013b; Swoszowski et al., 2012; Todd et al., 2008; Turtura, Anderson, & Boyd, 2014). These findings are similar to the findings of Swoszowski et al. (2013b) and Hawken, Bundock, Kladis, O'Keeffe, & Barett (2014). Swoszowski et al. (2013b) identified 15 studies. Since the publication of Swoszowski et al. (2013b), seven additional peer-reviewed studies have been published (i.e., Campbell et al., 2013; Dart et al., 2014; Hunter et al., 2014; Miller et al., 2015; Turtura et al., 2014; Swoszowski et al., 2013b; Swoszowski et al., 2013a). In addition, Swoszowski et al. (2013b) did not include the article by Campbell and Anderson (2011). Hawken et al. (2014) conducted a review of CICO literature in peer-reviewed articles and dissertations and identified 28 single case studies. Remitting the dissertation studies, Hawken identifies 23 single case peer-reviewed CICO studies; consistent with the findings of this literature review. The following sections include discussion of the literature on CICO in relation to the participants, target behaviors, settings, variations of interventions, and its effectiveness. Studies including African American students and students who were nonresponsive to CICO as a Tier II intervention are also discussed.

Participants and settings. The 23 published studies evaluated the effects of CICO on 201 participants; of whom, 14 had identified disabilities (i.e., 7 with specific learning disabilities, 1 with speech/language impairment, 12 with emotional disabilities, 1 with developmental delays, 3 with other health impairment, 3 with disabilities not specifically identified), 42 were identified as

at-risk students, and 121 students for whom special education services status was not addressed by the researchers. Twenty-one participants were identified as African American (Campbell & Anderson, 2008; Dart et al., 2014; Ennis et al., 2012; Fairbanks et al., 2007; Hunter, Chenier, & Gresham, 2014; McCurdy et al., 2007; McIntosh et al., 2009; Miller et al., 2015; Mong et al., 2011; Swoszowski et al., 2013b; Swoszowski et al., 2012; Todd et al., 2008) and 14 were identified as African American males (Campbell & Anderson, 2008; Ennis et al., 2012; Fairbanks et al., 2007; Hunter, Chenier, & Gresham, 2014;; McCurdy et al., 2007; Miller et al., 2015; Mong et al., 2011; Simonsen et al., 2011; Swoszowski et al., 2013b; Swoszowski et al., 2012; Todd et al., 2008). Sixteen of the 23 studies have evaluated the effects of CICO on elementary aged students, accounting for 127 elementary aged participants (Campbell & Anderson, 2011; Campbell & Anderson, 2008; Campbell e. al., 2013; Dart et al., 2014; Fairbanks et al., 2007; Filter et al., 2007; Hawken et al., 2007; Hawken et al., 2011; Hunter et al., 2014;; McCurdy et al., 2007; McIntosh et al., 2009; Miller et al., 2015; Mong et al., 2011; Todd et al., 2008; Swoszowski et al., 2013a; Swoszowski et al., 2013b). Seven studies evaluated the effect of CICO on 74 participants in secondary schools (i.e., middle and high school; Ennis et al, 2012; Hawken & Horner, 2003; Lane et al., 2012; March & Horner, 2002; Simonsen et al., 2011; Swoszowski et al., 2012; Turtura et al., 2014). Across the 23 CICO studies, most studies (n = 19) were conducted in a general education setting, and the remaining four studies were conducted in an alternative setting (i.e., Ennis et al., 2012, Swoszowski et al., 2012; Swoszowski et al., 2013a; Swoszowski et al., 2013b).

Evaluation methods, CICO facilitators, and target behaviors. Researchers of CICO have used experimental (e.g., group designs = 1, single case designs = 16), quasi-experimental (e.g., pre-/post-test designs = 3, descriptive analysis = 1), and nonexperimental (e.g., case study = 1, AB single case design = 1) designs to investigate its effects; however, single case designs (i.e., reversal = 5; multiple baseline across participants = 8 or groups = 1; changing criterion =1; nonexperimental AB = 1) have been used most often to evaluate the effects of CICO. Data collected in the 23 studies to assess the effects of CICO included (a) office discipline referrals (e.g., Filter et al., 2007; Hawken et al., 2007; Hawken et al., 2011), (b) behavior ratings (e.g., Hunter et al., 2014; McIntosh et al., 2009), (c) direct observations (e.g., Campbell & Anderson, 2008; Dart et al., 2014; Fairbanks et al., 2007; Miller et al., 2015; Todd et al., 2008; Turtura et al., 2014). Swoszowski et al. (2012) suggests evaluating effectiveness by a mean change from baseline to intervention of 20-50% (i.e., Swoszowski et al., 2012; Swoszowski et al., 2013b; Swoszowski, 2014).

One of the attracting features of CICO is that the basic 5-step CICO process can be adjusted to meet the needs of the targeted group and facility in which it is being implemented. Among the 19 studies, the individuals who served as CICO facilitators or mentors have included special education teachers (Campbell & Anderson, 2011; Ennis et al., 2012; McCurdy et al., 2007; McIntosh et al., 2009; Swoszowski et al., 2013b), general education teachers (Fairbanks et al., 2007; Hunter et al., 2014; Miller et al., 2015; Swoszowski et al., 2013a; Swoszowski et al., 2013b; Swoszowski et al., 2012; Todd et al., 2008),

educational assistants (Hawken & Horner, 2003; McIntosh et al., 2009; Turtura et al., 2014), paraprofessionals (Hawken et al., 2011; Lane et al., 2012; Swoszowski et al., 2013b), office staff (March & Horner, 2002), counselors (Campbell & Anderson, 2008; Campbell et al., 2013; McIntosh et al., 2009; Mong et al., 2011; Simonsen et al., 2010), interns (Simonsen et al., 2010), social workers (Simonsen et al., 2010), residential staff (Swoszowski et al., 2012), and peers (Dart et al., 2014). Instead of students checking in and out each day with the same staff member, Todd et al. (2008) used varying staff members based on staff availability. Adjustments of how the school and home connection is maintained have been made as well. Fairbanks et al. (2007) implemented CICO as a group contingent intervention and did not require parent signature. McCurdy et al. (2007) did not routinely require parent signature; instead, teachers made positive calls home as a reinforcer for participants meeting their goal. In studies conducted in residential settings, a housing residential staff member served as the "adult family member" (Ennis et al., 2012; Swoszowski et al., 2013a; Swoszowski et al., 2013b; Swoszowski et al., 2012). Dart et al. (2014) trained older elementary students (11 years of age) to serve as peer mentors for younger elementary participants (6 and 8 years of age).

In addition, the flexibility of CICO has allowed researchers to study its effects on various behaviors. The disruptive behaviors targeted for reduction in CICO studies included out of seat or location (Campbell & Anderson, 2008; Campbell & Anderson, 2011; Fairbanks et al., 2007; Mong et al., 2011), noncompliance (Campbell & Anderson, 2008; Campbell & Anderson, 2011),

negative verbal and physical interactions (Campbell & Anderson, 2008; Campbell & Anderson, 2011; Fairbanks et al., 2007; Hawkens et al., 2007; Todd et al., 2008), making noises (Campbell et al., 2013; Todd et al., 2008), refusal (Ennis et al., 2012; Mong et al., 2011; Todd et al., 2008; Swoszowski et al., 2012), off-task (Ennis et al., 2012; Fairbanks et al., 2007; Lane et al., 2012; Mong et al., 2011; Simonsen et al., 2011, Swoszowski et al., 2013b), disruption (Ennis et al., 2012; Swoszowski et al., 2012), talking out (Fairbanks et al., 2007; Hawkens et al., 2007; Mong et al., 2011; Todd et al., 2008), hiding under furniture (Todd et al., 2008), and internalizing behaviors (Dart et al., 2014; Hunter et al., 2014). Some researchers also have simultaneously investigated the effects of CICO on academic engagement and disruptive behaviors (Campbell & Anderson, 2011; Campbell et al., 2013, Fairbanks et al., 2007; Hawken & Horner, 2003; Miller et al., 2015). In these instances, CICO has been shown to increase academic engagement to include following teacher requests, eyes on teacher or materials, working on assignments (Campbell & Anderson, 2011; Campbell et al., 2013, Fairbanks et al., 2007; Hawken & Horner, 2003), and working with a peer when instructed to do so (Hawken & Horner, 2003). Others researchers have focused on the effects of CICO on academic performance and have found an increase in teacher ratings of percent of class work and homework completion (Turtura et al., 2014), math scores (Mong et al., 2011) and overall academic achievement as evident by increased grade point average (Swoszowski et al., 2013).

Academic engagement and performance. Of the 23 CICO studies, all have evaluated the effects of CICO on decreasing problem behaviors; however, only

eight studies examined the effects of CICO on increasing academic related behaviors (e.g., overall academic performance, math performance, academic engagement, following teacher requests, homework and work completion; Campbell & Anderson, 2011; Campbell et al., 2013; Fairbanks et al., 2007; Hawken & Horner, 2003; Miller et al., 2015; Mong et al., 2011; Swoszowski et al., 2013a; Turtura et al., 2014). This resulted in the reduction of disruptive behaviors for 138 participants and increases of desired behaviors for 32 participants to include academic engagement (n = 18; Campbell & Anderson, 2011; Campbell et al., 2013; Fairbanks et al., 2007; Hawken & Horner, 2003; Miller et al., 2015) academic performance (n = 8; Mong et al., 2011; Swoszowski et al., 2013; Turtura et al., 2014), and increased replacement prosocial behaviors (Dart et al., 2014; Hunter et al., 2014). Of the five studies targeting academic engagement as a dependent variable, four were conducted with elementary aged students (Campbell & Anderson, 2011; Campbell et al., 2013; Fairbanks et al., 2007; Turtura et al., 2014) and one was conducted with middle school students (Hawken & Horner, 2003). One study measured the absence of disruptive behavior to identify students as academically engaged (Fairbanks et al., 2007).

Fairbanks et al. (2007) conducted two studies to investigate a SWPBIS approach to behavior support. The first study evaluated the effects of CICO on the disruptive behavior and academic engagement of nine at-risk second grade students and one student with learning disabilities. According to the authors, a descriptive quasi-experimental design was used to evaluate the effects of CICO implemented as a group contingency intervention on disruptive behavior,

academic engagement (as measured by the absence of disruptive behavior), frequency of office discipline referrals, and teacher perceptions of students' disruptive behaviors. Results indicate reduced disruptive behaviors for four of the 10 participants with 10% to 45% decrease in disruptive behavior from baseline (Tier I school-wide expectations) to CICO. Office discipline referrals decreased from an average of .85 per day during baseline to .41 per day after implementation of CICO intervention. In addition, teachers' ratings of disruptive behavior intensity and frequency decreased from a rating of 4 or higher during baseline to a rating of 3 or lower after CICO implementation.

Four CICO studies directly measured academic engagement (i.e., Campbell & Anderson, 2011; Campbell et al., 2013; Hawken & Horner, 2003; Miller et al., 2014). Campbell and Anderson (2011) used a reversal design to conduct a component analysis to determine the relative contribution of the teacher feedback component of CICO on the disruptive behaviors (e.g., disruption, out of seat or location, noncompliance, verbal or physical interaction) and academic engagement (e.g., following teacher request within 20 s, eyes on teacher or materials, working on assignment) of four elementary male students. Intervention conditions included CICO (i.e., checks in and out with a CICO facilitator, periodic teacher feedback, and home feedback), CICO without the noon teacher feedback, CICO without the noon and morning teacher feedback, and CICO without any teacher feedback. Results revealed a decrease in disruptive behaviors (ranging from 12% to 25% mean decrease from baseline to CICO) and increased academic engagement for all participants during the first implementation of

CICO, which was further maintained as teacher feedback was decreased and maintained for three of four of the participants when teacher feedback was eventually removed. Feedback was not removed for the fourth participant due to time constraints.

Campbell et al. (2013) evaluated the effects of CICO on disruptive behavior (e.g., making noises or physical action irrelevant to the task that other individuals can see or hear) and academic engagement (e.g., following teacher requests within 10 s, orienting eyes toward teacher or relevant materials for academic task, & completing in-class tasks as requested) of three at-risk elementary students. The CICO intervention consisted of each participant checking in and out with a CICO facilitator, daily behavior report card, and home report. Results indicated a functional relation between the implementation of CICO and disruptive behaviors for all three participants (i.e., 19.3%, 14.2%, and 20% mean decrease from baseline to CICO). Results also indicated a functional relation between CICO and academic engagement for two of the three participants (i.e., 10.05% and 21.25% mean increase from baseline to CICO). A functional relation was not evident for the third participant due to variability in data.

Hawken and Horner (2003) used a multiple baseline across participants design to evaluate the effects of CICO on the disruptive behaviors and academic engagement of four middle school students with exceptionalities (n = 2) and at risk for disabilities (n = 2). Disruptive behaviors included talking out, talking back, out of seat, inappropriate language, threatening gestures, throwing objects, not following directions, and physical aggression. Academic engagement was

defined as looking at the teacher while the teacher was giving instruction, working with a peer when instructed to do so, reading silently or completing a writing assignment, participating in a teacher approved activity if work was completed, or talking about academic material with the teacher. The CICO intervention included check in and out with CICO facilitator, teacher feedback on daily report form, and parent signature. Results indicated a reduction in mean baseline intervals of disruptive behaviors (ranging from 4% to 17%) and a mean increase in academic engagement (ranging from 8% to 22%) when CICO was implemented.

Most recently, Miller et al. (2014) investigated the effects of CICO on the problem behaviors and academic engagement of three elementary aged African American students using a single case, reversal design. Researchers implemented standard CICO and conducted direct observations of participants using 10s partial interval recordings during the class that was identified as most problematic. Visual analyses of results indicated a reduction in problem behaviors and increased academic engagement for all participants during the initial and return CICO phases.

Three studies have investigated the effects of CICO on the academic performance of students (i.e., Mong et al., 2011; Swoszowski et al., 2013a; Turtura et al., 2014). Swoszowski et al. (2013a) used an AB design to evaluate the effects of CICO on the disruptive behaviors and academic performance of a 10-year-old third grade female student with an emotional and/or behavioral disorder in a residential facility. The participant's disruptive behaviors consisted of

aggression towards peers and verbal outburst towards teachers and peers usually resulting in office discipline referrals. Researchers evaluated the total number of office discipline referrals and grades as indicated on the participant's report card at identification, during baseline, and during intervention. Swoszowski et al. found a decrease in office discipline referrals (0.67 per week during baseline to 0.31 per week during implementation of CICO intervention), an increase in SWPBIS points earned for compliant behavior (79.38% during baseline to 90.57% during CICO intervention), and an increase in academic performance across all subject areas as evident by report card grades and an increase in GPA from the baseline to intervention phase (baseline GPA = 3.25 average intervention GPA = 3.56).

Mong et al. (2011) evaluated the effects of CICO on decreasing disruptive behaviors (e.g., talking out, noncompliance, disrupting peers, off task) and the collateral effects on math performance of four at-risk elementary students by analyzing the percent of disruptive behavior, number of office discipline referrals, and students' digits correct per minute and errors per minute on multiple skill instructional level math probes. Mong and colleagues (2011) used a multiple baseline across participants design to determine the effects of CICO. All four participants in the study showed a decrease in percentage of disruptive behaviors and office discipline referrals, an increase in digits correct per minute, and a decrease in errors per minute, demonstrating that CICO was effective in decreasing disruptive behaviors and increasing math performance of the four elementary school participants.

Turtura et al. (2014) evaluated the effects of academic behavior CICO on the disruptive behaviors (i.e., making noise of physical action irrelevant to assigned task), academic engagement (i.e., the absence of off-task behavior), and teacher perceptions of class work and homework completion of three middle school students without disabilities. Researchers added a homework check at check-in and points were assessed toward the daily goals for completion of homework. If participants did not complete homework, they were given an opportunity to complete the homework assignments during a nonacademic time the same school day. In addition, the researchers added and assessed points for the completion of a homework tracker used by participants to record their homework. At check-out, the mentor checked to make sure participants recorded assignments on the homework tracker and that the participants' teachers had initialed indicating that the homework assignment was recorded correctly. Direct observations of student behaviors revealed a decrease in disruptive behavior and an increase in academic engagement. Teacher surveys revealed that implementation of academic behavior CICO resulted in increased percentages of class work and homework completion.

Although there has been research examining the effects of CICO on the classroom disruptive behaviors of elementary and middle school students with and at risk for disabilities, research on the effects of CICO on the academic engagement and academic performance is relatively limited and warrants additional investigation. Further, very few CICO studies have involved African American students.

CICO and African American students. Of the 23 CICO studies published in peer-reviewed journals, none have intentionally targeted African Americans as participants; however, 12 studies included African Americans as participants (*n* = 21; Campbell & Anderson, 2008; Dart et al., 2014; Ennis et al., 2012; Fairbanks et al., 2007; Hunter et al., 2014; McCurdy et al., 2007; McIntosh et al., 2009; Miller et al., 2015; Mong et al., 2011; Swoszowski, 2013b; Swoszowski et al., 2012; Todd et al., 2008). Of the 21 African American participants, 14 were male. Eight of the 21 African American participants were receiving special education services at the time of their participation, seven were identified as having an emotional or behavioral disorder (Ennis et al., 2012; Swoszowski et al., 2013b; Swoszowski et al., 2012) and one was identified as having a specific learning disability (Miller et al., 2015). Of the eight African American participants identified as having an emotional or behavioral disorder, five were male. Twelve additional African American participants were identified as at risk, nine of who were male (Campbell & Anderson, 2008; Ennis et al., 2012; Fairbanks et al., 2007; Hunter et al., 2014; McCurdy et al., 2007; Mong et al., 2011). No information was given regarding the remaining one African American participant in McIntosh et al. (2009) study with respect to gender or disability. Four of the African American participants were of secondary school age and 17 were elementary age. Eight were in alternative placements (Ennis et al., 2012; Swoszowski et al., 2013b; Swoszowski et al., 2012) and 13 were in general education setting.

Results of the 12 CICO studies including African American participants reveal that CICO was effective with 11 participants (52%), five of who were male (Ennis et al., 2012; Fairbanks et al., 2007; Hunter et al., 2014; McCurdy et al., 2007; Mong et al., 2011; Swoszowski et al., 2013; Todd et al., 2008). The effectiveness of CICO for African American male students in these studies included reduction in inappropriate physical contact (Fairbanks et al., 2007), talking out (Fairbanks et al., 2007; McCurdy et al., 2007; Mong et al., 2011), noncompliance (Fairbanks et al., 2007; Mong et al., 2011), nondisruptive off-task behavior (Fairbanks et al., 2007; Mong et al., 2011), leaving seat (McCurdy et al., 2007), bullying (McCurdy et al., 2007), internalizing behaviors (Hunter et al., 2014) and disruptive behavior during academic instruction (Todd et al., 2008). In addition, CICO has been effective in increasing desired academic behaviors of African American males to include academic engagement (Fairbanks et al., 2007) and academic performance (Mong et al., 2011). Although no studies have purposely evaluated the effects of CICO on African American students, Swoszowski et al. (2013b) included all African American students in their study examining the effects of CICO on the reduction of off-task behavior of four elementary aged participants (2 males and 2 females) with emotional and behavioral disorders in an alternative education setting and received varying results. Results from Swoszowski et al. (2013b) indicated that two participants (50%; 1 male and 1 female) met researcher-created benchmarks (i.e., low variability coupled with a mean percentage change from baseline to intervention of 40%). In addition, Miller et al. (2015) included all African American students

in their study on the effects of CICO on reducing problem behaviors and increasing academic engagement. Participants reduced problem behaviors and increased academic engagement upon the implementation of CICO. In addition, two of the participants' positive behaviors were maintained when components of CICO were faded.

Components of CICO and effects on African American male students. Despite the limited research on CICO with African American male students, the mentoring, home connection, and increased monitoring and feedback components of CICO have shown to have positive effects on the academic and social behaviors of African American male students (Anderson, 2007; Campbell-Whatley, Algozzine, & Obiakor, 1997; Gordon, Iwamoto, Ward, Potts, & Boyd, 2009; Hughes, 2010; Izzo, Weissberg, Kasprow, & Fendrich, 1999; Mandara, 2006; Lowe & Dotterer, 2013; O'Donnell, Richards, Pearce, & Romero, 2012; Tyler & Boelter, 2008).

Gordon et al. (2009) implemented a mentoring program with a sample of 61 middle school minority males and found that students in the mentoring intervention group had significantly higher academic scores and overall success than students in the control group. They concluded that African American males who received mentoring had less disengagement, and greater academic attachment and success. Additionally, Anderson (2007) examined the effects of mentoring on African American males in elementary and middle school and found that mentoring positively influenced standardized test score. Perhaps the most compelling account of the impact of mentoring on African American males

comes from college-bound African American males who state mentoring as one of four vital components (i.e., need for skilled and culturally competent teachers and mentors, high standards and academic opportunities, mentorship, family and community support) for enhancing the success of African American male students (Scott, Taylor, & Palmer, 2013).

During implementation of CICO, the daily behavior report card helps to increase the home to school connection and reiterate behavioral expectations. Students are asked to take their daily report cards home each day to share with an adult family member and obtain positive feedback and signature. The home and school connection seems to be an important component in CICO intervention. Research suggests that parental involvement and the home to school connection positively affects African American students' academic performance (Hayes, 2012; Mandura, 2006; Murray & Naranio, 2008) and school personnel perceptions of students' behaviors (Cartledge, Kea, & Ida, 2000; Finn, 1993; De Bruyn, Dekovic, & Meijnen, 2003). Mandura (2006) reviewed literature on the effects of family functioning on African American male students' academic achievement and concluded that four areas of family functioning increased their academic success to include direct academic involvement. Mandura not only found several studies supporting that parental involvement led to improved academic achievement for African American male students, but also concluded that teachers' perceptions of parental involvement affect African American male students' academic achievement. The daily report card also serves the purpose of reiterating behavioral expectations and offering teacher monitoring and feedback,

which can be beneficial to African American male students. Research indicates that perceived teacher expectation is a significant predictor of African American students' academic effort and engagement (Tyler & Boelter, 2008) and the perception that an adult is monitoring them may deter disruptive behaviors (Lowe & Dotterer, 2013; O'Donnell, Richards, Pearce, & Romero, 2012).

The limited research on the effects of CICO with African American male students, the varying results of the existing studies, and the promise of CICO components in improving the academic and social behaviors of African American males warrants additional research. Additionally, due to the varying effects of CICO, an evaluation of the literature on nonresponders to CICO is also needed.

Nonresponders to CICO. It is estimated that Tier II interventions, to include CICO, will be effective with 5-10% of participants with the remaining 1-5% of students needing a more intensive Tier III intervention (Problem Solving & Response to Intervention Project et al., 2011). Swoszowski et al.'s (2013b) review of CICO literature indicated that out of 162 participants involved in their review of 15 published studies, 36 (22%) participants were nonresponsive to CICO. Of the 21 participants identified as African American in the 23 CICO studies included in the comprehensive review by the author, seven (33%; four males = 28%) were identified as nonresponsive to CICO intervention (Campbell & Anderson, 2008; Ennis et al., 2012; Swoszowski et al., 2013b; Swoszowski et al., 2012).

For CICO nonresponders, Swoszowski (2014) suggested modifying CICO by including (a) additional checks, (b) addressing setting events, and (c)

implementing function-based reinforcement or a Tier III intervention. For example, Swoszowski et al. (2013b) implemented an additional mid-day contact between facilitator and student (check-in, check-up, check-out) for an African American male student in an alternative education setting whose off-task behaviors were nonresponsive to the traditional CICO implementation and were able to decrease his off-task behaviors by 57.54% from the baseline mean. Swoszowski et al. (2012) addressed setting events in CICO by implementing a discussion at check-out about behavior strategies to specifically address setting events for courses in which the student did not earn full points. Specifically, the CICO facilitator discussed what happened in the class, asked what the student could do differently the next time, and offered behavioral strategies to address the setting event. Campbell and Anderson (2008) adjusted recess and point evaluation times for two at-risk students whose behaviors appeared to be maintained by peer attention, so that when participants earned a determined number of points they could spend time with friends to access peer attention. Data revealed immediate and sustained reduction in the disruptive behaviors (i.e., noncompliance, disruptions, negative verbal or physical interaction, and out of seat) of both participants.

Three peer-reviewed studies that have evaluated the effects of nonresponders to CICO involved conducting a functional behavioral assessment and implementing individualized function-based interventions (i.e., Briere & Simonsen, 2011; Fairbanks et al., 2007; March & Horner, 2002). Fairbanks et al. (2007) conducted two studies to investigate a SWPBIS approach on the behaviors

of second grade students. In the first study, researchers implemented CICO as a managed group contingency intervention with 10 second-grade students. CICO consisted of increased structure and prompts, instruction on selected skills, increased feedback, goal point cards that identified the school-wide expectations as goals, and teacher's ratings of student behavior on each goal (i.e., 0= goal not met, 1= okay, and 2=great). In addition, participants were identified as "leaders" and the others in the class were "coaches" who helped the leaders stay on task to meeting their goals. Each "leader" added up his or her points at the end of the day and shared the totals with the class. If the participant cumulatively met the identified criteria (i.e., 70%-90%), the class earned a reward. When the participant met the criteria for 5-6 consecutive days, the criterion was raised to the next criterion level. Fairbanks et al. determined that the CICO intervention was effective for four of 10 participants. Of the six nonresponders, two remained in CICO (as peer comparison) and four entered the second study. In the second study, Fairbanks et al. created function-based intervention plans that included antecedent strategies (e.g., check in and out, sit by peer of choice, option to take incomplete work home, modifications to classroom point sheet), behavior strategies (e.g., reiterate expectations, teach specific skills), and consequence strategies (e.g., praise statements provided by teacher, choice of activity, check-out and point calculation, point loss for disruptive behavior, reminder to return to seat with displays of disruptive behavior) to address the disruptive behaviors of four nonreposnders to CICO. During the implementation of the function-based supports, all four participants showed decrease in disruptive behaviors (i.e.,

Participant 1 = 17% mean decrease from baseline, Participant 2 = 23% mean decrease from baseline, Participant 3 = 19% mean decrease from CICO intervention, Participant 4 = 25% mean decrease from baseline).

March and Horner (2002) conducted two studies investigating the effects of tiered support on the behaviors of middle school students. In the first study, researchers used descriptive analysis to determine the effects of CICO (i.e., check in and out, teacher feedback, parent's signature) on decreasing disruptive behavior (e.g., fighting, verbal harassment, stealing, defiance, not following directions, vandalism, cursing, being late for class) as measured by the frequency of office discipline referrals per week. Researchers compared pre- and post-CICO frequencies of office discipline referrals per week and found a decrease in the number of office discipline referrals for 12 of the 24 participants. Three of the 12 nonresponders to CICO implementation were selected to participate in the second study. In the second study, researchers examined the effects of function-based support on the disruptive behaviors (i.e., yelling, talking out, out of seat, inappropriate language, verbal harassing, failing to follow a directive, physical aggression) and academic engagement (i.e., looking at or attending to materials or teacher) of three students who were nonresponsive to CICO, one of whom qualified to receive special education services. Function-based supports included setting event strategies (e.g., maintain daily contact with home, check in with mentor each day, job in store with increased peer contact), antecedent strategies (e.g., provide clear directions, limit the number of seatwork tasks, match task difficulty with participant's skill level, assignment of a peer buddy), teaching

strategies (e.g., teach mentor check-in routine, teach self-monitoring and self-recruitment of rewards, teach how to recruit help, teach social initiation), and consequence strategies (e.g., CICO points used to buy basketball time, menu of small rewards for CICO points, disruptive behaviors do not result in escape, interrupt peer attention for inappropriate behavior). All three participants demonstrated reduced disruptive behaviors as evident by reductions in levels and variability in disruptive behavior data, as well as improvements in academic engagement. Results for one of the participants whose intervention package included self-management indicated a decrease in disruptive behavior from baseline measure of 37% to 17% when the intervention package was implemented.

Finally, Briere and Simonsen (2011) conducted a study to compare the effects of function-based self-monitoring and nonfunction-based self-monitoring on the off-task behaviors of two at-risk middle school nonresponders to Tier I (i.e., establishing, posting, teaching, monitoring, and reinforcing school-wide behavior expectations) and Tier II CICO interventions. Researchers conducted functional behavioral assessments to identify the function of each participant's off-task behaviors and created two self-recording sheets, one with prompts related to the function of the off-task behavior (i.e., "Did I show pride in my work and appropriately ask for a break when I needed one?") and another not relevant to the function of each participants' off-task behaviors. Participants were asked to self-monitor their behaviors using one of the two self-recording sheets and researchers directly observed participants' off-task behaviors. Results revealed lower levels of

off-task behaviors during function-based self-monitoring phases when compared to baseline and nonfunction-based self-monitoring phases.

The studies by Fairbanks et al. (2007), March and Horner (2002), and Briere and Simonsen (2011) show promise for the implementation of function-based interventions when CICO has not provided the support needed for positive behavior change. Additional research is warranted to evaluate the effects of Tier III function-based interventions for CICO nonresponders who are African American male students.

Summary

Studies on CICO show its effectiveness in reducing classroom disruptive behaviors and increasing academic engagement and achievement with varying populations (e.g., students of varying disabilities, students at risk) and in various settings (e.g., elementary school, middle school, alternative settings). Despite its effectiveness, very few studies have evaluated the effect of CICO on students' academic engagement (Campbell & Anderson, 2011; Campbell et al., 2013; Fairbanks et al., 2007), and even fewer have studied the effect of CICO on the disruptive behaviors and academic engagement of African American male students (Mong et al., 2011). In addition, nonresponders to CICO have received additional support through modifications to CICO and implementation of function-based Tier III interventions. To date, three studies have evaluated the effects of Tier III interventions on the behaviors of CICO nonresponders. CICO research has shown varying effects on the behaviors of African American male participants; therefore, it is important to identify Tier III, individualized supports

to effectively address the needs of African American male students when Tier II interventions, such as CICO, do not provide sufficient support for academic success. Function-based self-management is a Tier III intervention that could be used to support African American male students who are in need of individualized supports, thus helping to reduce disproportionality and the pushout and lockout problem that maintain the school-to-prison pipeline.

Function-based Self-management

Function-based interventions are based on the behavior analysis concept of the cause-and-effect relationship between the disruptive behavior and its function. Cooper et al. (2007) described the concept of this relationship as if a "cause-and-effect relationship can be determined, the relation can be altered, thereby diminishing subsequent occurrences of the problem behavior" (p. 502). The cause-and-effect relationship can be determined by a functional behavioral assessment, defined as "a process of understanding the physiological and environmental factors that contribute to a person's problem behaviors" that can be used "to gain information that will improve the effectiveness and efficiency of behavioral interventions" (O'Neill et al., 1997, p. 2). Functional behavioral assessment involves a systematic assessment of an individual's disruptive behaviors to identify: (a) a clear and concise definition of the disruptive behavior; (b) variables that set the occasion for the occurrence of disruptive behaviors (antecedents); (c) distant setting events that increase the chance of the disruptive behavior occurring when the individual comes in contact with the antecedent; (d) consequences that maintain disruptive behaviors; (e) at least one hypothesis

summarizing the disruptive behavior(s), conditions under which they occur, and the maintaining function; and (f) confirmation or negation of the hypothesis based on direct observations (O'Neil, Albin, Storey, Horner, & Sprague, 2015). Three common strategies are used to collect data during a functional behavioral assessment, including informant methods, direct observations, and functional analysis (O'Neil et al., 2015). Informant methods include interviews with the student with disruptive behaviors and those who are familiar with the student. Direct observations of the student with disruptive behavior in natural environment (e.g., classroom, lunchroom, hallway, bus) help to collect information to determine when a disruptive behavior occurs, the antecedent, the consequence resulting from the behavior, and the perceived function (O'Neil et al., 2015). Function analysis occurs when conditions (antecedents and consequences) are systematically manipulated and the effects on the student's behavior are recorded (O'Neil et al., 2015). The information gathered is used to identify the function of the student's disruptive behavior and to develop individualized interventions that address the function in an attempt to decrease disruptive behavior(s) and promote prosocial behaviors. Behaviors serve two main functions for individuals: (a) to obtain a desired event (i.e., internal stimulation, socially mediated event [attention, or tangible]) or (b) to escape/avoid an undesired event (i.e., internal stimulation, socially mediated event [attention, or task/activity]; Carr & Durand, 1985; O'Neil et al., 2015).

Function-based interventions usually involve one or more of the following three categories, including (a) altering antecedent variables, (b) altering

consequence variables, and (c) teaching alternative behaviors (Cooper et al., 2007). Interventions that alter antecedent variables identify discriminative stimuli that trigger the disruptive behavior or the motivating operations for the disruptive behavior and work to arrange the environment to reduce the likelihood that the stimulus is encountered and/or to reduce the effect of the motivating operation (Cooper et al., 2007; O'Neil et al., 2015). When implementing interventions that alter antecedent variables, the disruptive behavior becomes irrelevant. By removing the discriminative stimulus and reducing the effect of the motivating operation, there is no need for the student to perform the disruptive behavior. Interventions that alter consequence variables attempt to make the disruptive behavior ineffective by eliminating the source of reinforcement for the disruptive behavior (Cooper et al., 2007; O'Neil et al., 2015). Interventions that alter consequence variables (e.g., extinction, differential reinforcement) remove or alter the disruptive behavior's maintaining consequence (i.e., function). Teaching interventions include teaching a more socially acceptable replacement behavior and identifying appropriate reinforcers that will help to maintain it. Effective replacement behaviors are often maintained by the same consequence (function) as the disruptive behavior (Cooper et al., 2007; O'Neil et al., 2015). Self-management is one intervention that has shown to be effective in altering antecedents (Blood, Johnson, Ridenour, Simmons, & Crouch, 2011; Cihak, Wright, & Ayers, 2010), altering consequences (Carr & Durand, 1985; Rouse, Everhart-Sherwood, & Alber-Morgan, 2014), and teaching replacement behaviors

(Amato-Zech, Hoff, & Doepke, 2006; Mitchem, Young, West, & Benyo, 2001; Stahr, Cushing, Lane, & Fox, 2006; Waller, Albertini, & Waller, 2011).

Self-monitoring as a Self-management Tactic

Research supports that students make greater academic and behavioral gains when interventions are student- versus teacher-managed (Fantuzzo & Polite, 1990; Fantuzzo, Polite, Cook, & Quinn, 1988; Hallahan, Lloyd, Kneedler, & Marshall, 1982). Self-management occurs when students manage any component of their behavior change program (Cooper et al., 2007). Fantuzzo et al. (1988) identified 11 components of self-management to include (a) a self-selected target behavior, (b) self-identified definition of the target behavior, (c) self-selection of primary reinforcers, (d) self-identification of a performance goal, (e) self-delivered prompts for target behavior, (f) self-observation of targeted behavior, (g) self-recording, (h) self-evaluation, (i) self-administration of secondary reinforcers, (j) self-administration of primary reinforcers, and (k) self-charting of behaviors. In their analysis of 26 studies, Fantuzzo et al. found that on average studies included 4.2 (rage = 1 to 7) of the 11 components. Researchers have suggested that stating an intervention as self-management and only including several components may be misleading (Kazdin, Jones, & Nelson, 1977) and that identifying the intervention components would allow for better analysis of self-management components used in intervention packages (Fantuzzo et al., 1986). Fantuzzo and Polite (1990) conducted a literature review of self-management interventions with elementary aged students and analyzed the use of the 11 components of self-management. They found that self-observation of targeted

behaviors, self-evaluation, and administration of primary reinforcers were the most frequently used components. Similarly, Briesch and Chafouleas (2009) conducted a review of self-management literature and found the majority of self-management literature included self-observation and self-recording, the components of self-monitoring.

Origin, theory, and benefits of self-monitoring. Self-monitoring is a self-management tactic in which the student self-observes the targeted behavior(s) and self-records the occurrence or nonoccurrence of that behavior (Cooper et al., 2007; Mace, Belfiore, & Hutchinson, 2001; Nelson & Hayes, 1981). Publications of the effects of self-monitoring date back to the early 1970s (Broden, Hall, & Mitts, 1971). The theory of reactivity can be used to explain why self-monitoring works. Reactivity is "the effects on a person's behavior produced by an assessment or measurement procedure" (Cooper et al., 2007 p. 591). The more aware the person being assessed is of the observer and assessment purpose, the better the chance of reactivity. The self-observation and self-recording activities used in self-monitoring provide for maximum awareness. Although often controlled for by the use of unobtrusive measures and conducting repeated measures, reactivity in self-monitoring interventions have positive effects (Cooper et al., 2007). Behaviorists suggest that self-monitoring changes behaviors because it "evokes self-evaluative statements that serve to either reinforce desired behaviors or punish undesired behaviors" (Cooper et al., 2007 p. 594). Self-evaluative statements are often covert making it difficult to determine what behavioral principles are at work (i.e., reinforcement or punishment; Cooper et al.,

2007). For example, a student who meets his daily behavior goals may use covert verbal statements to positively reinforce his behaviors such as "I did a great job today!" On the other hand, a student who does not meet his goal may use covert guilt statements such as "I should have done better" that he may try to avoid by improving future behaviors. In this case, the removal of the aversive covert guilt statement serves as a negative reinforcer. In addition, self-evaluative covert statements such as "I need to decrease my talk outs" may serve as a punishment, helping the student decrease disruptive behaviors.

Similar to CICO, self-monitoring is not without controversy. Researchers evaluating the effects of self-monitoring offer differing opinions as to which behaviors, self-monitoring of attention (SMA; e.g., on-task behaviors, off-task) or self-monitoring of performance (SMP; e.g., work completion, work accuracy) students should evaluate during self-monitoring. Supporters of SMA suggest that increasing the amount of on-task behaviors will improve academic performance, whereas those who support SMP suggest that increasing academic performance will increase on-task behaviors (Cooper et al, 2007). Studies comparing SMP and SMA have found differing effects, with some indicating SMA to be more effective (Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005; Reid & Harris, 1993), others indicating SMP to be more effective (Rafferty & Raimondi, 2009), and still others revealing that they had equal effects (Harris, 1986; Lloyd, Bateman, Landrum, & Hallahan, 1989; Shimabukuro, Prater, Jenkins, & Edelen-Smith, 2000). In addition to the issue associated with which behavior to be targeted for self-monitoring, researchers have also found little association

between the accuracy of student self-monitoring and its effects on behavior change (Cooper et al., 2007; Marshall, Lloyd, & Hallahan, 1993). Regardless of the behavior monitored and students' accuracy of self-monitoring, self-monitoring has benefits in the classroom (Sheffield & Waller, 2010).

One benefit of self-monitoring is that it can be used to record covert behaviors, and behaviors that observers may miss (Cooper et al., 2007; Nelson & Hayes, 1981). Additionally, self-monitoring promotes student responsibility (Sheffield & Waller, 2010) and is often a more convenient method to observe student behavior (Cooper et al., 2007; Nelson & Hayes, 1981). As students learn to self-monitor their behaviors, teachers are left with more time to focus on teaching academic skills (Sheffield & Waller, 2010). Furthermore, the academic and behavioral benefits of self-monitoring have been demonstrated empirically, including increasing on-task behaviors, decreasing off-task behaviors, increasing homework completion, and improving students' compliance with directions, preparedness for class, and academic performance (Sheffield & Waller, 2010).

Effects of self-monitoring. Sheffield and Waller (2010) conducted a review of single case studies that examined the effects of self-monitoring on the reduction of problem classroom behaviors and increases of appropriate behaviors. Their review of 16 studies revealed that 13 reported the intervention was successful in increasing desired behaviors and decreasing disruptive behaviors. For example, self-monitoring has been used to help students with and without disabilities increase on-task behaviors (Amato-Zech et al., 2006; Mitchem, Young, West, & Benyo, 2001; Stahr et al., 2006; Todd, Horner, & Sugai, 1999;

Wood, Murdock, Cronin, Dawson, & Kirby, 1998), increase compliance with directions (Agran et al., 2005), increase social skills (Peterson et al., 2006), increase work completion (Todd et al., 1999), decrease off-task behaviors (Dalton et al., 1999; Peterson et al., 2006), and decrease disruptive behaviors (e.g., out-of-seat, looking around, playing with objects; Ardoin & Martens, 2004). Research has also shown that combining self-monitoring with other self-management components can increase the effectiveness of the intervention (Briesch & Chafouleas, 2009; Fantuzzo et al., 1988). Self-monitoring is often paired with self-evaluation (Cooper et al., 2007; Gulchack, 2008) and requests for reinforcement (Brooks, Todd, Tofflemoyer, & Horner, 2003; Cooper et al., 2007; Stahr et al., 2006) that have produced positive outcomes in student behavior changes.

Considering Function in Self-monitoring

Results of a functional behavioral assessment provide a good basis for determining reinforcement when planning for self-monitoring intervention for behavioral changes. As mentioned earlier, factors responsible for maintenance of behaviors fall into two broad categories, to obtain a desired event or to escape an aversive event (Carr & Durand, 1985a). Behaviors maintained by obtaining a desired event (e.g., attention, tangible) are controlled by positive reinforcement. For example, in a classroom setting a student may display disruptive behaviors (e.g., talk-outs, inappropriate interactions, noncompliance) to obtain teacher attention, an example of positive reinforcement. In contrast, escape-motivated behaviors are maintained by negative reinforcement. For example, a student may

display disruptive behaviors (e.g., physical out of seat, disrespect, noncompliance) to escape from the aversive task of completing an assignment that he or she finds difficult or undesirable. Once the function (i.e., to obtain or escape) is determined, an appropriate replacement behavior that addresses the function can be determined. For instance, a teacher may teach a student a more appropriate way to request teacher attention or request teacher assistance with difficult aversive tasks. Carr and Durand (1985a) taught four students with disabilities and disruptive behavior between the ages of 7 and 14 a communicative phrase that served the same function as their disruptive behavior. Students whose disruptive behaviors were maintained by escape from difficult tasks were taught the phrase "I don't understand" to solicit teacher assistance and participants whose behaviors were maintained by teacher attention were taught the phrase "Am I doing good work?" to solicit teacher attention. Results indicated that teaching functional communicative phrase that allowed the participants to recruit reinforcement reduced their disruptive behaviors.

There have been several demonstrations in literature of the effectiveness of function-based self-monitoring compared to nonfunction-based self-monitoring (Briere & Simonsen, 2011; Hansen, Wills, Kamps, & Greenwood, 2014; Waller, Albertini, & Waller, 2011). Waller et al. (2011) conducted a single-case ABCDAD design consisting of baseline (A; classroom token economy), self-monitoring (B), function-based self-monitoring (C; antecedent teacher attention), and function-based self-monitoring (D; consequence teacher attention) conditions to determine the effects of self-monitoring and the additive effects of function-

based interventions on the work completion and teacher seeking behaviors of a fourth grade female student with attention deficit hyperactivity disorder and emotional and behavior disorder. After determining that the classroom's token economy was not providing efficient support for the participant's behaviors, researchers conducted a functional behavioral assessment using record reviews, direct observations, student interview, and a motivation assessment, and determined that the participant's behaviors were maintained by teacher attention. Researchers assisted the participant in creating and implementing self-monitoring (i.e., self-observe and self-record) of work completion and disruptive behavior (e.g., callouts, interrupting the teacher) using paper and pencil (condition B). During condition C, self-monitoring continued and antecedent teacher attention (e.g., teacher gave verbal praise and prompts when the participant entered the classroom) was added. During condition D, interventions in conditions B and C continued and teacher attention as a consequence (e.g., 5-min after class assisting the teacher) was implemented. Results reveal an increase in work completion and a decrease in inappropriate teacher seeking behaviors for conditions B, C, and D when compared to baseline. Implementation of condition B resulted in a 30% improvement over baseline; condition C resulted in an additional 7% improvement from condition B; and condition D resulted in the highest improvement (76.8%). During condition D (i.e., the implementation of self-monitoring with teacher attention as an antecedent and consequence), the participant displayed the largest increase in on-task behaviors and the largest decrease in inappropriate teacher seeking behaviors indicating that function-based

self-monitoring that attended to the function both as an antecedent and a consequence was more effective than self-monitoring alone at improving the on-task and appropriate teacher seeking behaviors of the participant.

Most recently, Hansen et al. (2014) conducted a study to investigate the additive effects of function-based consequences to a self-management treatment package (e.g., self-monitoring, function-based consequences, self-identification of a performance goal, self-evaluation, self-recording) and the effects of removing self-monitoring from the self-management package on the on-task and disruptive behaviors of three elementary-aged male students with emotional and behavior disorders. Researchers conducted a single-case ABCBCDC design consisting of baseline (A), self-monitoring (B), function-based self-monitoring (C), and function-based consequences (D) phases. During the self-monitoring phase, participants self-identified a performance goal and were taught to self-observe, self-record, and self-evaluate using a self-monitoring sheet, a timer, and a pencil. Function-based self-monitoring included the components of the self-monitoring phase but also included consequences for appropriate and disruptive behaviors. A functional behavioral assessment that consisted of a structured interview with the participants' teachers, direct observations, and functional analysis was conducted to determine the function of each participant's disruptive behavior. Each participant earned tickets for appropriate behaviors that could be exchanged for activities that served the function of his disruptive behaviors. Two participants' behaviors were determined to be maintained by escape from demands and their tickets could be exchanged for a 1-min break. The third participant's behaviors

were found to be maintained by peer attention and his ticket could be exchanged for a 1-min break with a friend. Consequences for disruptive behaviors were prompts to get back on task. During the function-based consequence phase, the self-monitoring components were removed and the ticket consequence was retained. At 5-min intervals, teachers determined if the student was on-task and tickets were rewarded as appropriate. Results indicated that participants' disruptive behaviors decreased in the self-monitoring and function-based consequences phases and on-task behaviors increased in the self-monitoring phase; however, function-based self-management was more effective in increasing on-task behaviors and decreasing disruptive behaviors than either the self-monitoring or the function-based consequences phases alone.

Self-monitoring with self-recruitment of reinforcers. A review of self-recruiting literature indicates that students of all ages and abilities can be taught to self-recruit reinforcement (Alber & Heward, 2000). Self-recruitment of reinforcement has been used to: (a) improve the productivity and accuracy of academic tasks of elementary and middle school students with developmental disability (Craft, Alber, & Heward, 1998) and preschoolers (Stokes, Fowler, & Baer, 1978); (b) increase the teacher praise received by elementary students who were performing below grade level (Hrydowy, Stokes, & Martin, 1984) and those with emotional and behavioral disorders (Morgan, Young, & Goldstein, 1983); (c) increase active task engagement of preschool students with developmental delays (Connell, Carta, & Baer, 1993); (d) increase the amount of instructional feedback, teacher praise, peer attention, work completion, and work accuracy of students

with learning disabilities (Alber, Heward, & Hippler, 1999; Wolford, Heward, & Alber, 2001); and (e) increase prevocational skills (Rouse et al., 2014). In addition, researchers suggest that students who appropriately self-recruit reinforcement may be seen by teachers as more competent (Alber et al, 1999; Craft et al., 1998). Self-recruiting reinforcement, determined through identifying the behavioral function, has the potential to increase the effectiveness of self-monitoring by teaching students to self-monitor the need for accessing the reinforcement. In other words, once the function maintaining the disruptive behavior and an appropriate communicative replacement behavior that serves that same function are both identified, students can self-monitor their behaviors to determine if they need to use the communicative replacement behavior to recruit reinforcement. For example, if it is determined that the function of a student's off-task behavior is maintained by teacher attention, the student can self-monitor the incompatible behavior of being on task (e.g., "Am I on task?") and the communicative replacement behavior (e.g., "Do I need to ask the teacher to check my last three problems?" "Do I need to ask the teacher if I am doing this correctly?"). In this example, the student self-observes his or her own behaviors and determines if he or she needs to solicit reinforcement by exhibiting a socially appropriate behavior that serves the same behavior function as the disruptive behaviors. If the student determines a desire to obtain the reinforcement (i.e., teacher attention), he or she is then to appropriately self-recruit the reinforcement. Self-monitoring with self-recruitment of reinforcer takes advantage of the function maintaining a student's disruptive behavior, as determined by a

functional behavioral assessment, and teaches the student an appropriate replacement behavior to obtain the reinforcer. Therefore, when implementing self-monitoring with self-recruitment of reinforcer, the student not only benefits from being aware of own behavior through self-monitoring, but also learns an appropriate replacement behavior to actively recruit the desired reinforcement instead of passively waiting for adults to provide the reinforcement.

Effects of function-based self-monitoring with self-recruitment of reinforcement. Research has demonstrated the effectiveness of self-monitoring intervention that attended to students' behavioral functions. For example, Briere and Simonsen (2011) compared the effects of function-based self-monitoring and nonfunction-based self-monitoring on the off-task behaviors of two at-risk middle school students whose off-task behaviors were nonresponsive to Tier I support (e.g., establishing, posting, teaching, monitoring, and reinforcing school-wide behavior expectations) and Tier II CICO interventions within SWPBIS. Researchers conducted a functional behavioral assessment through record reviews, teacher and student interviews, and direct observations to identify the function of each participant's off-task behaviors and found that for one participant, the function was task avoidance and for the other, the function was attaining peer attention and escaping work. Participants used two self-recording sheets consisting of a 4-point rating, one with incompatible and replacement behaviors relevant to the function of Participant 1's off-task behaviors (i.e., "Did I show pride in my work and appropriately ask for a break when I needed one?") and the other relevant to the function of Participant 2's off-task behaviors (i.e.,

"Was I respectful and responsible when interacting with a peer or the teachers?"). A vibrating timer was used to prompt students to self-record every 5 min for the duration of the class period identified as most problematic for them. During the function-based self-monitoring phase, the participants were given their functionally relevant self-recording data sheet. During the nonfunction-based self-monitoring phase, students were given the self-recording data sheet that did not correspond to the function of their off-task behaviors. Results revealed lower levels of off-task behaviors during function-based self-monitoring phases when compared to nonfunction-based self-monitoring. Participant 1 showed a decrease in off-task behaviors from a baseline mean of 52.1% to a mean of 49.2% in nonfunction-based self-monitoring and 29.7% in the function-based self-monitoring phase. Participant 2 showed a decrease in off-task behaviors from a baseline mean of 54.1% to a mean of 49.2% in nonfunction-based self-monitoring and 35.0% in the function-based self-monitoring phase. This study supported that function-based self-monitoring intervention was most effective in reducing the participants' off-task behaviors.

Todd et al. (1999) conducted a multiple baseline design to examine the effects of self-monitoring and self-recruited praise on the disruptive behaviors (i.e., talking to peers, touching or poking peers or their belongings, being in the physical space of peers, making funny faces, making noises, being out of seat, playing with other materials), academic engagement (i.e., oriented towards and manipulating materials relevant to the assignment, oriented towards an adult or peer offering information), and work completion (i.e., permanent product or

segment of a long-term project) of a fourth grade male student with a learning disability. Researchers conducted a functional behavioral assessment that involved interviews and direct observations following the procedures recommended by O'Neil et al. (1997), and determined that the participant's disruptive behaviors were maintained by peer and teacher attention. Based on the findings, researchers implemented an intervention that included self-monitoring, self-recruitment of teacher praise (a more appropriate way to gain teacher attention), and self-recruitment of recognition stickers (replacement behavior; a more appropriate way to gain peer attention). A Sony Walkman with a prerecorded cassette tape and a single ear-plug was used to cue the participant to self-record his behaviors. The participant used a card to record a plus for intervals in which he was academically engaged and a zero for intervals in which he displayed disruptive behaviors. Participant was able to raise his hand to recruit teacher attention when he recorded three intervals of on-task behaviors and earned a recognition sticker at the end of the class period if he had two or fewer zeros for the period. Results indicated a functional relation between the intervention (i.e., self-monitoring and self-recruited praise) and decreases in disruptive behaviors, increases in on-task behaviors, increases in task completion, increases in teacher praise, and increases in teacher's positive perception of student performance. Todd et al. concluded that self-monitoring and self-recruitment of reinforcement based on the function of the student's disruptive behavior as determined by the functional behavioral assessment results was effective in decreasing disruptive

behaviors and increasing desired behaviors for the student with a learning disability.

In a similar study, Kern, Ringdahl, Hilt, and Sterling-Turner (2001) examined the effects of a function-based self-management intervention package that consisted of self-monitoring, self-recording, and self-recruitment of reinforcement on the disruptive behaviors (e.g., aggression, inappropriate verbalizations, throwing and kicking objects) of three students with average functioning (ages 4, 7, and 8). After conducting a functional analysis to determine the function of each participant's disruptive behavior (i.e., Participant 1= obtain attention, Participant 2= escape task, and Participant 3= obtain object), researchers taught participants to self-monitor incompatible behaviors and to use a replacement behavior, functionally equivalent to the disruptive behavior, to appropriately self-recruit reinforcement via a recording sheet and wristwatch. The sheet participants used to self-record their behaviors served to cue the incompatible behavior and cue the appropriate self-recruiting replacement behavior (e.g., Participant 1= "I played by myself or asked appropriately for attention."). Participants selected a happy or sad face to record their behaviors. Using a reversal design, Kern et al. found that all participants substantially decreased their disruptive behaviors. Participants 1 and 2 decreased their rates of disruptive behaviors from a rage of 100-180 per hour and 0-420 per hour during the initial baseline to zero occurrence during the final phase of function-based self-management, respectively. Participant 3 had similar results, with variable frequencies of disruptive behavior during baseline and low levels of disruptive

behaviors during both phases of function-based self-management. In addition, the frequency of appropriate requests for reinforcement increased for each participant during intervention phases.

The aforementioned studies demonstrated the effectiveness of function-based self-monitoring with self-recruitment of reinforcement on the on-task behaviors and work completion of students both with and without a disability. To date only two studies have identified African Americans as their participants when evaluating the effects of function-based self-monitoring and self-recruitment of reinforcement (i.e., Lo & Cartledge, 2006; Stahr et al., 2006).

Function-based self-monitoring and self-recruitment of reinforcement with African American students. Function-based self-monitoring and self-recruiting reinforcement has demonstrated effectiveness in decreasing classroom disruptive behaviors and increasing academic engagement of at-risk elementary African American male students (Lo & Cartledge, 2006; Stahr et al., 2006). Stahr et al. (2006) conducted a multiple baseline with a withdrawal design to evaluate the effects of a function-based intervention package that included a communication system (i.e., color coded cards and verbal request), self-monitoring (checklist), and extinction on the on-task behaviors (attending to or participating in instructional activities as requested) of a 9-year-old African American male student being served in a self-contained school for students with emotional and behavioral disorders under the category of other health impairment. Researchers, teachers, and a therapist conducted a functional behavioral assessment and identified that the participant’s disruptive behaviors were dually maintained by

teacher attention and escape from independent tasks. They also found that the participant's on-task behaviors increased when teacher assistance (attention) was provided. Based on the hypothesized function of the participant's disruptive behaviors, the team created an intervention package that included teaching an appropriate way to request teacher assistance and teacher attention to increase on-task behaviors. Specifically, the participant was given (a) a signaling system consisting of color-coded cards representing the level of support needed from the teacher, (b) a list of appropriate verbal request to make once the teacher responded to the card ("I do not understand," I need a break please," "I need help please"), and (c) a self-monitoring checklist with six questions to self-observe and self-record his on-task behavior at 15-min intervals. In addition, adults in the room practiced planned ignoring by working with other students or at their desk and looking away from the participant unless he used the communication system (color-coded cards and verbal request). Results indicated a mean change in on-task behaviors from 32.83% in baseline to a mean of 74.44% during intervention. Additionally, teachers and the participant found the intervention favorable.

Lo and Cartledge (2006) found similar results when evaluating the effects of function-based self-monitoring and self-recruiting reinforcement on the off-task behaviors of four elementary African American males who were either at risk for disabilities (n = 2) or with identified attention deficit hyperactivity disorder and/or emotional disabilities (n = 2). Researchers conducted a functional behavioral assessment that included teacher interviews, reviews of records, behavior rating scales, student interviews, reinforcement preference assessments,

scatter plot, and ABC recordings. Based on the functional behavioral assessment results, the researchers identified adult attention as the maintaining function of all four participants' disruptive behaviors, and created interventions to include skill training, differential reinforcement, and a self-management program. The participants were given recoding cards with behavioral reminders and a MotivAider® (2002) and were taught to self-record their behaviors at determined fixed intervals. Each participant received skill training to include displaying on-task behavior, timely work completion, appropriate ways to recruit teacher attention, and self-monitoring behavior. Two participants used a sign to recruit teacher attention and two were instructed to raise their hand. In addition, teachers provided positive attention when students either were academically engaged or appropriately recruited teacher attention. Results of the multiple baseline across participants design revealed a reduction in participants' off-task behaviors once the intervention was introduced, indicating a mean decrease of 11.35 intervals of off-task behaviors for all participants (range 12.8-7.9). Three of the four participants increased their rate of appropriate attention recruitment; one participant's appropriate attention recruitment behaviors were inconsistent. Additionally, three of four participants decreased inappropriate attention recruitment behaviors. Participants' teachers, parents, and three of the four participants responded favorably to inquiries of their satisfaction with the interventions. Lo and Cartledge concluded that a function-based intervention package that included skill training, differential reinforcement, and self-monitoring with self-recruitment of reinforcement decreased disruptive behavior

and increased appropriate teacher recruitment behaviors of African American male students and could be used as one method to prevent disproportionality.

The function-based self-monitoring with self-recruitment of reinforcement studies by Stahr et al. (2006) and Lo and Cartledge (2006) identified African Americans as participants, but neither measured the effects of the intervention on the participants' academic engagement. Lo and Cartledge (2006) provided the only study that purposefully targeted African American male students as participants to address the issue of preventing disproportionality. Considering the risk factors African American male students often experience socially and academically, additional research is warranted to identify the effects of function-based self-monitoring and self-recruiting reinforcement on the academic engagement of African American males.

Handheld Devices as Recording and Signaling Systems in Self-monitoring

A review of literature on self-monitoring classroom behaviors reveals that several methods have been implemented by researchers and used by students to self-record behaviors, including checklists, cards, and forms. Systems used to signal students to self-record also varied from tones, end of activities (e.g., class period, session; Sheffield & Waller, 2010), Sony Walkman (Todd et al., 1999), MotivAider® (Lo & Cartledge, 2006), and clocks (Sheffield & Waller, 2010). However, self-monitoring procedures used for classroom behaviors have failed to keep up with the cueing and recording advancements made possible by current technology (e.g., beepers, watches, tablets, cell phones, applications). To date only four published studies have used recent technological advancements to

implement self-monitoring of classroom behaviors (Bedesem, 2012; Blood, Johnson, Ridenour, Simmons, & Crouch, 2011; Cihak et al., 2010; Gulchak, 2008).

Technological advancements have made handheld devices a useful tool for students to self-monitor their own behaviors. Several studies have shown that handheld devices were as effective as traditional methods to self-monitor classroom behaviors (Bedesem, 2012; Blood et al., 2011; Cihak et al., 2010; Gulchak, 2008). In two studies, the handheld device was used to help cue the students to self-record (Blood et al., 2011; Cihak et al., 2010). Specifically, Cihak et al. (2010) used a handheld device (i.e., HP iPAQ Mobile Media Companion®) to deliver picture prompts modeling task engagement to help three middle school students with high functioning autism participating in general education classes self-monitor their on-task behavior (i.e., in seat, looking at materials or teacher, completing assignment-related writing, and complying with directions). Researchers used the handheld device to display recorded pictures of the participant engaging in on-task behaviors at set intervals. The picture served as a prompt for the student to self-monitor using an index card. Participants' intervals of task engagement increased from baseline means of 29% to 94% during the self-monitoring implementation. Similarly, Blood et al. (2011) compared the effects of video modeling and video modeling plus self-monitoring on the on-task and disruptive behaviors of a fifth grade student with emotional and behavior disorder. Researchers used a changing conditions (A-B-BC) design to evaluate effects of the interventions on the participant's behaviors. In both the video modeling and

video modeling plus self-monitoring phases, video modeling consisted of a peer demonstration of appropriate math group behaviors (e.g., on-task, following directions, and completing work) with narration describing behavior expectations delivered via a handheld device (i.e., iPod Touch). The video was shown before math class. In the video modeling plus self-monitoring phase, the handheld device was used prior to math class to show video modeling of peers engaging in on-task behaviors and during math class to cue the participant to self-monitor his on-task behavior. The participant self-recorded using paper and pencil. The participant increased his mean percentage of on-task behavior from 44% in baseline to 81% with the implementation of video modeling and 99% with the implementation of video modeling plus self-monitoring. Researchers concluded that although both interventions were effective in increasing on-task behaviors and decreasing the student's disruptive behaviors, video modeling plus self-monitoring had the better effect on the student's behaviors.

In studies conducted by Bedesem (2012) and Gulchack (2008), handheld devices were used not only to cue the students to self-record, but to serve as self-recording devices. Bedesem (2012) used a multiple baseline across participants design to evaluate the effects of self-monitoring using a handheld device (i.e., Virgin Mobile Kyocera Jax cell phone) on the on-task behaviors of two middle school students with other health impairment or specific learning disabilities. Cues to self-record were delivered via text messages (scheduled and researcher initiated) at the beginning and end of class and at 5-min intervals during the 20-min observation sessions. Students responded to the text prompt "Are you on

task?" with the selection of a binary "yes" and "no" or 1 (for yes) and 0 (for no). Results indicated improvement in on-task behaviors for both participants, with an increase from a total baseline mean of 45% to 75% in intervention. Social validity results indicated positive views of the intervention from both general and special education teachers; students also expressed overall satisfaction with the intervention. Similarly, Gulchak (2008) taught a third grade student with emotional and behavioral disabilities to self-monitor on-task behaviors using prompts and a monitoring tool delivered via software on a handheld computer (i.e., Palm Zire 72). The prompts were chimes scheduled at 10-min intervals for the 1-hour reading period. When prompted, the students would turn on the handheld device and self-record if he was on-task during that interval by selecting a binary yes/no. All data were recorded and summarized on the handheld and the participant was able to run a report and graph his progress. Analyses of the data from a reversal design indicated that the participant's on-task behavior improved from a baseline mean of 64% to 90% during the self-monitoring phase. In addition, the student was excited to use the handheld, and classmates were fascinated and wished for a similar program. Researchers in both studies (Bedesem, 2012; Gulchack, 2008) reported that the use of the handheld devices was highly motivating for the participants; teachers of the participants in both studies also agreed that they would use these strategies in the future and/or tell others about the usefulness of the devices.

In summary, handheld devices have been used by students with disabilities, either as cues or as recording devices, to successfully self-monitor

classroom behaviors and improve on-task behaviors (Bedesem, 2012; Blood et al., 2011; Cihak et al., 2010; Gulchak, 2008). Handheld devices can provide a more socially accepted means of self-monitoring, particularly in today's world with technological advancements, and can be just as effective as traditional paper-and-pencil method. Due to the limited number of studies evaluating the effects of handheld devices that serve as a cuing and/or recording device, more studies are needed to evaluate the effectiveness of this method of self-monitoring with other populations (e.g., students at risk, various disabilities, various ethnicities, various ages) and other behaviors (e.g., work completion, work accuracy, various disruptive behaviors; Bedesem, 2012; Gulchack, 2008). Additional research is needed to evaluate the ability of cueing and recording handheld devices to incorporate function-based self-monitoring, where prompts are delivered based on the function of the students' behaviors, and evaluate its effects on students' behaviors.

I-Connect. One application that can serve as a cue for self-recording, as a recording tool, and has a feature to individualize prompts according to the function of behaviors is I-Connect. I-Connect is a self-monitoring application developed by researchers at Juniper Gardens Children's Project housed at the University of Kansas (Wills & Kamps, n.d.). The I-Connect application was developed to record both academic productivity and behavioral performance through android compatible wireless devices. I-Connect supports accountability and connectivity of team members (e.g., teachers, parents, CICO facilitator) through web-based data sharing. The development of I-Connect was based on the

integration of two evidenced-based strategies of self-management and Check & Connect, a dropout prevention intervention focusing on increasing school engagement and identifying early signs of school withdrawal (Evelo, Sinclair, Hurley, Christenson, & Thurlow, 1996) and self-management to improve data-based decisions used in a MTSS (Wills & Kamps, n.d). Through the I-Connect app, cues can be delivered via vibration, light flash, and tone on the handheld device. Cues can be set at designated intervals according to student need. Prompts in I-Connect are delivered by a question that flashes on the screen. The question can be customized according to each student's need or identified function (e.g., "Do I need teacher attention?" "Do I need assistance?"). The student self-records by selecting a binary option, usually "yes" or "no." The student's answers are then recorded and available in summary format through a password protected web-based data sharing feature that students, teachers, and other team members can access. Not only can I-Connect serve as a cue for self-recording, as a recording tool, and be individualized to deliver prompts according to the function of behaviors, but it also provides a more effective and more efficient means of summarizing and sharing data. Although originally developed for use with high school students, the ability of I-Connect to individualize cues, prompts, and methods of recording shows promise for its use with various populations and as a tool for function-based self-monitoring. I-Connect is still in the development phase, however; when development is complete, the goal is to increase attendance, work completion, student responsibility, appropriate academic and social skills, as well as school personnel's use of data to inform decisions on

interventions (I-Connect, 2014). Conducting research that integrates I-Connect in function-based self-monitoring can contribute to the continued development and refinement of this app for the most successful implementation across students with varying ages and grade levels.

Summary

Function-based self-management is a combination of self-management strategies and function-based interventions. Among self-management strategies, self-monitoring is one of the most commonly applied strategies. Both self-monitoring and function-based interventions have origins in applied behavior analysis. Self-monitoring is based on the reactive theory of applied behavior analysis and function-based interventions are based on the concept of cause and effect. Function-based self-monitoring with self-recruitment of reinforcement refers to using functional behavioral assessment results to create an intervention that includes self-observation, self-recording, and self-recruiting reinforcement to address the function of the student's behavior. Function-based self-monitoring with self-recruitment of reinforcement has been effective in increasing on-task behaviors and work completion of elementary and middle school students both at-risk and with disabilities (Briere & Simonsen, 2011; Kern et al., 2001; Todd et al., 1999). In addition, research has shown positive effects of function-based self-monitoring with self-recruitment of reinforcement on the on-task behaviors of African American male students (Lo & Cartledge, 2006; Stahr et al., 2006). Lo and Cartledge (2006) suggests that it warrants consideration as a strategy to address disproportionality of African American male students. Additional

research is needed to address the effects of function-based self-monitoring and self-recruitment of reinforcement on the behaviors of African American male students and its effects on the pushout and lockout problems in schools.

Researchers have used various materials to assist students in self-monitoring behaviors; however, self-monitoring materials have failed to keep up with the advancements of technology. Handheld devices have recently been used by researchers as one socially acceptable way for students to self-monitor behaviors (Bedesem, 2012; Blood et al., 2011; Cihak et al., 2010; Gulchak, 2008). I-Connect, a web-based application, can be downloaded to a handheld device and used to self-monitor. One of the key features of I-Connect is its ability to individualize self-recording and self-recruitment of reinforcement cues and prompts to address the function of students' behaviors. Although originally developed for high school drop-out prevention, I-Connect's ability to individualize its functions to meet the needs of each student makes it a viable option for students of all ages and with behaviors serving various functions. I-Connect is currently in its developmental stage and thus additional research is needed to address its effects. Specifically, research is warranted on the use of I-Connect as a tool for function-based self-management and self-recruitment of reinforcement.

Summary of Review of Literature

African American males are being pushed out and locked out of schools resulting in poor academic achievement and grim post-school outcomes, a phenomena often referred to as the school-to-prison pipeline. One effort to reduce

the factors of the school-to-prison pipeline is the implementation of positive behavior supports through a MTSS. SWPBIS is a MTSS implemented across the entire school aiming to reduce disruptive behaviors within the total school environment and replace them with prosocial behaviors. CICO is an effective Tier II, targeted, intervention that has been successfully implemented within a SWPBIS framework (Campbell & Anderson, 2008; Campbell et al., 2013; Ennis et al., 2012; Fairbanks et al., 2007; Filter et al., 2007). In addition, CICO has had positive effects on the disruptive behaviors and academic engagement of the majority of participants in published studies, to include African American males (Campbell & Anderson, 2008; Dart et al., 2014; Ennis et al., 2012; Fairbanks et al., 2007; Hunter, Chenier, & Gresham,, 2014; McCurdy et al., 2007; Miller et al, 2015; Mong et al., 2011; Swoszowski et al., 2013b; Swoszowski et al., 2012; Todd et al., 2008). As with most Tier II interventions, CICO does not provide sufficient support to help all students manage their behaviors, leaving some students needing intensive individualized supports. Combinations of CICO modifications and function-based intervention packages have been used in the current literature to address the behaviors of nonresponders to CICO (Briere & Simonsen, 2011; Fairbanks et al., 2007; March & Horner, 2002; Swoszowski, 2014).

Self-management has been used to address the needs of students in need of individualized support to manage behaviors, with self-monitoring (i.e., self-observation and self-recording) being the most common type of self-management. It has had positive effects on the reduction of problem classroom behaviors and

increases of appropriate behaviors of students. Briere and Simonsen (2011) revealed that although self-monitoring had positive effects on disruptive behaviors, the effects are heightened when self-monitoring practices are functionally relevant. Briere and Simonsen (2011) also found function-based self-monitoring with self-recruitment of reinforcement to be an effective SWPBIS Tier III intervention to address the behaviors of nonresponders to Tier II. Function-based self-monitoring and self-recruiting reinforcement meets the criteria of a Tier III intervention within a SWPBIS framework and has demonstrated effectiveness on decreasing disruptive behaviors, increasing academic engagement, and increasing work completion of students with disabilities and those at risk for receiving special education services (Brooks et al., 2003; Todd et al., 1999). Function-based self-monitoring and self-recruitment of reinforcement studies conducted with elementary African American male students (Lo & Cartledge, 2006; Stahr et al., 2006) reveal similar effects leading one to surmise that the intervention could effectively address the behaviors of African American male nonresponders to CICO. Additionally, recent research evaluating the effectiveness of students' use of handheld mobile devices to self-monitor classroom behaviors shows promise (Cihak et al., 2010; Gulchak, 2008) and warrants further investigation. The utility and features of I-Connect (Wills & Kamps, n.d) make it a promising application to serve as both a cueing and recording method for students to engage in function-based self-monitoring program. Social validity and behavioral data for both function-based self-monitoring and the use of handheld devices to self-monitor classroom behaviors

reveal positive results (Bedesem, 2012; Blood et al., 2011; Cihak et al., 2010; Gulchak, 2008); therefore, it seems that implementing an intervention package that includes both features will provide promise to positively change the behaviors of students who are nonresponsive to Tier II, CICO intervention. The positive behavior change from previous research studies implementing CICO or function-based self-monitoring supports the use of these interventions with African American male students (Campbell & Anderson, 2008; Ennis et al., 2012; Fairbanks et al., 2007; Lo & Cartledge, 2006; McCurdy et al., 2007; Mong et al., 2011; Stahr et al., 2006; Swoszowski et al., 2013b; Swoszowski et al., 2012; Todd et al., 2008). Implementing these interventions in a SWPBIS framework could help to ensure that African American males receive the level of support needed to experience academic success in the school environment, minimizing the current pushout and lockout problems thereby reducing factors of the school-to-prison pipeline.

CHAPTER 3: METHOD

This chapter includes description of the methodology that was used to conduct this study. The sections to follow include descriptions of the participants, setting, materials, dependent variables and data collection, research designs, procedures associated with experimental conditions, procedures to measure social validity and procedural fidelity, and procedures for data analysis.

Participant Selection

Three African American male students at risk for academic failure due to disruptive behaviors were targeted for this study. Selection of targeted students were based on teacher nominations and the following inclusion criteria: (a) attending upper elementary grades (i.e., third, fourth, or fifth grade); (b) identified as an African American male; (c) identified as having above average levels of disruptive behavior and below average academic engagement based on teacher recommendations that were verified through prebaseline direct observations; (d) identified as Tier I nonresponder needing possible Tier II and Tier III behavioral interventions based on recommendations from the SWPBIS team, and verified by below average scores in two of the three domains (i.e., social skills, problem behaviors, academic competence) in the *Social Skills Improvement System* (SSIS; Gresham & Elliott, 2008); (e) signed parental consent, student assent, and teacher consent (see Appendix A), and (f) regular attendance (i.e., three or fewer absences

during the current school year). The experimenter verified inclusion criteria through reviews of students' education records (for criteria a, b, and f,), and conducted prebaseline observations (for criterion c) and *SSIS* measure (for criterion d). Pseudonyms are used to protect the anonymity of participants.

Prebaseline observations. Prebaseline observations were conducted in the classrooms to verify that each referred student met the inclusion criteria and to gain an average of a typical student's disruptive behavior and academic engagement. Teachers were asked to rank the subject areas (e.g., math, reading, writing, science) based on the level of disruptive behaviors displayed by each nominated student (Appendix B). Students were observed in the class in which they displayed the highest level of disruptive behavior as identified by teacher ranking. One comparison peer was selected for each referred student and was used as the measure for average behavior in the referred student's class. To select the comparison peer, teachers ranked all students in the classroom based on their levels of disruptive behavior from most disruptive to least disruptive and academic engagement from most engaged to least engaged (Appendix C). The median student or a student close to the median student on both lists and meeting the following criteria was identified as the comparison peer, including (a) being a male student, and preferably being an African American male, (b) received no office discipline referrals during the current and past school year, (c) parental consent and student assent granted. Once the comparison peer for each referred student was identified, a minimum of three 15-min prebaseline observations were conducted to verify mean levels of disruptive behavior and academic engagement

for the referred students and their comparison peer(s). Observers simultaneously recorded each student's disruptive behaviors and academic engagement using a researcher-created data recording form (Appendix D). Students' disruptive behaviors were recorded using a 10-s partial interval recording method; academic engagement was recorded using a 10-s whole interval recording method. Specifically, observers documented a + to indicate that the student did not engage in disruptive behavior at any time during a 10-s interval, a – to document that the student displayed disruptive behavior anytime during the 10-s interval, and a circle around the + or – to document that the student was academically engaged during the entire 10-s interval. The observers alternated observance of the referred student and the comparison peer until each student had been observed for 90 intervals (i.e., 15 min per student for a total of 30 min for an observational session). An operational definition of disruptive behavior and academic engagement is provided under the Dependent Variables section. The students' percentage of disruptive behavior was calculated by dividing the number of intervals recorded as "disruptive" (-) by the total number of intervals observed (i.e., 90) and multiplying by 100. The students' percentage of academic engagement was calculated by dividing the number of intervals recorded as "engaged" (○) by the total number of intervals observed (i.e., 90) and multiplying by 100. Referred students whose data indicated mean disruptive behavior above their comparison peer's behavior mean were included in this study as the participants.

SSIS rating. To verify the need of Tier II and/or Tier III behavioral interventions, the participants' referring teacher completed the SSIS teacher rating scale (Gresham & Elliott, 2008). The SSIS rating scale is a nationally normed screening tool used to identify students with substantial social skill deficits, to identify problem behaviors that may impede attainment or performance of social skills, and to provide a broad measure of students' academic performance, by assessing three domains of *social skills*, *problem behavior*, and *academic competence* (Gresham & Elliott, 2008). The SSIS has a multirater option that allows teachers, parents, and students to rate the student's behaviors (Gresham & Elliott, 2008). For the purpose of this study, only the teacher rating scale was used, with the scores serving as a measure of prerequisite skill deficit for participant selection purpose and a pretest and posttest measure of perceived changes in students' classroom behavior. For the teacher rating scale, there are seven social skills subdomains (i.e., communication, cooperation, assertion, responsibility, empathy, engagement, and self-control), five problem behavior subdomains (i.e., externalizing, bullying, hyperactivity/inattention, internalizing, and autism spectrum), and an academic competence scale (i.e., addressing reading skills, math skills, motivation, parental support, and general cognitive functioning; Gresham & Elliott, 2008). Teachers used a 4-point Likert scale (i.e., never, seldom, often, and almost always) to identify the frequency of which a student displayed the social skill or problem behavior at the time of rating, a 3-point Likert scale (i.e., not important, important, and critical) to rate the importance of the skill to the student's development, and a 5-point Likert scale

(i.e., Lowest 10%, Next Lowest 20%, Middle 40%, Next Highest 20%, and Highest 10%) to measure the importance of academic competence. The teacher form is nationally normed for ages 3 to 5, 5 to 12, and 13 to 18 with gender specific norms (Gresham & Elliott, 2008). For the purpose of this study, age and gender specific norms were calculated. The SSIS was chosen as a measure for this study because of its validity and reliability. According to Gresham and Elliott (2008), the SSIS includes validity indexes (i.e., F-index) to screen erroneous data (e.g., missing responses, random responding, selecting the same answer choice for most/all of the items; Gresham & Elliott, 2008). F-index calculations yield scores of acceptable, caution, or extreme caution. The experimenter calculated the F-index and found all scores in the acceptable range. The SISS has undergone several statistical analysis of potential errors (i.e., internal consistency reliability, test-retest reliability, and interrater reliability) to evaluate its reliability (Gresham & Elliott, 2008). Results of the internal consistency reliability analysis indicate that rating scale scores are free from random error (α=>.90). Results of the test-retest reliability for each rating form indicate very little difference in average scores across administrations as indicated by median scale correlations (teacher form r = .84). Results of the interrater reliability indicate little differences in average scores across raters as indicated by median scale correlations (teachers r = .62 and parents r = .55). The SISS yields standard scores and percentile ranks for the three domains, and behavior levels for all subscales. The experimenter scored the teacher rating scale and obtained a standard score. Students scoring in the caution range for two of the three assessed domains (i.e., social skills [standard

score below 85], problem behavior [standard score above 100], and academic competence [standard score below 85]) were included in this study as participants.

Targeted Students and Comparison Peers

Based on the selection process described above, three participants and two comparison peers were identified. Two participants were attending a third grade classroom with a comparison peer, and the remaining participant was attending a fifth grade classroom with the second comparison peer.

Targeted students. Bryce was a 9-year-old African American male in the third grade. On the SSIS rating, Bryce's teacher rated him below average in six out of seven social skills subdomains (i.e., communication, cooperation, responsibility, empathy, engagement, self-control) and above average in four out of five problem behaviors subdomains (i.e., externalizing, bullying, hyperactivity/inattention, and internalizing). Bryce's teacher also rated Bryce to be below average in academic competence subscale. Bryce's disruptive behaviors included wondering the room, talking out, making noises, crawling or lying on the floor, arguing with peers and the teacher, and refusal to start and complete work. Reading was identified as the subject/time of day in which Bryce displayed the most disruptive behaviors; however, due to schedule conflicts most of Bryce's observations occurred during science and socials studies (ranked fourth among the subject areas with the most displays of disruption). Bryce's teacher ranked him second to the least academically engaged and having the most disruptive behavior in her class of 20 students. Bryce received three office discipline referrals prior to implementation of the study, during the academic school year in which the study

occurred. Bryce did not have an identified disability, and did not receive special education services; however, Bryce began participating in an anger management group conducted by the school counselor beginning his third baseline session and lasted through the remainder of the study.

Anderson was a 9-year-old African American male in the third grade, attending the same class as Bryce. Anderson's SSIS scores indicated he was below average in four out of seven social skills subdomains (i.e., communication, cooperation, engagement, and self-control) and above average in five out of five problem behaviors subdomains (i.e., externalizing, bullying, hyperactivity/inattention, internalizing, and autism spectrum). Anderson's disruptive behaviors included talking out, wondering the room, crawling on the floor, lying on the floor a table or his desk chair during instruction, and refusal to start and complete work. Reading was identified as the subject/time of day in which Anderson displayed the most disruptive behaviors; however, due to schedule conflicts Anderson was observed during writing, which was ranked as the third subject area with the most displays of disruption. Anderson's teacher ranked him the least engaged and the second to the most disruptive in a class of 20 students. Anderson did not receive any office discipline referrals prior to the study, during the academic school year in which the study occurred. Beginning the sixth CICO session, Anderson began to receive special education services (twice a week for 25 min) for articulation. He also began to receive individual therapy for anger management and an anger management counseling group

conducted by the school counselor beginning the third baseline session and lasting through the remainder of the study.

Cayenne, an 11-year-old African American male was in the fifth grade. On the SSIS rating, Cayenne's teacher rated him below average in five out of seven social skills subdomains (i.e., cooperation, assertion, responsibility, empathy, and self-control), above average in four out of five problem behaviors subdomains (i.e., externalizing, bullying, hyperactivity/inattention, autism spectrum), and below average in academic competence. Cayenne's disruptive behaviors consisted of talking to peers, inappropriate physical interaction with peers through hitting, kicking, or pushing, and inappropriate use of materials. Math was identified as the subject/time of day in which Cayenne displayed the most disruptive behaviors and was targeted for observations. In a class of 18 students, Cayenne was ranked as most disruptive and least academically engaged by his teacher. Cayenne received two office discipline referrals during baseline. Cayenne did not have an identified disability and did not receive special education services. Cayenne's family was experiencing homelessness and moved to another state after receiving CICO intervention for 2.5 weeks. Table 1 presents demographic data, office referral data, SSIS rating, and disruptive and academic engagement ranking results for the targeted students.

Table 1: Demographic data, office discipline referral (ODR) data, SSIS rating, and disruptive and academic engagement ranking results for the targeted students

				SSIS Teacher Rating[2]			Class Ranking	
Students	Age	Gr	ODR[1]	Social Skills	Problem Behavior	Academic Competence	DB Rating[3]	AE Rating[4]
Bryce	9	3rd	3	70 (<2 SD) 3%ile	128 (>1 SD) 94%ile	81 (<1 SD) 12%ile	1/20	19/20
Anderson	9	3rd	0	71 (<1 SD) 3%ile	139 (>2 SD) 98%ile	89 23%ile	2/20	20/20
Cayenne	11	5th	2	75 (<1 SD) 5%ile	132 (>2 SD) 96%ile	79 (<1 SD) 9%ile	1/18	18/18

Note. [1]ODR represents number of office discipline referrals the targeted student received prior to the intervention implementation. [2]The scores represent standard scores and standard deviations in the first line with percentiles in second line for each student. [3]DB represents disruptive behavior with 1 being the most disruptive behavior among all students in the class. [4]AE represents academic engagement with 1 being most academically engaged among all students in the class.

Comparison peers. One student from Bryce's and Anderson's third grade class and one student from Cayenne's fifth grade class were selected as comparison peers. The third grade comparison peer was a 9-year-old Caucasian male, who was ranked as 12th on the most disruptive behavior raking and ninth on the most academically engaged ranking in a class of 20. The fifth grade comparison peer was a 10-year-old African American male, who was ranked as 13th on the most disruptive behavior ranking and seventh on the most academically engaged ranking in a class of 18. Table 2 shows demographic data,

and disruptive behavior and academic engagement ranking results for the comparison peers.

Table 2: Demographic data and disruptive behavior and academic engagement ranking results for the comparison peers

Comparison Peer	Targeted Students	Age	Grade	Ethnicity	DB Rating[1]	AE Rating[2]
Ben	Bryce Anderson	9	3rd	Caucasian male	12/20	9/20
Joe	Cayenne	10	5th	African American male	13/18	7/18

Note. [1] DB represents disruptive behavior with 1 being the most disruptive behavior among all students in the class. [2]AE represents academic engagement with 1 being most academically engaged among all students in the class.

Setting

The study took place in an urban, public elementary school in southeastern United States. The student population consisted of 47% Caucasian (male = 83, female = 88), 23% Hispanic (male = 49, female = 34), 20% African American (male = 38, female = 34), 2% Asian (male = 6, female = 2), 1% American Indian (male = 1, female = 3), and 5% multiracial (male = 12, female = 9). Approximately 65% of the students received free and reduced price lunch, 9% received special education services, and 25% received services for students who speak English as a second language. The school has implemented SWPBIS since 2008, receiving state recognition for exemplar implementation for the last 3 years

(2011-2014) as part of the statewide Positive Behavior Intervention and Support (PBIS) initiative. A school is recognized with an "exemplar" status if: (a) the school's SWPBIS team completed all three team training modules provided at the state level by PBIS trainers; (b) the school scored 50 or higher (90% of total points) on the *School-Wide Evaluation Tool* (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001); (c) at least 2 consecutive years of required behavioral, attendance, and academic data showed improvement; and (d) the school documented the use of at least one additional data element for decision making (e.g., Effective Behavior Support [EBS] self-assessment survey, staff retention data, climate surveys, referral information for special education, direct behavior rating). As a result of SWPBIS implementation, the school decided to stop out-of-school suspensions during the 2013-2014 school year reducing their short-term suspension from 5.54 per 100 students in 2012-2013, an average slightly above the districts (4.36 per 100 students), to zero during the 2013-2014 school year. During the 2013-2014 school year, 97% (n = 358) of the students received one or fewer office discipline referrals; 2% (n = 8) of students received two to five office discipline referrals, and 1% (n = 4) of students received six or more office discipline referrals. Consequently, five students received Tier II, targeted interventions and four students received Tier III, individualized interventions; none of these students were participants in this study. For this study, all intervention training sessions took place in a conference room at the school. The conference room consisted of a rectangular table and a projection screen. The interventions took place in the participants' respective general education

classrooms. Check-in and check-out meetings occurred in an empty classroom and on rare occasions in the hallway (based on availability and accessibility of an empty classroom).

Materials

Several materials were used in this study. Audio recorders were used to record check-in and check-out meetings. A handheld Sony® IC recorder with voiced interval markings (i.e., "observe," "record"), headphones, a splitter, and a researcher-developed observation data recording form (see Appendix D) were used for data collection of direct observation. Additional materials included teacher protocols of the SSIS (Gresham & Elliott, 2008), daily report cards, functional behavioral assessment forms, and a self-monitoring mobile device. A description of SSIS is provided previously under the Participant Selection section. Below includes a detailed description of the daily report cards, functional behavioral assessment forms, and the self-monitoring mobile device.

Daily behavior report cards. Daily behavior report cards were used during CICO to record teacher ratings of targeted students' compliance with schoolwide behavior expectations and parent signatures. The daily behavior report card was printed on standard (8"x11") paper and included the following sections: (a) student name and date; (b) a list of behavioral goals corresponding with the classroom schoolwide behavioral expectations of *Be Respectful, Be Responsible,* and *Be Safe,* with rating options of 0 (i.e., the student did not demonstrate the identified goals during the class session), 1 (i.e., the student demonstrated the identified goals with some teacher/staff prompting), and 2 (i.e., the student

demonstrated the identified goals without teacher/staff prompting); (c) teacher comments and initials; (d) student signature; (e) facilitator's signature; (f) total possible points; (g) total points earned; and (h) parent comments and signature (see Appendix E). Targeted students carried daily behavior report cards with them to each class.

Functional behavioral assessment forms. Functional behavioral assessments were conducted for targeted students not meeting mastery criteria during CICO implementation (i.e., CICO nonresponder). The experimenter used the Functional Assessment Checklist for Teachers and Staff (FACTS) Part A & Part B (March et al., 2000), the Student-Directed Functional Assessment Interview form (O'Neil et al., 2015, pp. 123-125), and a researcher-created ABC Analysis form (see Appendix F) to complete functional behavioral assessments. In Part A of the FACTS (March et al., 2000), the teacher identified the disruptive behavior(s) and places, times of the day and people associated with the disruptive behavior(s). In Part B of the FACTS (March et al., 2000), the teacher provided a more descriptive definition of the disruptive behavior and identified possible antecedent and consequences. The Student-Directed Functional Assessment Interview form (O'Neil et al., 2015) was used to interview the student to identify his definition of the behavior of concern, when and where the behavior occurred most often, to complete the behavior pathways for the identified behavior, and to develop a summary statement (i.e., setting events, antecedents, behavior, and consequence). The ABC analysis form was used to collect data on the occurrence of the behavior of concern, its antecedents, and the actual consequences during

direct observation. This information was used to identify the maintaining function of the disruptive behavior and a functionally equivalent replacement behavior.

Self-monitoring mobile device. During the condition of CICO and function-based self-management through I-Connect, materials also included a Samsung® Galaxy Tab 2, 7-in. touch screen mobile device with Wi-Fi capability, installed with the I-Connect self-monitoring mobile app which was used by one of the targeted students to self-monitor his behaviors. I-Connect, an application created by researchers at Juniper Gardens Children's Project at University of Kansas, is a self-management application that allowed the programming of individualized self-monitoring goals, intervals, and prompts (i.e., screen flash, chime, vibrate) for students (Willis & Kamps, n.d.). At the end of each identified interval, the device signaled self-monitoring questions, and prompts (in the form of a question) appeared that allowed the participant to assess the need to recruit reinforcement. When prompts appeared, the student touched the mobile device screen to select his choice of Yes or No in response to each question. Once the answer choice was selected or if there was no response in 6 s, the next interval began.

In the current study, Bryce met the criteria for receiving Tier III, function-based self-management intervention. The self-monitoring mobile device was set to prompt Bryce to self-record his school rule compliance at 3-min intervals and gave him a prompt to recruit teacher attention, if needed, at 10-min intervals. Every 3 min, the device chimed and the question, "following the rules?" would appear with a binary yes/no option. In addition, every 10 s the device would

chime and the question, “need help?” would appear with a binary yes/no option. Appendix G shows a picture of the I-Connect screen with prompts for school rule compliance.

Experimenter, Data Collectors, CICO Implementer, and CICO Facilitators

The primary experimenter, trainer, and primary data collector was a doctoral candidate in special education with 7 years of experience as a special education teacher of students with mild to moderate disabilities in urban elementary and middle school settings. The experimenter is certified in cross-categorical (K-12), curriculum and instruction, and elementary education (K-6).

Secondary data collectors were a professor in special education and an undergraduate student in psychology. The school’s assistant principal served as the CICO implementer and was trained by the experimenter. The CICO implementer provided training to CICO facilitators, teachers, targeted students, and parents in the steps of CICO implementation and monitored their responsibilities in the process. The school’s special education teacher and lead reading teacher were recommended by school administrators and approved by the targeted students, to serve as CICO facilitators. The special education teacher was an African American female teacher, who served as the CICO facilitator for Anderson and Bryce. The lead reading teacher was a Caucasian female teacher, who served as the CICO facilitator for Cayenne. School administrators’ recommendations ensured that the CICO facilitators would have a good rapport with targeted students, and have a regular presence in the school.

Dependent Variables and Data Collection

The primary dependent variable was the targeted students' disruptive behavior and the secondary dependent variable was the targeted students' academic engagement. Teachers' SSIS ratings were used as pre- and post-intervention data. Teachers' ratings of the targeted students' risk status for special education or disciplinary referrals, and the targeted students' school discipline data were also recorded as pre- and post-intervention data.

Disruptive behavior. Disruptive behaviors were defined as behaviors that impeded a student's learning or interrupted the teacher's instruction. Disruptive behavior was counted when the student displayed behaviors that disrupted instruction, or the learning of his peers (e.g., talking out, talking to peers, noncompliance, negative verbal or physical interaction with peers or teacher, out of location, inappropriate use of materials). When defining disruptive behavior, *verve*, the characteristic of learning for African American males that involves being energetic, having expressive body movements, and attending to several things at once (Boykin, 1983), was considered; activities such as quiet tapping, self-talk in a whisper voice, standing at desk while working, sitting with knees in chair were not considered disruptive behavior as long as they did not distract other students or the teacher's ongoing instruction.

Academic engagement. Academic engagement was defined as a student: (a) orienting toward the classroom presenter (e.g., teacher, teacher assistant, guest speaker, student presenter) or demonstration materials (e.g., white board, computer, map); or (b) actively using instructional materials to complete assigned

work (e.g., reading book, using computer, writing with pencil and paper) or responding to the presenter's question or comment. During the Tier III phase, a student's participation in the self-monitoring by using the mobile device appropriately was considered academically engaged.

Disruptive behavior and academic engagement was recorded for targeted students and comparison peers during all phases of the study simultaneously, observing one student at a time. The observers alternated observance of the target student and his comparison peer until each student was observed for 90 intervals (i.e., 15 min per student for a total of 30 min for each observational session). The experimenter conducted in vivo observation training with data collectors prior to prebaseline measures with interobserver agreement of 96%. Disruptive behavior and academic engagement data were collected daily for each targeted student and his comparison peer. A handheld recorder with voice recorded intervals, headphones, splitter, and a researcher-developed observation data recording form was used to record students' behavioral data. The observation data recording form included sections for (a) student name, (b) date of observation, (c) indications of disruptive behavior (+/-) and academic engagement (○) for 90 intervals, (d) name of observer, (e) time of observation, and (f) location/subject/teacher (see Appendix D). Using a 10-s partial interval recording method, observers recorded an occurrence of disruptive behavior (-) when a student demonstrated disruptive behavior any time during the 10-s interval. Using a 10-s whole interval recording method, observers recorded an occurrence of academic engagement (○) if the student demonstrated academic engagement behaviors as defined above for the

entire duration of the 10-s interval. The percentage of intervals of disruptive behavior and academic engagement was calculated by dividing the number of intervals in which the targeted behavior (i.e., disruptive behavior or academic engagement) occurred by the total number of intervals observed (i.e., 90) and multiplying by 100.

SSIS rating. The classroom teacher of each targeted student completed the SSIS-Teacher Form rating the student's social skills, problem behavior, and academic performance, as described under the section of Participant Selection. In addition to the initial teacher SSIS ratings used to verify teacher nominations of students, the SSIS was completed at the conclusion of the study. Teacher SSIS ratings were analyzed to determine the effects of the intervention(s) on the social skills, problem behavior, and academic competence of students as a pretest-and-posttest, distal measure.

Teachers' at-risk status rating of target students. Teacher of each targeted student completed a four-item questionnaire, using a 3-point Likert scale (i.e., 1 = not at all likely, 2 = likely, 3 = very likely), rating the extent to which she would refer the student for special education services (due to low academic performance or due to problem behaviors), for assistance with behavior (e.g., student assistance team), and for office disciplinary referrals (see Appendix H). This measure was collected as pre-intervention and post-intervention assessments to examine the extent to which the intervention(s) may have affected teachers' rating of targeted students' "at-risk" status and teachers' perceptions on the need to refer the students for educational services or behavioral assistance.

School discipline data. The number of office discipline referrals was collected on each targeted student using a frequency count generated by the school's computerized data management system. The discipline data were analyzed pre- and post-intervention to examine the extent to which the intervention(s) may have affected students' receiving office discipline referrals.

Interobserver Agreement

An undergraduate student collected interobserver agreement (IOA) by independently recording students' disruptive behavior and academic engagement for at least 19% of direct observation sessions across experimental conditions, using the same recording method as described previously (i.e., partial interval recording for disruptive behavior and whole interval recording for academic engagement). During sessions of IOA data collection, both observers used the handheld recorder with voice recorded interval prompts (i.e., "observe" and "record") with a splitter and headphones to ensure observers began and ended observations on the same interval. IOA was calculated using an interval-by-interval analysis for disruptive behaviors and academic engagement by dividing the number of agreed responses by total number of agreed plus disagreed responses, then multiplying by 100.

Research Design

A multiple baseline across participants design (Cooper et al., 2007) was used to determine the extent to which a functional relation exists between CICO and the disruptive behavior and academic engagement. There were three experimental conditions, including baseline, CICO, and CICO plus I-Connect.

Data on disruptive behavior was used for decision making regarding condition change and selection of students to enter the intervention phase. Bryce entered CICO intervention first as he displayed the highest and most stable levels of disruptive behavior during baseline. Baseline data collection continued for the remaining two targeted students. Once Bryce showed a decreasing trend in the data patterns for disruptive behavior, Anderson began the CICO intervention due to having higher and more stable disruptive behavior in baseline when compared to Cayenne. Cayenne then entered into intervention following the same criteria. Mastery was established as a mean decrease in disruptive behavior for more than 20% from baseline to CICO implementation after at least 10 CICO sessions. Students not meeting mastery criteria were considered Tier II nonresponders and received CICO plus I-Connect intervention.

During the CICO plus I-Connect condition, a reversal design (Kazdin, 1982) was used to determine the additive effects of function-based self-management via I-Connect on the disruptive behavior and academic engagement, and the extent to which function-based self-management was effective for Tier II nonresponders. Specifically, once a student received the CICO plus I-Connect intervention for at least five sessions with data showing improvement in the dependent variables, the function-based self-management via I-Connect was withdrawn to return to the CICO only phase for at least five sessions. After two sessions of the reinstatement of CICO plus I-Connect phase, school administrators made the decision to transfer Bryce to another classroom. Due to consideration of multiple confounding variables (e.g., different homeroom teacher, different

classroom), CICO plus I-Connect intervention ended and a return to CICO for Bryce was not possible.

Procedures

Baseline (SWPBIS Tier I). During baseline, students participated in the school's Tier I SWPBIS behavioral interventions, consisting of schoolwide behavior values and a schoolwide system for recognizing positive behavior. The school had three behavior values of *being respectful*, *being responsible*, and *being safe*. The school established a behavior matrix presenting the schoolwide values into three to five observable and measurable rules for each of the school settings (i.e., hallway, cafeteria, playground, bus, assemblies, restrooms, classrooms; see Appendix I). All students were taught the rules in an explicit manner, through modeling and practice with performance feedback, at the beginning and throughout the school year. Booster sessions were also provided mid-year during school assemblies. The schoolwide recognition system was implemented with individual (i.e., Buster Cards) and group (i.e., coins) incentives. Individual incentives were based on a leveled system implemented through Buster Cards. Students progressed through each level based on the number of times they were "caught" displaying the schoolwide values. Buster Cards were implemented throughout the year and started over each 9 weeks. Each Buster Card was one of three colors indicating three levels: white (starting point for all students at the beginning of each 9 weeks; students earn a sticker); purple (middle point; students earn a pencil); and gold (final level; students receive a lunch buddy pass and continue to have the gold status). Buster Cards were divided into a 3-by-4 matrix;

columns represented the three schoolwide core values (be respectful, be responsible, and be safe) and rows were opportunities for students to be recognized by a staff member for performing these values. Staff members recognized students by signing in one of the 12 blocks on the Buster Card. Students carried their Buster Cards in a clear plastic holder attached to their nametag. When all 12 blocks have been filled with adult signatures, students turned in their completed cards to the office on Friday and were issued another card for the next level. At the end of the 9-week period, students reaching gold level were recognized at the End of the Quarter Assembly. In addition, all students' pictures were posted on the "Paws of Fame" (located between the cafeteria and the office) by grade and color level (i.e., white, purple, and gold). As a student progressed through levels, his or her picture was moved to one of the three corresponding colors on the "Paws of Fame," indicating the student's accomplishment. Group (i.e., classroom) incentives were implemented by a token economy system. Adults distributed coins to the class upon group performance of the schoolwide values. Teachers and students in each classroom set up group goals for exchanging coins with preferred activities and/or items. CICO and CICO plus I-Connect were not implemented during baseline. Data were collected on the targeted students and comparison peers' disruptive behavior and academic engagement.

CICO only (SWPBIS Tier II). Prior to the CICO implementation, the experimenter trained the CICO implementer (i.e., assistant principal), who then trained the CICO facilitators, targeted students, and students' teachers. The

training for the CICO implementer lasted 45 min and consisted of: (a) definition of CICO and steps in the process; (b) the importance of relationships (e.g., CICO facilitator and student, teacher and student) and positive interactions; (c) how to conduct the steps on the CICO process for check-ins and check-outs; (d) components of and how to complete the daily behavior report card; (e) how to assess and reward points for daily behavior report card; (f) operational definition of the behavioral goals listed on the daily behavior report card; (g) how to use videos of student behaviors to conduct discrimination training for students; (h) data collection procedures and confidentiality; (i) how to conduct CICO trainings (i.e., facilitator, teacher, student, parent); and (j) how to assess trainee's learning. The training for CICO facilitators lasted 30 min and consisted of (a) definition of CICO, (b) the importance of establishing relationship between the student and CICO facilitator, (c) how to conduct the steps of the CICO process for check-ins and check-outs, (c) completing the daily behavior report card, (d) assessing and rewarding points for daily behavior report card, and (e) data collection procedures and confidentiality. Targeted students received a 30-min training session that consists of information on: (a) the steps in CICO; (b) the components of the daily behavior report card to include daily goals, scoring, and incentives (Appendix J); (c) an operational definition of the schoolwide expectations; (d) discrimination of expected schoolwide classroom behaviors using clips of baseline video or experimenter-developed scenarios; and (e) how to accept feedback on the daily behavior report card. The training for students' classroom teachers and the CICO implementer lasted for 30 min. The training was conducted to inform teachers of:

(a) the CICO intervention; (b) the components of the daily behavior report card to include daily goals, how to score student's behaviors, and student incentives; (c) an operational definition of the goals listed on the daily behavior report card; (d) the importance of positive interactions with students (e.g., recognizing students' efforts and reiterating schoolwide behavioral expectations); and (e) data collection procedures and confidentiality. Additionally, parents received a 20-min training on the CICO process, the components of the daily behavior report card, an operational definition of the schoolwide expectations, and how to review and sign the daily behavior report card. Training continued until all individuals could complete their respective portions of the CICO cycle with 100% accuracy.

CICO implementation consisted of a five-step process. First, targeted students participated in a 5-min check-in with the designated CICO facilitator at the beginning of the school day. The check-in included: (a) a brief greeting and praise for checking in (e.g., "How are you today?" "You look happy to be here this morning." "It's great to see you this morning." "You're here on time again, great!"); (b) collection of daily behavior report card from previous day signed by parent/guardian and praise for returning it signed; (c) delivery of daily behavior report card for the day; (d) reminders of behavioral expectations, ideas brainstormed from the previous check-out on ways to improve behaviors, the CICO process, and possible points and incentives; and (e) positive affirmations (e.g., "I can't wait to see how well you do today." "Do your best." "Looks like you have all of the materials you need to have a successful day."). When the student did not show up for check in, the CICO facilitator took the daily behavior

report card to the classroom and complete the check-in process. Second, the students took the daily behavior report card with them to the classroom, and the classroom teachers rated students' compliance with schoolwide behavioral expectations throughout the day, using scores of 2 (i.e., student demonstrated behaviors without teacher/staff prompting), 1 (i.e., student demonstrated behaviors with some teacher/staff prompting), or 0 (i.e., student did not demonstrate behaviors during the class session; see Appendix E). Third, the students participated in a check-out meeting. Check-outs occurred at the end of the school day and consist of a brief meeting between a targeted student and the CICO facilitator to: (a) involve the student in a positive discussion of his day to include what went well, and brainstorm ways to improve behaviors in supporting the student be more successful; (b) calculation of points earned and reward as appropriate (students meeting their daily behavior goal were able to spin the CICO spinner for a daily prize and points toward long-term reinforcers; Appendix J); (c) make a copy of the daily behavior report card; and (d) remind the student to obtain parent signature and return daily behavior report card the next day. Fourth, students took the daily behavior report card home and obtained their parents' signature. Fifth, the students returned the signed daily behavior report card to the facilitator the next school day for the next day's check-in meeting. During the CICO only condition, the SWPBIS Tier I intervention continued to be implemented.

CICO plus I-Connect (SWPBIS Tier III). Individuals not meeting mastery criterion of showing a mean decrease in disruptive behavior for more than 20%

from baseline to CICO implementation after at least 10 CICO sessions were considered CICO nonresponders and entered the CICO plus I-Connect condition. Prior to beginning the CICO plus I-Connect condition, the experimenter conduct a functional behavioral assessment to include (a) a teacher interview conducted with the teacher in the target class completing the FACTS (March et al., 2000), (b) a student interview conducted with the student using the Student-Directed Functional Assessment Interview form (O'Neil et al., 2015), and (c) behavioral observations with antecedent-behavior-consequence analysis using a researcher-created recording form (Appendix F) until a predictable behavior pattern was evident. The behavior function was used to individualize the self-monitoring and self-recruitment of reinforcement (e.g., requesting for attention, requesting for a break).

During the CICO plus I-Connect condition, CICO was continued as outlined above, in addition to the SWPBIS Tier I intervention. Prior to beginning the CICO plus I-Connect intervention, the targeted student (i.e., Bryce) received one 30-min training from the experimenter on the use of I-Connect to include how to (a) operate the mobile device, (b) discriminate between universal classroom rules compliance and violation behaviors, (c) monitor/record behaviors (to include practice recording behaviors using baseline videos), and (d) use and care for the equipment. In addition, Bryce was taught to appropriately self-recruit reinforcement (i.e., teacher attention) by raising his hand and waiting for the teacher to acknowledge him. Training consisted of demonstrations, guided practice, independent practice, and performance feedback. The training continued

until the student successfully demonstrated how to self-record, correctly discriminate and record examples and nonexamples of rule compliance, and identify and demonstrate when and how to appropriately self-recruit teacher attention with 90% accuracy. A 10-min training was conducted with teachers on the use of the I-Connect self-monitoring application to include (a) an overview of self-monitoring and the use of I-Connect, (b) how to access I-Connect and student data, and (c) student expectations for use and care of equipment. Further, Bryce's teacher was instructed to make efforts to respond immediately when Bryce was using appropriate behaviors (i.e., raising his hand) to self-recruit her attention and to refrain from providing attention when Bryce displayed disruptive behaviors (e.g., not acknowledging Bryce's answers when he called out).

Bryce used the I-Connect application to self-monitor an incompatible behavior (i.e., following the rules) every 3 min during the same 30-min targeted class sessions. The device was kept on the corner of Bryce's desk during class and gave a prompt (i.e., flashing screen, chime, and vibration) at 3-min intervals alerting him to respond to the question "following the rules?" An additional question relevant to the functionally equivalent replacement behavior appeared at 10-min intervals (e.g., "need help?"). Bryce responded to the binary yes/no option by touching the screen of the device to answer question(s) (i.e., answering one question every 3 min and answering one questions every 10 min). When no response was entered in 6 s, the response option disappeared and reappeared during the subsequent scheduled interval. When Bryce recruited reinforcement

using appropriate hand raising behaviors, his teacher went over to his desk and praised him for raising his hand and asked how she could assist him.

Procedural Fidelity

A second observer collected procedural fidelity data for 30% of baseline condition using an experimenter-created procedural fidelity form with items adapted from the *School-wide Evaluation Tool* (SET; Horner et al., 2012) to assess Tier I implementation in the school and classrooms (see Appendix K). Specifically, the procedural fidelity form for Tier I consisted of 15 steps, addressing the existence of (a) five or fewer positively stated schoolwide expectations, (b) clearly defined schoolwide expectations, (c) schoolwide expectations being posted and taught, (d) an ongoing system for rewarding demonstration of behavioral expectations and for responding to behavioral violations, and (e) a data tracking system for monitoring and decision making, as well as the absence of CICO and function-based self-management interventions.

To collect procedural fidelity during intervention sessions, the experimenter listened to recordings of the check-in and check-out meetings and recorded if the facilitator completed each of the procedural steps (Yes or No) identified on the experimenter-created CICO procedural fidelity form (see Appendix L). The procedural fidelity checklist for CICO consisted of 12 steps (seven steps for check-in and five steps for check-out). Procedural fidelity was collected for 51% of CICO implementation sessions. Fidelity measures were also collected on the use of I-Connect for 20% of I-Connect plus CICO sessions by observing the sessions and using an experimenter-created I-Connect procedural

fidelity form that assessed the proper use of the function-based self-monitoring application and appropriate device usage. The procedural fidelity checklist for I-Connect consisted of eight items. Items addressed included: (a) ensuring no other self-monitoring system was used (e.g., paper and pencil, electronic device); (b) obtrusiveness of intervention (e.g., placement, distracting to students/teacher); (c) accessibility (e.g., the device is turned on and the I-Connect application is active); (d) the appropriate setup of the prompts for the incompatible behavior and self-recruitment of reinforcement; and (e) self-monitoring (did the student use the device to actively self-monitor; see Appendix M). In addition, a second observer collected procedural fidelity data on all training sessions, including: (a) the CICO training with the CICO implementer; (b) CICO training with facilitators, students, teachers, and parents; and (c) the I-Connect training with students and teachers, using experimenter-developed forms (see Appendix N).

For all of the procedural fidelity data collection, the observer indicated steps completed on each form by marking an X in the "yes" column for performed steps and an X in the "no" column for steps not performed or performed incorrectly. Procedural fidelity data for baseline, CICO, CICO plus I-Connect, and training sessions were calculated by dividing the number of steps completed correctly by the total number of applicable steps and multiplying by 100.

Social Validity

The experimenter collected social validity data from the CICO implementer/trainer, classroom teachers, CICO facilitators, targeted students, and parents of the participants using social validity questionnaires consisting of items

on a 5-point Likert scale addressing their perceptions of the effectiveness, importance, and practicality of the Tier II (CICO) and Tier III (CICO plus I-Connect) interventions (see Appendix O). In addition, the teacher questionnaire addressed future use of the interventions and the student questionnaire addressed the degree to which they like the intervention(s). The CICO implementer/trainer questionnaire consisted of 10 items (i.e., 7 statements on a 5-point Likert scale with 1 being strongly disagree and 5 being strongly agree, and three open-ended questions). The teacher questionnaire consisted of 25 items (i.e., 22 statements on a 5-point Likert scale and three open-ended questions); the facilitator questionnaire consisted of 11 items (i.e., seven statements on a 5-point Likert scale and four open-ended questions); the parent questionnaire had 11 items (i.e., eight statements on a 5-point Likert scale and three open-ended questions); the student questionnaire for CICO had 11 items (i.e., eight statements on a 5-point Likert scale and three open-ended questions); and the student questionnaire for function-based self-monitoring with I-Connect and self-recruitment consisted of nine items (i.e., six statements on a 5-point Likert scale and three open-ended questions).

In addition to the social validity measure of opinions from teachers, facilitators, targeted students, and parents, the SSIS ratings (prebaseline and postintervention) and at-risk status ratings completed by teachers served as a measure of social validity. Data from SSIS allowed for comparison of teachers' ratings of the targeted students' social skills, problem behaviors, and academic competence as pretest and posttest comparison. Finally, data on disruptive

behavior and academic engagement of comparison peers was recorded for a social comparison of average grade level behavior in the same classroom.

Data Analysis

Visual analysis was used to determine if a causal relationship exists between the independent and dependent variables. Adhering to the What Works Clearinghouse guidelines set for evaluating single case research design studies, the experimenter evaluated the level, trend, variability, immediacy of effect, proportion of overlapping data, consistency of data across conditions and phases, observed and projected patterns of outcome variables, and external factors and anomalies (Kratochwill et al., 2010).

CHAPTER 4: RESULTS

This chapter addresses the findings of the study. Sections include results of: (a) interobserver agreement, (b) procedural fidelity, (c) disruptive behavior, (d) academic engagement, and (e) social validity measures (including consumer satisfaction questionnaires, SSIS, teachers' at-risk status ratings of target students, and school discipline referrals).

Interobserver Agreement

The experimenter was the primary data collector for the dependent variables (i.e., disruptive behavior and academic engagement), pretest and posttest measures of behavior (i.e., teachers' at-risk status rating of targeted students, school discipline data, and SSIS), and consumer satisfaction questionnaires of social validity measures (i.e., parent survey, participant survey, CICO implementer survey, teacher survey). An undergraduate student majoring in psychology was trained to collect interobserver agreement (IOA) data for the dependent variables (i.e., disruptive behavior and academic engagement). During sessions of IOA data collection, both observers used the handheld recorder with voice recorded interval prompts (i.e., "observe" and "record"), a splitter, and headphones to ensure observers began and ended observations on the same interval. IOA was calculated using an interval-by-interval analysis by dividing the number of agreed responses by total number of agreed plus disagreed responses,

then multiplying by 100. Overall, IOA data were collected for 23% of observation sessions across all participants and comparison peers and across the experimental conditions with a mean agreement of 93% and a range of 85% to 97%. IOA data were collected for 22% of baseline sessions with a mean agreement of 92% (range of 77% to 100%; mean agreement of 93% for disruptive behavior and 92% for academic engagement), 19% of CICO sessions with a mean agreement of 93% (range of 81% to 100%; mean agreement of 95% for disruptive behavior and 92% for academic engagement), and 29% of CICO plus I-Connect sessions with a mean agreement of 90% (range of 75% to 100%; mean agreement of 89% for disruptive behavior and 90% for academic engagement). Table 3 shows the mean and range of interobserver agreement results by targeted student.

Table 3: Mean and range interobserver agreement results by targeted student

Targeted Student	Baseline Phase	CICO Phase	CICO + I-C Phase
Bryce	87% (86%-88%)	88% (81%-100%)	90% (75%-100%)
DB	88% (N/A)	92% (83%-100%)	80% (75%-97%)
AE	86% (N/A)	85% (81%-91%)	90% (78%-100%)
Anderson	90% (87%-98%)	93% (81%-100%)	N/A
DB	92% (87%-98%)	93% (81%-100%)	N/A
AE	89% (87%-93%)	94% (88%-97%)	N/A
Cayenne	91% (85%-100%)	94% (88%-98%)	N/A
DB	92% (85%-100%)	97% (96%-98%)	N/A
AE	90% (86%-92%)	92% (88%-95%)	N/A

Note. DB = disruptive behavior; AE = academic engagement

Procedural Fidelity

Procedural fidelity data were collected by the experimenter and a second observer for 30% of the baseline conditions across participants to assess Tier I implementation in the school and classrooms. An experimenter-created 15-item procedural fidelity form adapted from the *School-wide Evaluation Tool* (SET; Horner et al., 2012) was used in direct observations to measure the existence of (a) five or fewer positively stated schoolwide expectations, (b) clearly defined schoolwide expectations, (c) posted and taught schoolwide expectations, (d) an ongoing system for rewarding demonstration of behavioral expectations and responding to behavioral violations, (e) a data tracking system for monitoring and

decision making, and (f) the absence of CICO and self-monitoring interventions (see Appendix K). The observers recorded an X in the "yes" column if the item existed and an X in the "no" column if the item was not observed. An item-by-item analysis was conducted to calculate the percentage of fidelity by dividing the number of "yes" responses by the number of "yes" plus "no" responses (i.e., 15), and multiplying by 100. Procedural fidelity for baseline implementation was calculated at 100%.

Procedural fidelity during CICO intervention sessions was collected by the experimenter for 51% of CICO sessions across participants. The experimenter listened to recordings of the check-in and check-out meetings and used the experimenter-created CICO procedural fidelity form (see Appendix L) to record if the facilitator completed each of the procedural steps (Yes or No) identified. The observer recorded an X in the "yes" column if the item was addressed and an X in the "no" column if the item was not addressed. An item-by-item analysis was conducted to calculate the percentage of fidelity by dividing the number of "yes" responses by the number of "yes" plus "no" responses (i.e., 13), and multiplying by 100. Procedural fidelity for CICO intervention implementation was calculated at 100%.

The experimenter also collected procedural fidelity data for the CICO plus I-Connect phase for 20% of sessions. The experimenter conducted direct observations and completed the experimenter-created eight-item procedural fidelity form (see Appendix M). The experimenter recorded an X in the "yes" column if the item was addressed and an X in the "no" column if the item was not

addressed. An item-by-item analysis was conducted to calculate the percentage of fidelity by dividing the number of "yes" responses by the number of "yes" plus "no" responses (i.e., 8), and multiplying by 100. Procedural fidelity for CICO plus I-Connect intervention implementation was calculated at 92% (range 88%-100%). Table 4 shows the mean and range of procedural fidelity results by targeted student.

Table 4: Mean and range of procedural fidelity results by targeted student

Targeted Student	Baseline Phase	CICO Phase	CICO + I-C Phase
Bryce	100% (N/A)	100% (N/A)	92% (88%-100%)
Anderson	100% (N/A)	100% (N/A)	N/A
Cayenne	100% (N/A)	100% (N/A)	N/A

In addition to the data collection for implementation fidelity for all experimental conditions, procedural fidelity data were also collected for 60% of training sessions. Training sessions were either observed in vivo (i.e., implementer and teacher CICO training) or recorded and played back (i.e., student CICO and I-Connect training, parent CICO training, and teacher I-Connect training) for procedural fidelity data collection purposes. Using a procedural fidelity checklist form (see Appendix N), the observers recorded an X in the "yes" column if the item was addressed and an X in the "no" column if the item was not addressed. An item-by-item analysis was conducted to calculate the percentage of

fidelity by dividing the number of "yes" responses by the number of "yes" plus "no" responses, and multiplying by 100. A special education faculty conducted procedural fidelity for CICO implementer training, I-Connect teacher training, and I-Connect student training, with procedural fidelity being calculated at 100%, 100%, and 100%, respectively. The experimenter collected procedural fidelity data for 33% of CICO facilitator training, CICO student and parent trainings, and CICO teacher training sessions; procedural fidelity was calculated at 100%.

Disruptive Behavior

Figure 2 displays the results of disruptive behavior for the targeted students and comparison peers. An analysis of results of the multiple baseline across participants design conducted to exam the effects of CICO on the disruptive behavior of participants reveals a functional relation between CICO and participants' displays of disruptive behavior. Upon visual analysis of graphs, a decrease in the level and trend of disruptive behavior is evident for all participants after implementation of CICO. In addition, there were slight positive effects of CICO plus I-Connect (Tier III) with Bryce, who was nonresponsive to CICO.

Bryce. Bryce exhibited moderate level of disruptive behavior (M = 42%) with some variability (range 30% - 50%) and an overall increasing trend during baseline. Upon implementation of CICO, there was a reduction in disruptive behavior (M = 24%) with an overall decreasing trend across the first 19 CICO data points, an increase in variability (range 7%-45%), and a return to the baseline level during the last three CICO sessions. Bryce's percentages of disruptive

behaviors were reduced to the range of the comparison peer for 72% of observed CICO sessions, compared to 0% during baseline. Bryce's change in mean percentage of disruptive behavior (18%) indicated that he did not meet the experimenter-determined mastery criteria for a successful CICO responder (i.e., ≥20% mean change from baseline to CICO implementation; Table 5). As a result, Bryce was considered a nonresponder to CICO. A functional behavioral assessment was conducted and CICO plus I-Connect was introduced as the Tier III intervention. The functional behavioral assessment (i.e., teacher interview, student interview, and antecedent-behavior-consequence recording) identified teacher attention as the function of Bryce's disruptive behavior. As a result, Bryce's I-Connect training included information on how to appropriately self-monitor and recruit teacher attention. The I-Connect application gave prompts of "following the rules?" at 3-min intervals and "need help?" (as a way to recruit teacher attention) every 10 min. During the first phase of CICO plus I-Connect, Bryce's percentages of disruptive behavior slightly decreased to the range of his comparison peer with an overall decreasing trend (M = 25%, range 18%-35%). Upon a return to CICO alone phase, Bryce's percentages of disruptive behavior showed an overall increasing trend (M = 31%, range 22%-37%) with all of the five data points above the comparison peer's range. During the reinstatement of the CICO plus I-Connect, Bryce's percentages of disruptive behavior began to show a decreasing trend (M = 16%, range 13%-18%). Unfortunately, an administrative decision to move Bryce to another classroom was made presenting many confounding variables (e.g., teacher/peer relationships, classroom

expectations, classroom procedures). Consequently, the implementation of CICO plus I-Connect ended and a return to CICO was not conducted.

Anderson. During baseline, Anderson exhibited moderate mean level of disruptive behavior (M = 39%), with an overall increasing trend and extremely high variability (range 7%-85%). With the exception of one baseline data point, Anderson consistently exhibited a higher percentage of disruptive behavior when compared to that of the comparison peer during a given session. When CICO was introduced, there was a consistent reduction in the occurrence (M = 17%) and variability (range 7%-38%) of Anderson's disruptive behavior. Anderson's percentages of disruptive behavior were reduced to the comparison peer's range for 100% of CICO observation sessions, compared to 33% during baseline. Anderson displayed a mean change of disruptive behavior of 22% (see Table 5), exceeding mastery criterion and therefore did not receive Tier III (CICO plus I-Connect) intervention. Overall, Anderson's disruptive behavior data pattern during CICO implementation mirrors well with the pattern of his comparison peer, supporting the effectiveness of CICO for Anderson.

Cayenne. Cayenne displayed moderate (M = 38%) and highly variable (range 12%-73%) level of disruptive behavior during baseline. Cayenne consistently exhibited a higher percentage of disruptive behavior when compared to that of the comparison peer across the baseline condition. Upon introduction of CICO, there was a clear reduction in the occurrence (M = 14%) and variability (range 7%-25%) of disruptive behavior. Cayenne's percentages of disruptive behavior decreased to the range of his comparison peer for 60% of CICO

observation sessions, compared to 5% during baseline. It should be noted that Cayenne's comparison peer displayed low and stable levels of disruptive behavior, making his range of disruptive behavior smaller and a little more challenging for Cayenne to obtain. Cayenne displayed a mean change of disruptive behavior of 24% (see Table 5), exceeding mastery criterion and therefore did not receive Tier III (CICO plus I-Connect) intervention.

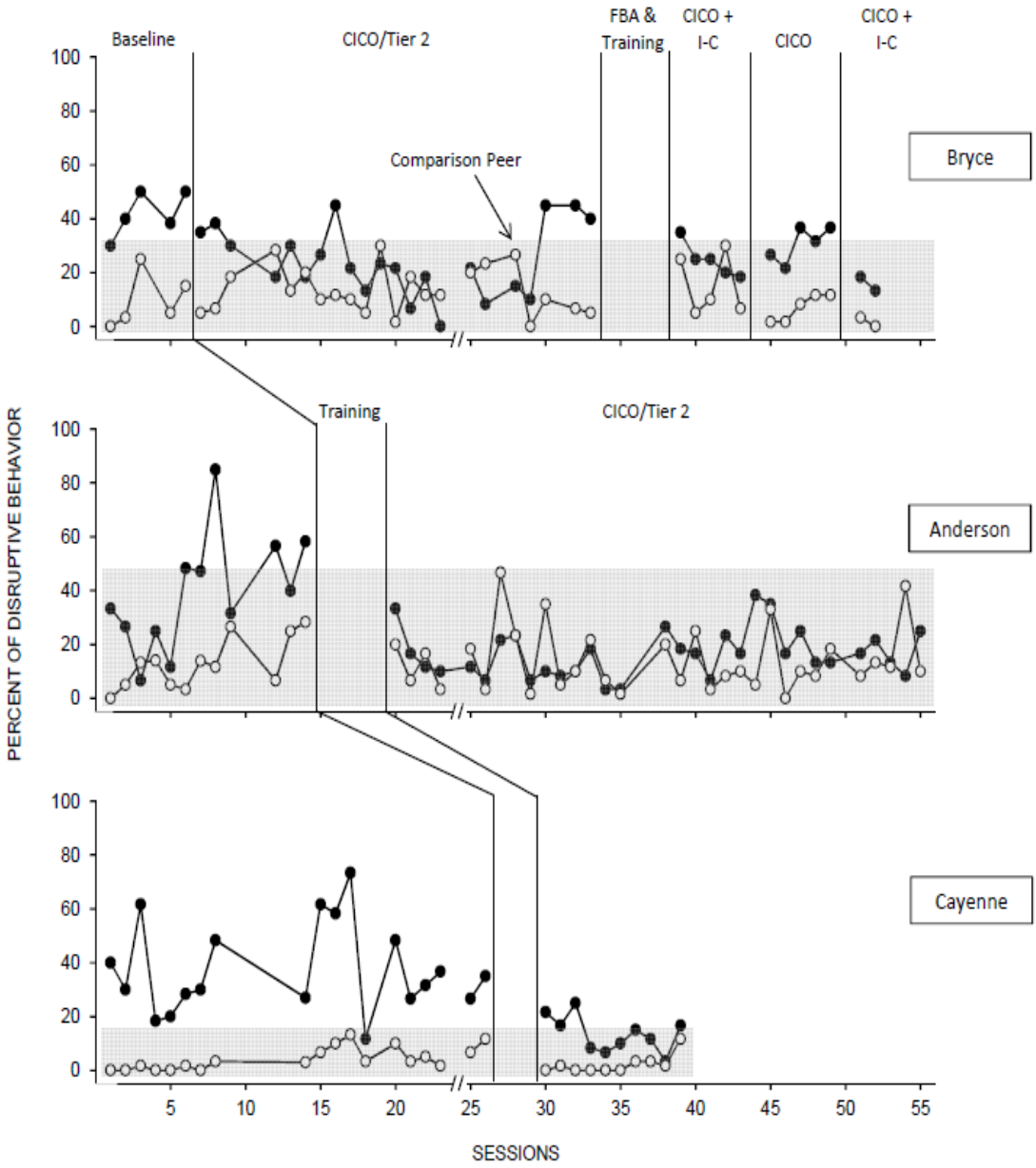

Figure 2. Percentage of disruptive behavior for targeted students and comparison peers across experimental conditions. *Note*. The solid data points represent the target students' disruptive behavior data. The open data points represent the comparison peers' disruptive behavior data. The grey areas represent the disruptive behavior range (across conditions) of the comparison peer. The symbol "//" represents winter break.

Academic Engagement

Figure 3 displays the results of academic engagement for the targeted students and comparison peers. An analysis of results of the multiple baseline across participants design conducted to exam the effects of CICO on the academic engagement of participants reveals a functional relation between CICO and participants' academic engagement. Upon visual analysis of graphs, an increase in the level and trend of academic engagement is evident for all participants after implementation of CICO. The additive effects of function-based self-management intervention was inconclusive for Bryce.

Bryce. During baseline, Bryce's academic engagement showed low to moderate range with high variability (M = 46%; range 25%-67%) and a decreasing trend. With the exception of one data point, Bryce's percentages of academic engagement during baseline were consistently below the baseline range of his comparison peer. Although highly variable (range 33%-98%), there was a clear increasing trend in the percentages of academic engagement across the initial 15 CICO sessions. Bryce's level of academic engagement increased to the range of his comparison peers for 81% of initial CICO observation sessions, compared to 40% during baseline. Bryce displayed a mean change of academic engagement of 26% (see Table 5). However, during the last four CICO sessions, Bryce's academic engagement data showed a decreasing trend from highly academically engaged to moderately academically engaged. During the first phase of CICO plus I-Connect, Bryce's percentage of academic engagement remained

highly variable (range 40%-83%) and his mean percentage of academic engagement was slightly lower (M= 67%) than that observed during the CICO phase. Upon a return to the CICO alone phase, Bryce's percentages of academic engagement increased slightly (M = 72%) with a relatively stable pattern (range 60%-88%) when compared to that during the CICO plus I-Connect phase. During the reinstatement of the CICO plus I-Connect, Bryce's percentages of academic engagement began to show an increasing trend and decreased variability (M = 85%, range 82%-88%) across two sessions. Unfortunately, an administrative decision to move Bryce to another classroom was made presenting many possible confounding variables (e.g., teacher/peer relationships, classroom expectations, classroom procedures). Consequently, the implementation of CICO plus I-Connect ended and a return to CICO was not conducted.

Anderson. During baseline, Anderson's mean level of academic engagement was low (M = 44%), highly variable (range 10%-77%), and consistently below the level of academic engagement for his comparison peer. During the CICO implementation, there was a clear change in level (M = 79%) and decrease in variability (range 38%-98%) of academic engagement for Anderson. Anderson's academic engagement increased to the range of his comparison peer for 100% of CICO observation sessions, compared to 50% during baseline. Anderson displayed a mean change of academic engagement of 35% (see Table 5).

Cayenne. Cayenne's academic engagement was moderate (M = 46%) and highly variable (range 5%-80%) during baseline. Cayenne consistently exhibited

lower percentages of academic engagement than those of his comparison peer during baseline. Upon CICO implementation, there was a slight change in level (M = 60) and a clear reduction in variability (range 45%-73%); however, Cayenne continued to consistently exhibit lower level of academic engagement than that of his comparison peer during CICO implementation. Cayenne displayed a mean increase of academic engagement of 14% (see Table 5). Cayenne's academic engagement increased to the range of his comparison peer for 40% of CICO observation sessions, compared to 5% during baseline. It should be noted that Cayenne's peer comparison displayed high and stable level of academic engagement, making his range of academic engagement smaller and a little more challenging to obtain.

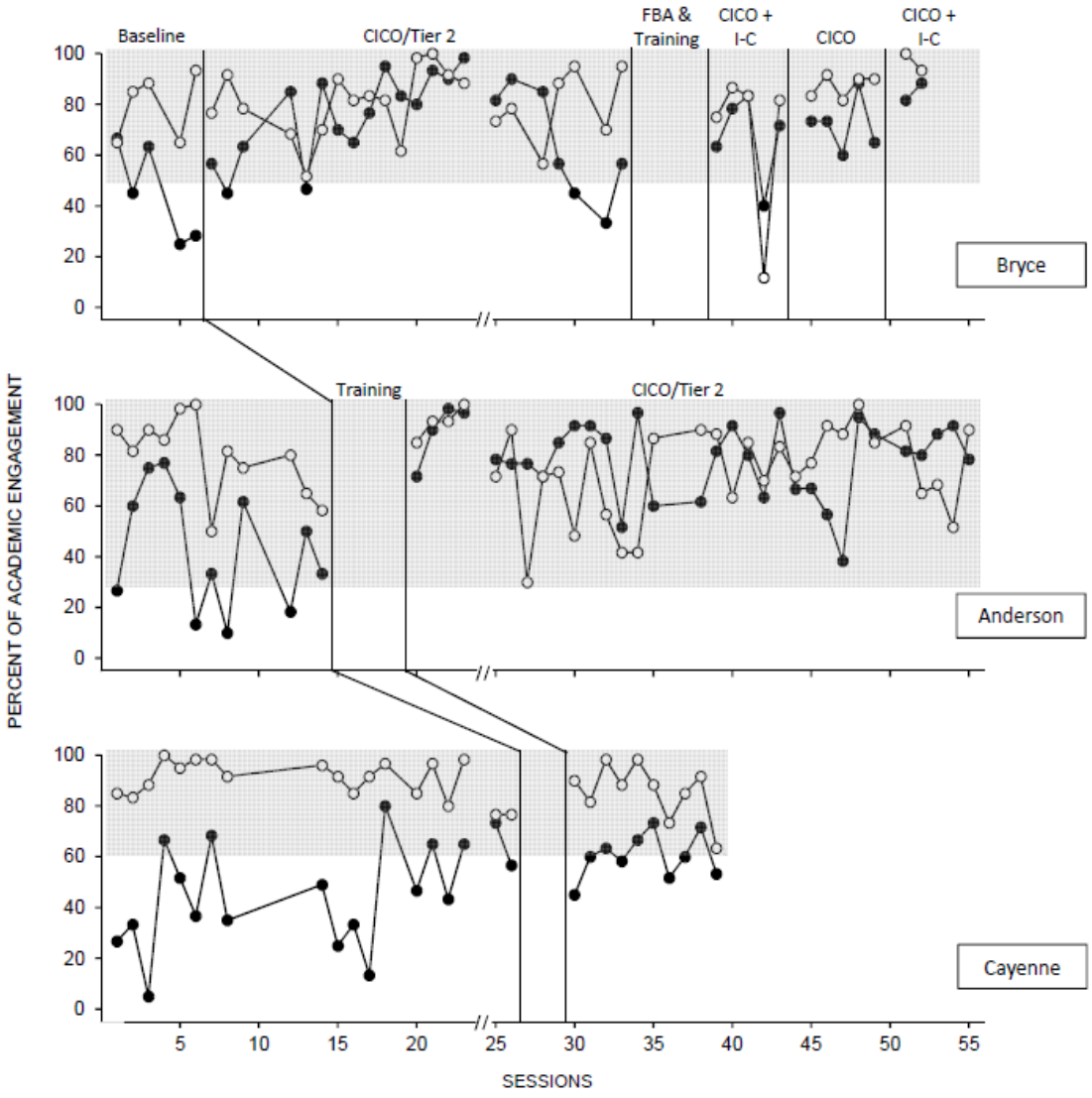

Figure 3. Percentage of academic engagement for targeted students and comparison peers across experimental conditions. *Note*. The solid data points represent the target students' academic engagement data. The open data points represent the comparison peers' academic engagement data. The grey areas represent the academic engagement range of the comparison peers. The symbol "//" represents winter break.

Table 5: Mean and range of percentages of disruptive behavior and academic engagement, and mean percentage change from baseline to CICO

	Disruptive Behavior			Academic Engagement		
	Baseline	CICO	Mean	Baseline	CICO	Mean
Student	*M* (Range)	*M* (Range)	Change	*M* (Range)	*M* (Range)	Change
Bryce	42% (30%-50%)	24% (0%-45%)	18%	46% (25%-67%)	72% (33%-98%)	26%
Comparison Peer	10% (0%-25%)	13% (0%-30%)	–	79% (65%-93%)	80% (52%-100%)	–
Anderson	39% (7%-85%)	17% (3%-38%)	22%	44% (10%-77%)	79% (38%-98%)	35%
Comparison Peer	13% (0%-28%)	14% (2%-47%)	–	80% (50%-100%)	76% (30%-100%)	–
Cayenne	38% (12%-73%)	14% (3%-25%)	24%	46% (5%-80%)	60% (45%-73%)	14%
Comparison Peer	4% (0%-13%)	2% (0%-12%)	–	90% (77%-100%)	86% (63%-98%)	–

Social Validity

Consumer satisfaction questionnaires. The experimenter collected consumer satisfaction data from the CICO implementer/trainer, classroom teachers, CICO facilitators, targeted students, and parents of students using social validity questionnaires (see Appendix O) at the end of the study. The implementer and facilitators (mentors) strongly agreed that the CICO training received was

sufficient in teaching them how to implement the CICO intervention. The implementer and one facilitator strongly agreed and the other facilitator agreed that the time required implementing the intervention was reasonable. In addition, one facilitator strongly agreed and the implementer and other facilitator agreed that the intervention provided a good way to involve parents in the child's education and behavior support plan, CICO improved their relationship with participants, and that they would use the CICO intervention with other students. One facilitator and the implementer agreed that CICO helped to improve the social behaviors of participants; while the other facilitator indicated she was neutral in her opinion of the effects of CICO on the participants' social behaviors. One facilitator agreed that CICO helped to improve the academic behavior of participants while the other facilitator and the implementer remained neutral. Facilitators suggested that they enjoyed the consistency of the CICO process, that students wanted to do well for adults, and that CICO gave students an opportunity to receive recognition from an adult for doing well. The facilitators indicated planning for absences and the need for individualizing daily goals as two items that presented challenges. In addition, the CICO implementer (i.e., the assistant principal) indicated that students were excited about participating in CICO, her teachers felt supported, and the use of a daily behavior report card made data collection easy. She stated that the logistics of scheduling (e.g., check-ins, check-outs, trainings) presented a challenge and that the use of a PowerPoint to train parents seemed a little too formal.

Two classroom teachers completed the teacher questionnaire; both agreed that CICO focused on important behaviors, was easily incorporated into their classroom routine, was reasonable in the time required to implement, that implementation of CICO helped to improve participants' social behaviors, and that they would continue CICO with the current participant (if needed) and try it with other students in need of Tier II support. The two teachers disagreed on whether CICO helped to improve participants' academic behaviors (i.e., one disagreed and the other strongly disagreed) and on whether CICO improved work completion (i.e., one agreed and the other disagreed). Both teachers agreed that CICO did not improve participant's work accuracy.

Three participants received CICO intervention, but only Bryce and Anderson completed the student questionnaire. Cayenne and his family moved to another state during the CICO phase without advance notice, and therefore Cayenne did not complete the student questionnaire. Both Bryce and Anderson agreed that (a) CICO helped to improve a behavior that they needed to work on; (b) they do a better job at school because their behaviors have improved; and (c) that they liked meeting with the facilitator, the feedback received on the daily behavior report card, and the incentives they received when meeting their daily behavior goals. Bryce indicated that he did not like having his parents check his daily behavior report card. Anderson was neutral on deciding if CICO helped to work on his behaviors and strongly disagreed that he should continue with CICO. Bryce also received CICO plus I-Connect intervention and strongly agreed that he liked using the device to monitor his behaviors and that the device was easy to

learn and use. In addition, Bryce indicated that he strongly agreed that tracking his behaviors helped to improve his behavior, helped him complete his work correctly, and learn better. When asked what part of self-management he liked best, Bryce indicated that he liked that he got to use the I-Connect application.

The parent questionnaire was completed by both Bryce's mother and Anderson's grandmother who strongly agreed or agreed that receiving daily feedback from the teacher was helpful, the intervention focused on important behaviors, meeting with the facilitator had a positive impact on participants' day, and the CICO helped to improve Bryce's academic and social behaviors and should be continued. Bryce's mother indicated that she thought the most helpful part of the intervention was that it helped Bryce be responsible for his behaviors. Anderson's grandmother indicated that the most helpful part of the intervention was helping Anderson know he was a good child. Cayenne's family moved abruptly, therefore his mother did not complete the social validity questionnaire.

SSIS ratings. The classroom teacher of each targeted student completed the SSIS-Teacher form to rate the student's social skills, problem behaviors, and academic competence as a pretest and posttest. Pretest SSIS standard scores from each of the scales (i.e., social skills, problem behaviors, and academic competence) are compared to the posttest SSIS scores to identify a change in standard scores as indicated in Table 6. Analysis of pretest and posttest scores for Bryce indicate improvements in standard scores in social skills (change score = +9), problem behaviors (change score = -28), and academic competence (change score = +8). Bryce's scores improved from the "below average" level to the

"average" level in three social skills subdomains of communication, empathy, and engagement, with all other social skills subdomain scores remaining at pretest behavior levels. Bryce remained above average in all problem behavior subdomains (e.g., externalizing, bullying, hyperactivity/inattention, internalizing). Anderson's SSIS standard scores indicate improvements in social skills (change score = 26), problem behaviors (change score = -11), and academic competence (change score = 6). Anderson's scores improved from the "below average" level to the "average" level in the three social skills subdomains of cooperation, engagement, and self-control, with all other social skills subdomain scores remaining at pretest behavior levels. Anderson's problem behavior bullying subdomain also improved from a level of above average in pretest to a posttest level of average, whereas all other problem behavior subdomain scores remained at the above average behavior level. Cayenne's SSIS standard scores did not indicate improvements in any of the three domains (social skills change score = -3, problem behaviors change score = +11, and academic competence change score = -8). Cayenne's communication and self-control social skills subdomains decreased from an average behavior level in pretest to a below average level in posttest, and his assertion subdomain changed from a pretest level of below average to an average level according to posttest measure. All other social skills and problem behavior subdomain scores remained at the pretest behavior level. Overall, a comparison of pretest and posttest SSIS scores showed that two of three targeted students improved in their standard scores in all three subdomains (i.e., social skills, problem behaviors, and academic competence).

Table 6: SSIS pretest and posttest results

SSIS Scale	Bryce	Anderson	Cayenne
Social Skills			
Standard Score Pretest	70 (<2 SD)	71 (<1 SD)	75 (<1 SD)
Standard Score Posttest	81 (<1 SD)	97	72 (<1SD)
Change in Standard Score	+ 9	+ 26	- 3
Problem Behaviors			
Standard Score Pretest	128 (>1 SD)	139 (>2 SD)	132 (>2 SD)
Standard Score Posttest	100	128 (>1 SD)	121 (>1 SD)
Change in Standard Score	- 28	- 11	+ 11
Academic Competence			
Standard Score Pretest	81 (<1 SD)	89	79 (<1 SD)
Standard Score Posttest	89	95	71 (<1 SD)
Change in Standard Score	+ 8	+ 6	- 8

Teachers' at-risk status ratings. Teachers' at-risk status ratings of targeted students were used as a pretest and posttest measure to determine teachers' perceptions regarding the likelihood for referring them for special education services due to low academic performance, for special education services due to problem behavior, for assistance with behavior, and for office discipline referral

before and after the implementation of the intervention(s). A comparison of Bryce's teacher's pretest and posttest data indicated that Bryce's teacher's perception of his need to be referred for special education services due to low academic performance remained constant; indicating that she is "not at all likely" ("1") to refer him for special education services due to low academic performance in both pretest and posttest ratings. Bryce's teachers pretest and posttest scores indicate that prior to intervention she was "likely" ("2") to refer him for special education services due to problem behaviors and after intervention she is "very likely" (3) to refer him for special education services due to problem behaviors. Scores also reveal that she remained "very likely" ("3") to refer Bryce for assistance with behavior in both pretest and posttest ratings. Bryce's teacher was "likely" ("2") to refer him for office discipline referrals prior to implementation of the intervention and is "very likely" ("3") to refer him after intervention. . Anderson's teacher remained "not at all likely" (i.e., "1") to refer him to special education services due to low academic achievement in both pretest and posttest ratings. Anderson's teacher's pretest and posttest data reveal that prior to CICO intervention she was "likely" ("2") to refer him for special education services due to problem behaviors and after intervention she is "not at all likely" ("1") to refer him for special education services due to problem behaviors. Anderson's teacher was "very likely" to refer him for assistance with behavior prior to the CICO intervention and "likely" ("2") to refer him for assistance with behavior after the intervention. Anderson's teacher remained "likely" to refer him for office disciplinary referrals in both pretest and posttest ratings.. Cayenne's teacher's

pretest and posttest data reveal that she remains “not at all likely” (“1”) to refer him for special education services due to problem behaviors, refer him for assistance with behavior, and refer him for office disciplinary referrals in both pretest and posttest ratings. Cayenne’s teacher was “likely” (“2”) to refer him for special education services due to low academic performance prior to the intervention and is “not at all likely” (“1”) to refer him after intervention. Table 7 shows the teachers’ ratings of the targeted students’ at-risk status for special education referral, behavioral assistance, and discipline referral. Overall, the teachers’ at-risk status ratings for two of the three targeted students indicated a reduction in teachers’ perceptions of the participant being at risk.

Table 7: Pretest and posttest results of the teachers' at-risk status ratings of targeted students

	Bryce		Anderson		Cayenne	
Rating Item	Pre	Post	Pre	Post	Pre	Post
How likely are you to refer the student for special education services due to low academic performance?	1	1	1	1	2	1
How likely are you to refer the student for special education services due to problem behaviors?	2	3	2	1	1	1
How likely are you to refer the student for assistance with behavior (e.g., behavior support plans)?	3	3	3	2	1	1
How likely are you to refer the student for office disciplinary referrals?	2	3	2	2	1	1

Note. 1 = Not at all likely; 2 = Likely; 3 = Very likely

School discipline referral data. The number of office discipline referrals was collected on each targeted student using a frequency count generated by the school's computerized data management system. Results indicate a reduction in the occurrence of office discipline referrals for one participant (Cayenne). Bryce

received two office discipline referrals prior to CICO implementation and two during CICO implementation. Anderson received one office discipline referral prior to CICO implementation and two during CICO implementation. Figure 4 shows the number of office discipline referrals per month before intervention and after intervention during the academic year for each targeted student.

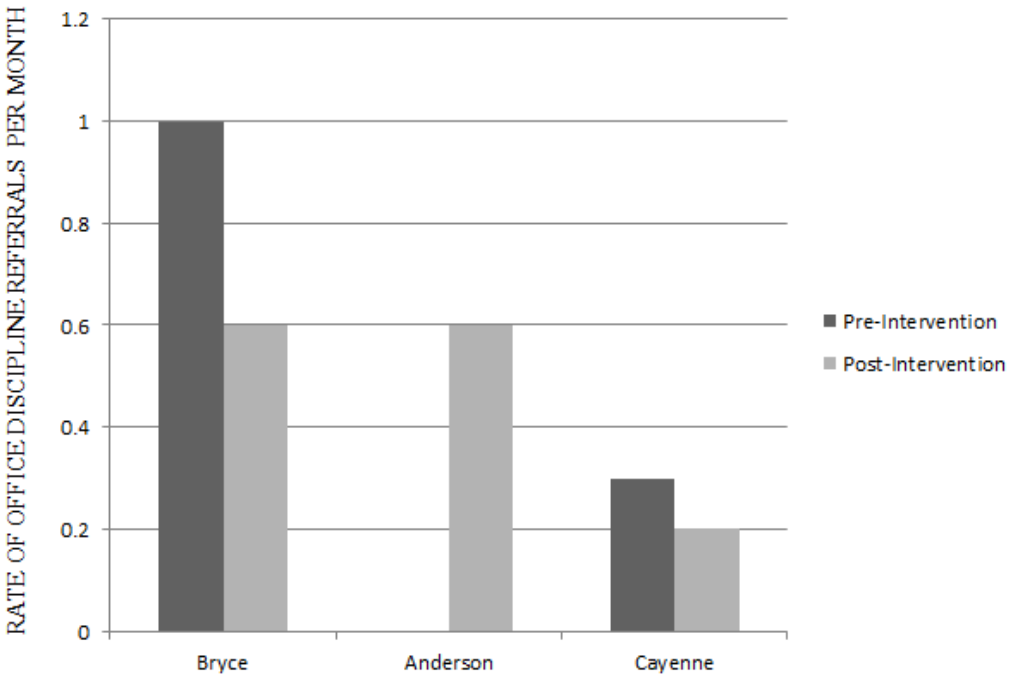

Figure 4. Number of office discipline referrals per month pre- and post-intervention for each targeted student.

CHAPTER 5: DISCUSSION

The purpose of this study was to investigate the effects of both Tier II and Tier III interventions delivered within a multi-tiered framework, SWPBIS, with selected African American male students. More specifically, the present study evaluated the effects of CICO as a Tier II intervention and function-based self-management (i.e., self-monitoring with self-recruitment of reinforcement) via I-Connect (Wills & Kamps, n.d.), a self-monitoring mobile application, as a Tier III intervention on the disruptive behaviors and academic engagement of three African American male elementary students at risk for emotional and behavioral disorders. A multiple baseline across participants design (Cooper et al., 2007) was conducted to evaluate the effects of CICO on the participants' disruptive behaviors and academic engagement. Additionally, a reversal design (Kazdin, 1982) was conducted to evaluate the additive effects of function-based self-management via I-Connect; however, due to school's administrative decision and time constraints, a return to the final phase in the reversal design was unavailable. Overall, an evaluation of the data in this study supports the existence of a functional relation between CICO and reduced disruptive behaviors of all three targeted students. A functional relation exists between CICO and increased academic engagement for two of the three participants. For the participant who received the Tier III intervention, there was a slight positive, differential effect

between CICO and additive function-based self-management strategy on both disruptive behaviors and academic engagement; however, there was much overlap in data, making the effects less conclusive. There were also positive changes in social skills as indicated by SSIS data and decreases in teachers' perception of the at-risk status of participants. There was inconsistent change in office discipline referrals. In addition, school staff, parents, and students found both CICO and function-based self-management to be socially appropriate behavioral interventions. Findings, organized by research question, limitations and contributions, suggestion for future research, and implication for practice are discussed in this chapter.

Primary Research Questions

Research Question 1: What are the effects of a Tier II CICO intervention on the disruptive behaviors and academic engagement of three African American male elementary students at risk for emotional and behavioral disorders? Findings from this study indicate a functional relation between CICO and the disruptive and academic engagement behaviors of participants. Implementation of CICO resulted in a decreasing trend in disruptive behaviors for Bryce and Cayenne and decreased level in disruptive behaviors for Anderson. Additionally, there were decreased levels to those of comparisons peers for all three participants and a decrease in the variability of disruptive behaviors of two of the three participants (i.e., Anderson and Cayenne). All participants increased the percentage of sessions of disruptive behaviors within the comparison peer range in the CICO phase when compared to the percentage of sessions during baseline. Two (i.e.,

Anderson and Cayenne) of the three participants were able to maintain disruptive behaviors in their peer comparison range over a 3-month and 1-month period, respectively. It should be noted that Cayenne's comparison peer engaged in low and stable rates of disruptive behavior creating a smaller range of behaviors and more of a challenge for Cayenne to obtain peer levels than other participants. However, 60% of Cayenne's disruptive behavior data during CICO fell within the comparison peer's range, compared to only 5% during baseline. Swoszowski et al. (2012) suggested the use of variability coupled with mean changes of less than 20-50% to determine nonresponders to CICO. An evaluation of mean change criteria indicate that two (i.e., Anderson and Cayenne) of the three participants decreased variability and experienced a mean change of 20% or greater. Bryce had a mean change of less than 20% from baseline to CICO and his percentages of disruptive behaviors returned to the baseline level during the last three CICO sessions; as a result, he was a nonresponder to CICO and received Tier III function-based self-management intervention.

Data also revealed that CICO had functional control over academic engagement for all three participants, evident by an increasing trend for Bryce, an increase in level above baseline measures for Anderson, and a decrease in variability for Cayenne during CICO phases. Two (i.e., Anderson and Cayenne) of three participants' academic engagement behaviors decreased in variability upon implementation of CICO. Two (i.e., Anderson and Bryce) of the three participants' academic engagement behaviors reached the range of peer comparisons and one of the three participants' (i.e., Anderson) academic

engagement behaviors were comparable to the peer range across a 3-month CICO implementation. It should be noted that Cayenne's comparison peer engaged in high and stable rates of academic engagement making it more difficult for Cayenne to obtain peer levels than other participants. Nevertheless, there was a positive change in academic engagement in that 40% of Cayenne's academic engagement data during CICO fell within the comparison peer's range, compared to 31% during baseline. Although Bryce showed improvement in academic engagement with an increasing trend and higher percentage level during CICO initially, his percentages of academic engagement decreased to the baseline level across the last four CICO sessions as another indication for being a nonresponder to CICO.

In CICO literature, data on the percentage of daily goal earn as recorded on the daily behavior report card have been evaluated as a dependent variable (e.g., Campbell & Anderson, 2011; Hunter, Chener, & Gresham, 2014; McCurdy, Kunsch, & Reibstein; 2007). Crone, Hawkwn, and Horner (2010) suggests using the same goal (i.e., 80% or higher) increases efficiency of implementation. Based on this suggestion, a daily goal of 80% was used for all participants in this study. Teachers used the daily behavior report card to rate participants' compliance with the schoolwide classroom expectations (e.g., be respectful, be responsible, and be safe). The daily goal was calculated as the percentage of total possible points for each targeted student. Bryce met the daily goal for 37% of days he participated in CICO. Anderson and Cayenne met the daily goal for 67% and 20% of CICO implementation, respectively. Crone et al. suggest that schools evaluate the

effectiveness of CICO after 4-6 weeks of implementation indicating that students who consistently (with the exception of a few days) meet their daily goal for at least 4 weeks "have demonstrated a consistent pattern of desired behavior and may be ready to maintain their behaviors" without CICO (p. 92). A review of the first 4 weeks of CICO implementation for participants indicates that Bryce inconsistently met his daily goal 52% of the time and Anderson consistently met his goal 78% of the time. CICO was implemented with Cayenne for 3 weeks only; the data show that Cayenne inconsistently met his goal for 20% of implementation. Despite the daily behavior report card data, direct observations of Cayenne's behaviors indicate positive change. If a school were to evaluate participants in this study 4 weeks after participating in CICO based solely on their performance on the daily goal, Anderson would be considered a CICO responder and faded from the program and Bryce would be considered a nonresponder and continued support would be considered as was the case in the findings of this study. It is difficult to predict Cayenne's percentage of daily goal data if he were to continue CICO participation for an additional week; however evaluating his percentage of daily goal prematurely (before 4 weeks of implementation) may lead professionals to provide a level of support not needed as direct observations indicated responsiveness to CICO. Addition, according to the direct observation data collected, Bryce's disruptive behaviors reverted back to baseline level during the fifth full week of CICO implementation. If direct observation data were used solely and evaluated prior to 6 weeks, Bryce may have been considered a responder to CICO and may not have received the level of behavioral support

needed. Schools should consider an evaluation of the effects of CICO (percentage of daily goal and direct observations) after 6 weeks of implementation when possible.

Overall, the findings in this study support existing research on the effectiveness of CICO on decreasing disruptive behaviors (Campbell & Anderson, 2008; Filter et al., 2007; Simosen, Meyers, & Briere, 2011; Swoszowski et al., 2013; Todd et al., 2008) and increasing academic engagement (Campbell & Anderson, 2011; Campbell et al., 2013; Fairbanks et al., 2007; Hawken & Horner, 2003; Miller et al.; 2015), and adds to the existing research by extending these findings to African American males at risk for emotional or behavioral disorder in elementary school. Existing research suggests the essential components of CICO, including mentoring, routine behavior feedback, and increased home and school connection have positive effects on the academic success and behaviors of African American male students (Anderson, 2007; Gordon et al., 2009; Mandura, 2006; O'Donnell et al., 2013; Scott, Taylor, & Palmer, 2013; Tyler & Boelter, 2008). First, in the current study, the participants were paired with an adult at the school who served as a mentor. Two teachers served as mentors in this study. Participants met with the mentors in the morning before school began and in the afternoon before returning home. Although literature identifies many benefits of students working with school staff of the same ethnicity and gender to include serving as role models, cultural translators, and cultural mediators, (e.g., National Collaboration on Diversity in Teaching Force, 2004; Smith et al., 2000), the school did not have an African American male employee; therefore the school's

exceptional children's teacher, an African American female, was the mentor for Bryce and Anderson, and the lead literacy teacher, a Caucasian female, served as the mentor for Cayenne. Despite the differences in gender and ethnicity, consumer satisfaction data revealed a mutual appreciation of the relationships. In addition to their responsibilities in implementing CICO (e.g., conducting check-ins and check-outs), the mentors helped students with other issues to ensure they had what they need to have a positive day. For instance, at a check-in Anderson was unsure he would have a good day because his class was scheduled to visit the school's library and he did not have his student identification card needed to check out a book. Anderson's mentor called his grandmother to inform her that Anderson needed money to get another identification card so that he was able to check out a book from the library that day.

Second, CICO also increased the amount of feedback students received about their behaviors. In this study, the targeted students received feedback from their teacher(s) after each class/subject, from the mentor at check-out, and from their parent(s)/guardian at home. Participants (Bryce and Anderson) completing the consumer satisfaction questionnaire strongly agreed that they liked the feedback they received on their daily behavior report card. In addition, parents often made positive comments on their child's daily behavior report card (e.g., "you are awesome!, xo mom", "fantastic xo, mom", yay!"). Third, the increased home and school connection was enhanced through the use of the daily behavior report card. Participants took the daily behavior report card home each day to share with their parent(s)/guardian. This increased parent's/guardian's knowledge

of the students' behavior during the school day. Anderson strongly agreed that he liked having his guardian review his daily behavior report card and Bryce indicated strong dislike. Bryce's strong dislike may be due to an increased accountability the enhanced parent awareness created. Bryce's parents gave the most positive feedback among the participants' parents on the daily behavior report card, but it was mentioned that Bryce's parents would not let him participate in weekend basketball games when his behaviors in school were not appropriate. The increased feedback (both positive feedback and negative consequence) from parents could have explained Bryce's dislike for parents' involvement in reviewing the daily report card.

In addition to the mentoring, frequent feedback, and increased home and school connection, incentives were also provided for participants when they met their daily goal. A spinner was used so that the targeted students received "unknown" social and tangible incentives to keep them interested in earning the incentive regardless of preference. Both participants (Anderson and Bryce) completing the student consumer satisfaction questionnaire indicated that they enjoyed the rewards received for meeting their daily goal. Additionally, when asked what part of the intervention he liked the most, Anderson responded, "Getting stuff." Although a component analysis would provide a better evaluation of the effects of each component of CICO on African American male students' behaviors, this study adds to limited literature on the effects of CICO as a package on African American male students.

Findings on the effectiveness of CICO from this study also support existing research indicating that approximately 22% of CICO participants will be nonresponders and warrant additional supports (Swoszowski et al., 2013b). Swoszowski et al. (2013b) indicates several reasons for nonresponsiveness to CICO to include a perceived unattainable daily goal. In an attempt to implement an efficient standard CICO, a daily goal of 80% was established for all participants in this study. A daily goal of 80% may have been unattainable for Bryce as his percentage of mean disruptive behaviors during baseline were the highest among the three participants. This is consistent with the mentor's suggestion that individualization of daily goals for Bryce may be important. In addition, when redirected Bryce sometimes indicated that he "was not making" his "goal anyway" and on one occasion he circled zeros on his daily behavior report card indicating that he was not trying to meet his goal for the rest of the day. Researchers have implemented modifications to CICO (Campbell & Anderson, 2008; Swoszowski et al., 2012; Swoszowski et al., 2013b) and others have investigated the effects of Tier III interventions for nonresponders (Briere & Simonsen, 2011; Fairbanks et al., 2007; March & Horner). This study investigated the effects of standard CICO and therefore modifications were not made. Future researchers should aim to identify supports, both modifications to CICO and Tier III interventions that improve behaviors of CICO nonresponders.

Research Question 2: What are the additive effects of function-based self-management delivered through I-Connect, a self-monitoring mobile app, as a Tier III intervention on the disruptive behaviors and academic engagement of

participants who are nonresponsive to Tier II CICO intervention alone? Among the three participants, Bryce was considered a nonresponder to CICO according to Swoszowski et al.'s (2012) suggestion for using variability coupled with mean changes of less than 20-50% to determine nonresponders to CICO. Bryce's mean change in disruptive behavior from baseline to CICO was 18% and there was increased variability. Bryce's mean change in academic engagement from baseline to CICO was 26% and his academic engagement behaviors were highly variable. As a result, a functional behavioral assessment was conducted, and Tier III CICO plus function-based self-management via I-Connect was implemented for Bryce. The results of the functional behavioral assessment indicated Bryce's disruptive behaviors were maintained by adult attention. The additive function-based self-management included self-monitoring (self-observing, self-recording) and self-recruitment of teacher attention. Bryce used the I-Connect application to monitor incompatible behaviors to his disruptive behaviors. Bryce received a cue (i.e., chime) at 3-min intervals prompting him to record his performance of incompatible behaviors (i.e., "following rules?"). This prompt was chosen as following the rules (e.g., be respectful, be responsible, and be safe) was incompatible with displays of disruptive behaviors (e.g., arguing with the teacher and peers, talking out, crawling on the floor, refusing to start and complete work). In addition, Bryce received a cue at 10-min intervals prompting him to use the replacement behavior of raising his hand to recruit teacher if needed (i.e., "need help?"). Raising hand was chosen as a replacement behavior as it was a more socially acceptable behavior that served the same function of the disruptive

behaviors to attain teacher attention. The additive effects of function-based self-management intervention were evaluated using a B-A-B design with B representing CICO plus I-Connect and A representing a return to CICO alone. Implementation of CICO plus function-based self-management via I-Connect resulted in a decreasing trend, a slight decrease in level, and a decrease in variability with 80% of Bryce's disruptive behavior data falling within the comparison peer's range. A return back to CICO alone resulted in an increasing trend and a slight increase in level with 0% of Bryce's disruptive behavior data falling within the comparison peer's range. Reinstatement of CICO plus function-based self-management via I-Connect across two sessions resulted in a clear decrease in level with none of the data points falling within the comparison peer's range. Due to the administration's decision to transfer Bryce to another classroom, continued data collection and implementation of CICO plus I-Connect was not possible. Consequently, a functional relation between Tier III intervention and disruptive behavior could not be determined based on the B-A-B design.

Similar to the pattern for the disruptive behavior, results on academic engagement were inconclusive. Implementation of CICO plus function-based self-management via I-Connect resulted in an inconsistent data path, a slight increase in level, and a decrease in variability with 100% of Bryce's academic engagement behavior data falling within the comparison peer's range. It is important to note that the comparison peer's academic engagement level varied greatly (particularly the fourth data point during CICO plus I-Connect), resulting in an unusual comparison. A return back to CICO alone resulted in an inconsistent

data path and a slight increase in level with only 20% of Bryce's academic engagement data falling within the comparison peer's range. Reinstatement of CICO plus function-based self-management via I-Connect across two sessions resulted in a clear increase in level but none of the data points fell within the comparison peer's range. Due to the administration's decision to transfer Bryce to another classroom, continued data collection and implementation of CICO plus I-Connect was not possible. Consequently, a functional relation between the Tier III intervention and academic engagement could not be determined based on the B-A-B design.

Due to the research design and limited data available during a return to the CICO plus I-Connect phase, the additive effects of function-based self-management intervention for Bryce were inconclusive. These findings contradict results from other research studies by Lo and Cartledge (2006) and Stahr et al. (2006), who demonstrated the effectiveness of function-based self-management on reducing the disruptive behavior of African American male students. In addition, the findings of this study also are dissimilar to those of Briere and Simonsen (2011) and March and Horner (2002), who demonstrated the effectiveness of function-based self-management on decreasing disruptive behaviors of CICO nonresponders. The inconsistency in Bryce's data may come from his teacher's behaviors. Bryce's teacher was trained to ignore Bryce's displays of disruptive behavior that attempted to attain her attention when they did not present harm to Bryce or others, and to immediately respond with positive attention when he recruited teacher attention using the replacement behavior (i.e.,

a raised hand). There were several instances during direct observation sessions where the teacher was observed reinforcing the inappropriate behavior with teacher attention. For instance, in whole group discussions Bryce would call out the answer opposed to raising his hand and the teacher would give him verbal praise (e.g., good answer). It is also unclear if Bryce's teacher gave feedback routinely after every subject or waited to complete the daily behavior report card during down time in the classroom (e.g., before lunch, before recess, before dismissal). The inconsistency in responding to Bryce's replacement behavior and disruptive behavior, as well as providing immediate versus delayed feedback may have affected the effectiveness of the function-based self-management. Although research has demonstrated that CICO was most effective for students with behavior that is maintained by adult attention (Campbell & Anderson, 2008), CICO did not provide powerful effects for Bryce. Bryce needed intensive and consistent differential reinforcement of alternative behavior in order to maintain appropriate teacher attention gaining behaviors (e.g., hand raising) and extinguish his disruptive behaviors. Although Bryce received teacher attention during feedback sessions and during the CICO plus I-Connect phase when he appropriately self-recruited attention, the meetings and replacement behavior were not as efficient as displays of the problem behaviors. In other words, Bryce received teacher's attention faster and possibly with less effort by displaying disruptive behaviors such as getting up out of seat while teacher is giving instruction, calling out, arguing across the room with a peer, tattling, and crawling on the floor. When Bryce displayed disruptive behaviors he would receive his

teacher's attention immediately as she would respond in most cases with a redirection (e.g., "get up off of the floor") or a praise statement (usually for call outs or tattling; "right answer", "you're right", "thanks for letting me know"). The attention whether by a redirection or a praise statement, reinforced Bryce's disruptive behaviors. In addition, there were times when Bryce would raise his hand to recruit teacher attention and would not be recognized by the teacher. This presented a problem as the teacher failed to reinforce the replacement behavior. In order to reduce Bryce's displays of disruptive behavior his teacher would need to reinforce replacement behaviors immediately and consistently provide reinforcement (attention) when the replacement behavior (hand raising) is displayed. In addition, reinforcement for disruptive behaviors should be withheld as appropriate.

Secondary Research Questions

The secondary research questions addressed teacher perceptions of targeted students' social skills, problem behaviors, and academic competence evaluated by pretest and posttest measures of the SSIS teacher form and pre- and post-intervention measures of teacher ratings of at-risk status. Additionally, this study also evaluated school personnel, student, and parent perspectives regarding the effectiveness, importance, and practicality of the interventions as measured by experimenter-created social validity consumer satisfaction questionnaires.

Research Question 3: What are the effects of the intervention(s) on the participants' social skills, problem behaviors, and academic competency ratings

on the *Social Skills Improvement System* (SSIS, Gresham & Elliott, 2008) as pretests and posttest?

Research Question 4: To what extent will teachers rate the participants at risk for special education or disciplinary referral before and after the implementation of the intervention(s)?

Overall, a comparison of SSIS pre- and post-measures of participants' standard scores show improvement in all assessed domains (i.e., social skills, problem behaviors, and academic competence) for two of three participants (Bryce and Anderson). Cayenne's standards scores decreased in the problem behavior domain indicating improvement, but also decreased in the social skills and academic competence domains. Additionally, pre- and post-intervention measures of teacher ratings of at-risk status decreased or remained the same for two of three participants (Anderson and Cayenne). These findings suggest that implementation of the interventions have the potential to change teachers' perception of student behaviors. Positive changes in teachers' perceptions of student behavior may lead to fewer office discipline referrals and referrals to special education due to problem behaviors reducing the lockout problem. A change in teachers' perceptions takes time. The time constraint in this study make a change in teacher perceptions difficult to obtain and may have affected the results found in this study. In addition, SSIS provides a broad concept of social skills, problem behaviors, and academic competency. This study did not address all of these aspects directly; therefore the results reflect a more distal measure, than direct results of the intervention effects. These findings are similar to Hunter

(2014) who used SSIS teacher ratings for pretest and posttest scores to identify if participants were functioning within the "normal" range of internalizing behaviors and social skills after participating in CICO and found an increase in the level for all four participants on social skills and an increase level for one of the four participants' internalizing behaviors. The other three participants' level remained unchanged as measure by pretest/posttests results.

Research Question 5: What are school personnel perspectives of the effectiveness, importance, and practicality of the Tier II (CICO) and Tier III (function-based self-management) interventions?

Research Question 6: What are the participants' perspectives of the effectiveness, importance, and practicality of the Tier II and/or Tier III interventions?

Research Question 7: What are parents' perspectives of the effectiveness, importance, and practicality of the Tier II and/or Tier III interventions?

As with current literature on CICO, social validity consumer satisfaction measure revealed high levels of satisfaction with the effectiveness, practicality, and appropriateness of the intervention (Hawken et al., 2014). Based on the consumer satisfaction outcomes from CICO implementer, CICO facilitators, teachers, targeted students, and parents, the results indicate CICO is a socially accepted intervention in school settings. The CICO implementer indicated overall satisfaction with CICO, indicating agreement or strong agreement for six of the seven Likert scale questions. She indicated that she was neutral on the effects CICO had on participants' academic engagement. This might be due to the fact

that she did not get to routinely observe students' academic engagement in the classroom. She also commented that the participants were excited about the intervention, teachers felt supported, and that data collection (i.e., entering the percentage of daily goal achieved in an Excel worksheet) was easy. The CICO implementer indicated that teacher training was effective, but the presentation of parent training via PowerPoint was a little too formal. Due to confidentiality, parent trainings were conducted individually for this study. The use of PowerPoint presentation was to offer the CICO implementer a more structured way to conduct the training to ensure procedural fidelity. When schools are considering schoolwide implementation of CICO, staff members may conduct parent training with multiple parents/guardians at once and deliver the training via PowerPoint to aid in efficient delivery of information. In addition, the CICO implementer indicated the logistics of scheduling (e.g., when and where to conduct check-ins and check-outs, identification of teachers whose schedule would coincide with check-in and check-out times, times for training of students staff, and parents) presented a challenge to CICO implementation. On the contrary, both mentors agreed that the time commitment for implementing CICO was reasonable.

Both CICO mentors indicated agreement or strong agreement with five of the seven Likert scale questions. The mentor for Bryce and Anderson indicated neutral perceptions on the effects of CICO on the social and academic behaviors of participants. This could be due to the fact that she was aware that Bryce was a CICO nonresponder and began receiving the Tier III intervention; she suggested

that some individualization (e.g., adjust goal for daily behavior card) for Bryce will be needed for the CICO implementation. Both mentors also agreed that CICO was a good way to include parents in their child's education.

Analysis of teachers' ratings of consumer satisfaction reveals mixed results on the effects of CICO on students' academic behavior (i.e., academic engagement and work completion) and strong agreement by both teachers that CICO improved participants' social skills. This could be because 10 of the 11 schoolwide classroom expectations that teachers used to rate participants' compliance had a prosocial behavioral focus opposed to a focus on academic behaviors. Consequently, students were constantly reminded to comply with these prosocial behaviors during check-ins, check-outs, when rated by teachers, and when conferencing with parent/guardian. Perhaps including additional academic classroom expectations on the daily behavior report card and as a part of the classroom expectations would increase students' attention to and performance of academic behaviors. Schools should consider including classroom expectations that equally address academic and prosocial behaviors in their schoolwide expectations.

The parent questionnaire was completed by Bryce's parent; Anderson's guardian did not return the completed form. Bryce's parent agreed that the feedback received from Bryce's teacher was helpful, meeting with the facilitator (i.e., CICO mentor) had a positive impact on Bryce's day, and that the intervention was effective in improving Bryce's academic and social behaviors. Bryce's mom indicated that CICO helps Bryce to be responsible for his behaviors;

however, she indicated that Bryce continues to struggle. This parent's rating was consistent with the classroom teacher's perception regarding Bryce's behavior and need for additional support in the future.

A review of student consumer satisfaction questionnaires indicate agreement with two of eight Likert scale questions in that both participants (Bryce and Anderson) agreed that (a) CICO helped to improve a behavior that they needed to work on; (b) they do a better job at school because their behaviors have improved; and (c) that they liked meeting with the facilitator, the feedback received on the daily behavior report card, and the incentives they received when meeting their daily behavior goals. Bryce indicated that he did not like having his parents check his daily behavior report card. As mentioned earlier, this may be due to an increased accountability the enhanced parent awareness created. Anderson was neutral on deciding if CICO helped to work on his behaviors and strongly disagreed that he should continue with CICO. Anderson's reluctance to want to continue with CICO may be due to his participation in several services. At CICO training, Anderson's grandmother expressed concerns that Anderson was "participating in too many services" (i.e., group counseling at school, individual counseling, speech services, and CICO). Consideration should be given to the number of services provided to students before implementing a new intervention. In addition, Anderson indicated that he liked carrying around the paper the least. Perhaps an electronic device or an application could serve as a more socially acceptable means of receiving routine feedback from teachers.

In addition to the consumer satisfaction CICO questionnaire, Bryce completed a questionnaire on his participation in Tier III function-based self-management via I-Connect intervention. Bryce indicated he strongly agreed to seven out of the seven questions on the questionnaire revealing that tracking his behaviors helped to improve his behavior, helped him complete his work correctly, and learn better. He also reported that he liked using the device to monitor his behaviors and that the device was easy to learn and use. When asked what part of self-management he liked best, Bryce indicated that he liked that he got to use the I-Connect application. Bryce's responses indicate that he considered Tier III function-based self-management via I-Connect intervention socially acceptable.

Bryce's teacher strongly agreed with six out of the seven Likert scale questions addressing I-Connect on her consumer satisfaction questionnaire and agreed with the other. Her responses indicate that she strongly agreed that (a) the intervention is easy to incorporate in her classroom, (b) the time required during implementation of the intervention is reasonable, (c) she would continue self-monitoring with the student should he need it, (d) she would try self-monitoring with other students who are in need of additional support, (e) she would continue to use I-Connect to help the participant self-management his behaviors if needed, and (f) she would use self-management via I-Connect with other students, if needed. Bryce's teacher agreed that self-monitoring was effective in increasing his academic engagement. Based on the consumer satisfaction outcomes from Bryce and his teacher, function-based self-management is a socially accepted

intervention. These findings on the acceptance and feasibility of function-based self-management in this study are similar to those in current literature (Shefield & Waller, 2010). Bryce's and his teacher's responses on the appropriateness and practicality of the use of a handheld device to self-monitor is consistent with current research indicating that handheld devices can provide a more socially accepted means to self-monitor and can be just as effective as traditional paper-and-pencil methods (Bedesem, 2012; Gulchack, 2008). In addition, this study contributes to current literature by identifying the I-Connect application as a socially valid method of implementing a function-based self-management program.

Contributions to the Field of Special Education

The current study contributes to the field of education in several ways. First, this is the first study to specifically address the effects of CICO on African American male students. The results of this study indicate a functional relation between CICO implementation and both the disruptive behaviors and academic engagement of the three African American male students. Specifically, the results reveal a decrease in disruptive behaviors and an increase in academic engagement for participants. These findings contribute to the field by identifying a Tier II intervention effective in decreasing the disruptive behaviors of selected African American males in elementary school to reduce the risk factors faced by many African American male students in educational settings. Second, a review of pre- and post-measures of SSIS standard scores and teacher at-risk ratings indicate improved teacher perceptions of students' prosocial and academic behaviors.

These findings contribute to the field by identifying that CICO has the potential to improve the perceptions of teachers about students with problem behaviors, which in turn may have further improved teachers' interactions with African American male students (e.g., reducing the use of exclusionary discipline practices). Third, CICO was found to be a socially acceptable intervention based on reports of school personnel, parents, and participants. The involvement of the assistant principal as the CICO implementer and trainer also helps to increase the school's capacity in sustaining implementation of mulita-tiered interventions without the support of the experimenter. Fourth, this study may, in a very small part, contribute to reducing the pushout and lockout effects that fuel the school-to-prison pipeline for African American students. By indentifying an intervention effective in decreasing disruptive behaviors and increasing academic engagement, African American students may be supported more effectively while in school and the lockout effect in the school-to-prison pipeline can possibly be reduced. In addition, positive changes in teachers' ratings of social skills, problem behavior, and academic competence on the SSIS, and their reduced likelihood to refer a student for office discipline referrals or special education has the potential to reduce the lockout effects of the school-to-prison pipeline.

Limitations

There are several limitations in the study. One limitation is brevity of CICO data collected for Cayenne. Cayenne's family moved abruptly due to homelessness and Cayenne no longer attended the school. Due to the limited CICO implementation and data collection during CICO, it is difficult to determine

the long-term effects or maintenance effects CICO may have had on Cayenne's behavior. In addition, it is difficult to determine if the events leading up to the move (e.g., family housing instabilities) affected Cayenne's behaviors.

Second, Anderson and Bryce began participating in a group counseling session for third grade boys led by the school counselor during the third baseline data point for each participant. The group met once a week for 30 min to discuss topics related to managing aggression throughout the remaining of the study. Anderson also began receiving individual counseling and speech and language services during his baseline phase and continued through the study. Although the availability of these services remained across all experimental conditions for both students, these services present confounding variables to the current study as it is difficult to determine what effects, if any, they may have had on Bryce's and Anderson's behaviors.

A third limitation concerns the selection of class periods for data collection. Although observations were conducted at a consistent time/subject of the day, the activities varied with some being highly engaging and interactive (e.g., teacher-led white board lesson) or required concentration (e.g., seatwork) while other activities were less engaging and interactive (such as independent reading) and required less concentration (e.g., cutting out words for sorting). The differences in activities and subject areas may have affected the levels of the targeted students' disruptive behaviors and academic engagement. Additionally, teachers often used a workshop model of instruction where students within the class were performing different activities. In some instances, the targeted student

and peer comparison could have been required to participate in the same activity but at different times (i.e., first, middle, last part of the class session). These factors may account for some of the variability in disruptive and academic engagement behaviors observed. Future research should focus on limiting the differences in activities to obtain a better evaluation of the effects of the interventions. It should also be noted that due to scheduling conflict for data collection, Anderson and Bryce were not observed in the class the teacher identified as the most difficult for them (i.e., most displays of disruptive behavior and least displays of academic engagement behavior). The effect of the intervention may have been different had scheduling allowed for observations in the class identified as most difficult for the student.

Fourth, scheduling presented a challenge with the collection of interobserver agreement at the optimal level. An undergraduate student served as a second observer for interobserver agreement data collection. The study took place over two university semesters and consequently with the change in semesters the second observer experienced a schedule changed and was only able to devote limited hours to assist with data collection. This presents a limitation to the current study as interobserver agreement is important to ensure accurate measures of behaviors.

Fifth, an administrative decision to move Bryce to a different third grade classroom during the reinstatement of CICO plus I-Connect phase presented too many confounding variables to continue the planned reversal design. Consequently, the evaluation of CICO plus I-Connect was conducted using a B-

A-B design with limited data collection for the return to the CICO plus I-Connect phase. Data collection ended in the reinstatement of CICO plus I-Connect phase (condition B) and a return to CICO (condition A) did not occur. Due to a lack of data during the CICO plus I-Connect phase (fewer than five data points) and without a return to CICO, replication of effect is limited and verification of prediction did not occur; as a result, a functional relation cannot be determined.

Sixth, the selection of comparison peers was conducted by asking each targeted student's teacher rank the students in her class by their levels of disruptive behaviors and academic engagement. Efforts were made to select an African American male with levels of disruptive behaviors and academic engagement in the average (middle) range. Due to the limited number of African American male students who attended the school, Bryce and Anderson's comparison peer is not an African American male and did not serve as a true peer comparison. It should be noted that measures of mastery in this study were not how well participants performed in comparison to their peers but a comparison of baseline and intervention averages within each participant. The peer comparisons were used as an additional measure to provide information about the social significance of the behavior changes (i.e., were the behavioral changes meaningful?). In addition, teachers had not participated in diversity training prior to the implementation of the study and no information was collected on the teachers' experiences teaching diverse youth; therefore, the effect teacher biases or perceptions may have had on the ranking of students for both the targeted students and peer comparisons is unknown. Further, classes do not have a normal

distribution and the average student (as indicated by the teacher's ranking) may have very high or low rates of disruptive behavior and academic engagement. Very low variability in comparison peer's behaviors present a smaller peer comparison range; similarly, a comparison peer with highly variable data will have a larger range. These differences present a challenge for some participants to obtain and maintain their peer comparison's range, and for other participants to have a true "average" performance comparison.

Seventh, the effects of the parent variables on the intervention effects were unknown in this study. For example, Bryce lived with his mother, father, and sibling; Anderson lived with his maternal grandmother, and Cayenne lived with his mother and sibling. Although parents were taught to begin their review of the daily behavior report card conversation with praise, it is not known if this occurred routinely; however, Bryce's mother often wrote praise comments on his daily behavior report card suggesting that positive statements about Bryce's behavior might have been made in the conversations with Bryce at home. It is also not known if parents used punitive measures (e.g., "if you don't do well tomorrow, you will lose your game time") when participants were unsuccessful in obtaining their daily goal. Future studies may investigate the extent to which parent factors affect the success of CICO.

Eighth, due to limited resources and scheduling, procedural fidelity measures did not include a direct measure of teachers' consistency on providing feedback after every class or subject. The experimenter was able to verify through the daily behavior report card if the teacher provided feedback on the student's

behaviors for each subject, but when and how that feedback was given was not observed as a part of procedural fidelity measures in this study. Future studies should include monitoring the teachers' delivery of routine feedback after every class/subject. Additionally, Bryce's teacher was trained during I-Connect teacher training to ignore Bryce's displays of disruptive behavior that attempted to attain her attention when they did not present harm to him or others, and to immediately respond with attention when he recruited teacher attention using the replacement behavior (i.e., a raised hand). The procedural fidelity form used for the CICO plus I-Connect condition did not monitor the teacher's response to disruptive or appropriate replacement behaviors. Future studies should monitor and record teacher behaviors when implementing function-based self-management.

Ninth, the research design used in this study did not include a maintenance phase. Due to ethical consideration, CICO was not withdrawn during the study. This design limitation restricted the ability to evaluate any long-term effects the CICO intervention may have had on the participants' behaviors and the extent to which these participants may have been able to maintain the same level of academic engagement and disruptive behaviors with the sole implementation of universal level of support (Tier I). Future researchers may include a maintenance phase to investigate participants' ability to maintain behaviors with less intensive supports.

Finally, existing research suggests that CICO will be most effective with disruptive behaviors maintained by adult attention and suggests that researchers conduct a functional behavioral assessment prior to selecting CICO as an

intervention (Campbell & Anderson, 2008). In the current study, a functional behavioral assessment was not conducted prior to the implementation of CICO, in order to determine a true Tier II intervention without a function-based intervention within the multi-tiered systems of supports. Therefore, the function of students' disruptive behaviors were not identified which limits the ability to add to the literature on the effectiveness of CICO as it relates to behavioral function. A functional behavioral assessment was conducted prior to implementation of function-based self-management for Bryce to determine a Tier III intervention; however, a functional analysis was not included. Use of a functional analysis would have provided experimental verification of the function of the student's disruptive behavior to ensure accurate reinforcement (e.g., teacher attention, peer attention, break from work) was identified. Future research is warranted to conduct a functional analysis to experimentally verify the function of disruptive behaviors to aide in the selection of the most appropriate and adequate reinforcement recruitment behavior.

Suggestions for Future Research

This study provides several recommendations for future research. First, existing research supports the effectiveness of components of CICO (e.g., mentoring, routine feedback, increased home/school connections) on the behaviors of African American male students (Anderson, 2007; Gordon et al., 2009; Mandura, 2006; O'Donnell et al., 2013; Scott, Taylor, & Palmer, 2013; Tyler & Boelter, 2008). The findings of this study support the effectiveness of CICO on the disruptive behaviors and academic engagement of three selected

African American male students; however, it is unknown which components contributed the most to students' success. Future research should focus on the effects of a component analysis to determine which components of CICO have the most substantial effects on the disruptive behaviors and academic engagement of African American male students.

Second, the finding of this study and existing research identify the effectiveness of CICO on decreasing disruptive behaviors and increasing academic engagement. Although participants in this study experienced increased academic engagement, their behaviors remained variable and only one participant (i.e., Anderson) maintained academic engagement in the peer range. Additionally, this study did not measure the effects of the increased academic engagement (defined as both passive listening such as facing towards the teacher and active learning such as writing or responding to questions) on academic performance. There is limited research focusing on the effects of CICO on academic performance (e.g., teacher ratings of percent of class work and homework completion; math scores, grade point average; Turtura et al., 2014, Mong et al., 2011; Swoszowski et al., 2013); however, many educational decisions are made on student achievement (e.g., promotion and retention, special education placement). Although a pre- and post-measure of the SSIS included teachers' ratings on the targeted students' academic competence as a subscale, such measure was a distal measure and may not have reflected the students' changes in academic performance within a short period of time. Future research should focus on the effects of CICO on specific academic skills such as achievement scores,

work completion and accuracy, or grade point average. In addition, Turtura (2014) modified CICO to address academics (e.g., work completion) which resulted in reduced problem behavior, as well as teacher reports of increased work completion and homework accuracy. Additional research on modified versions of CICO to address academic skills is warranted, particularly for students whose disruptive behavior reduction was successful with less than satisfactory changes in academic engagement or academic performance.

Third, Tier II interventions are not meant to be long term. According to prior literature, Tier II interventions should be implemented to modify the participants' behaviors to a level that can be supported by Tier I interventions (Problem Solving & Response to Intervention Project, Florida's Positive Behavior Support Project, & University of South Florida, 2011). According to Crone et al., (2010), the effects of CICO should be evaluated after 4-6 weeks of implementation, but no longer than a quarter to prevent schools keeping students in an intervention they do not need. In this study, two of the three participants were able to maintain reduced levels of disruptive behaviors and one was able to maintain academic engagement in the range of their comparison peers while in CICO implementation; however, the participants were not returned to Tier I intervention only during the study. Future research is warranted to investigate the degree to which participants are able to maintain positive behaviors under Tier I support only, once CICO is withdrawn.

Fourth, research supporting specific Tier II interventions is limited and warrants further investigation across behaviors (e.g., disruptive behaviors,

academic engagement, academic performance) with various populations (e.g., across disabilities, ethnicities, and gender). This study identified Tier II CICO as an effective intervention that can decrease disruptive behaviors and increase academic engagement of African American males. In addition, SSIS pre- and post-measures indicate positive changes in teachers' perceptions of participants' social skills, problem behaviors, and academic competence. A change in teachers' perception of problem behaviors may lead to fewer office discipline referrals and referrals to special education. Although small, these findings have implications for a reduction in the pushout and lockout factors contributing to the school-to-prison pipeline. Future research should focus on investigating the effects of additional Tier II interventions on the pushout and lockout factors that contribute to the school-to-prison pipeline. In addition, research is needed to identify Tier I interventions and supports that lead to a reduction in the pushout and lockout effect and to include the perceptions and behaviors of teachers (e.g., teaching practices, classroom discipline practices, classroom routines, instructional strategies) that affect the academic and social behaviors of students who receive exclusionary discipline and special education referrals and placements at disproportionate rates. Replications of this study with African American students may also consider conducting diversity training with teachers prior to requiring them to identify students in need of Tier II or III interventions to minimize teacher biases.

Fifth, research indicates that CICO will not be effective with all participants (Swoszowski, 2013b). This study implemented Tier III function-

based self-monitoring with a CICO nonresponder and received moderate but inconclusive effects. Future research is needed to identify ways to modify CICO prior to implementing Tier III interventions, or to compare the differential effects of CICO modifications with Tier III function-based interventions. Another line of future research is also to investigate the effectiveness of modifications to function-based self-management (e.g., increased explicit training sessions for students and teachers, coaching for teachers on modifying their behaviors to assist in the extinction of the disruptive behaviors and reinforcement of appropriate recruiting of reinforcement behaviors, various methods of recruiting reinforcement) and additional Tier III interventions that may provide sufficient support to CICO nonresponders. Furthermore, this study identified I-Connect as an effect tool to cue self-monitoring, self-record behaviors, and prompt self-recruitment of reinforcement; however, the research on the effects of I-Connect is preliminary and warrants addition studies to determine its effects with various populations (e.g., ages, disabilities) and behaviors (e.g., academic engagement, disruptive behaviors).

Sixth, literature identifies benefits in students working with school staff of the same ethnicity and gender (e.g., National Collaboration on Diversity in Teaching Force, 2004; Smith et al., 2000). Due to staffing limitations, pairing participants with a mentor of the same ethnicity and gender was not an option in the current study. Future studies are warranted to investigate the effects of mentor and teacher demographics (e.g., African American male mentor or male CICO facilitator) on student outcomes. In addition, one of the comparison peers in this

study was not an African American male student. To have a better comparison of the African American participants' behaviors to their peers, a replication of this study with African American peer comparisons is warranted.

Seventh, Crone et al. (2010) identify CICO as a self-management intervention. Future researchers may consider conducting a group design study comparing the effects and efficiency of CICO to another self-management program as Tier II interventions. In addition, researchers may consider conducting a study comparing the effects and efficiency of a self-management program without technology to a self-management program that incorporates I-Connect.

Finally, this study employed single case methodology. As with single case designs, internal validity is strong; however, the ability to generalize effects is limited to the studied participants and settings. In order to establish external validity, replications of effects across participants, settings, and researchers is needed (Kratochwill et al., 2010). In particular, similar studies attending to African American males are needed in future replication studies.

Implications for Practice

The findings of this study have several implications for practice. First, disruptive behavior, academic engagement, and social validity measures identify CICO as a socially accepted and effective way to decrease disruptive behaviors and increase the academic engagement of selected African American male participants. Schools experiencing African American males in need of Tier II supports due to high disruptive behaviors and low academic engagement may consider the use of CICO. Second, this study identifies CICO as an efficient

socially acceptable Tier II behavior intervention. Overall, school personnel, parent, and participants' responses to the consumer satisfaction questionnaires reported CICO as a socially acceptable intervention; school personnel also identified the time required to implement CICO as reasonable. In addition, the short-term and long-term incentives used in this study were free social incentives (e.g., secrete handshake, victory dance) or donated items (e.g., ice cream coupons, pencils). The materials used (e.g., paper for printing the daily behavior report cards) were low-cost materials that schools have readily available. Schools with limited resources (e.g., time, staff, and money) in need of Tier II intervention may consider CICO as a viable option.

Third, this study serves as a demonstration that CICO can be implemented effectively by school staff. After a train-the-trainer training, the assistant principal was able to use experimenter-created materials (e.g., PowerPoint presentations, daily behavior report cards, incentive sheets, incentive wheel) to successfully train participants (i.e., targeted students, parents, teachers, and CICO facilitators). Training school personnel on the use of experimenter-created materials and allowing them to implement the intervention opposed to the researcher implementing the intervention has the potential to minimize the research to practice gap and to increase the school capacity in their SWPBIS implementation efforts. It should be noted that the implementer indicated that the logistics of scheduling (e.g., when and where to conduct check-ins and check-outs, identification of teachers whose schedule would coincide with check-in and check-out times, times for training of students staff, and parents) presented a

challenge to CICO implementation. When implementing CICO, schools should plan to commit a block of time to initial implementation tasks (e.g., training, schedules of check-ins and outs).

In addition to direct observations conducted by the experimenter, daily behavior report card data were collected for school personnel. The daily behavior report card data and direct observations revealed similar effects of the intervention. Schools often lack the staff to conduct direct observations, but could use daily behavior report card data to make decisions on tier/intervention changes. Fourth, due to the ease of implementation of CICO, schools may consider the function of the student's disruptive behaviors and make attempts to modify CICO according to the function as suggested by previous researchers (Swoszowski, 2014) before considering a more intensive or time-consuming Tier III intervention. Fifth, based on the findings of this study, schools seeking effective Tier III interventions may consider function-based self-management. With the push for the use of technology in the classroom and the access many students have access to personal technology devices (e.g., cell phones, tablets, laptops), the use of I-Connect adds a socially acceptable and feasible means for students to self-monitor their behaviors. Finally, perhaps even more important are the changes in teachers' perceptions of the student's social skills, problem behavior, and academic competence of participants through the implementation of the multi-tiered systems of supports. Changing student behaviors and teacher perceptions may assist in minimizing the pushout and lockout effects that contribute to the school-to-prison pipeline for African American students.

Summary

The purpose of this study was to evaluate the effects of multi-tiered interventions on the disruptive behaviors and academic engagement of three African American males at risk for emotional and behavior disorders. The evaluation included an investigation of Tier II CICO and the additive effects of Tier III function-based self-management via I-Connect, a self-management application that allowed the programming of individualized self-monitoring goals, intervals, and prompts (Willis & Kamps, n.d.), for a nonresponder to CICO. Visual analyses of results indicate a functional relation between CICO intervention and students' disruptive behaviors and academic engagement. An evaluation of function-based self-management via I-Connect on the disruptive and academic behaviors revealed promising but inconclusive results. Socially validity measures indicate social acceptance of both interventions by school personnel, targeted students, and their parents, as well as a positive change in teachers' perceptions of targeted students' social skills, problem behavior, and academic competence ratings on SSIS. Improved teacher perceptions and improved student behaviors could reduce factors contributing to the school-to-prison pipeline by increasing access to quality education by reducing the use of exclusionary discipline and referrals to special education, and increasing engagement and access to needed supports.

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APPENDIX A: CONSENT AND ASSENT FORMS TO PARTICIPATE IN THE STUDY

UNCCHARLOTTE
The University of North Carolina at Charlotte
Department of Special Education and Child Development
9201 University City Boulevard
Charlotte, NC 28223-0001

Parental Informed Consent Target Student

Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

Project Title and Purpose:

This letter is to ask your permission for you and your son to participate in a project called, "Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion." This is a project to see if behavior interventions can be applied to help improve students' academic engagement and work completion in the classroom.

Researchers:

This study is being conducted by Ms. Kimberly Bunch-Crump, Department of Special Education and Child Development, as part of the requirements for a doctoral degree. The responsible faculty member is Dr. Ya-yu Lo, Associate Professor, Department of Special Education and Child Development.

Description of Participation:

We ask that you read this letter and ask any questions you may have before agreeing to allow you and your son to be in this study. Your son has been nominated by a teacher to participate based on meeting participant pre-qualifications (gender, ethnicity, grade level, discipline data, and academic engagement). Not all individuals for whom parental permission is granted will be selected as participants in the study. As a part of the selection process, we will contact the school level student record administrator to obtain and review the educational records of individuals for whom parental permission is granted. The educational records will include school attendance data, educational disability (if applicable), and discipline records. In addition, once parental consent is granted, your son's teacher(s) will be asked to complete a behavior rating scale and I will conduct a classroom observation of your child to further assess his qualifications to participate in the study.

If your son is not selected to participate in the study, the research team will destroy (shred) all collected data immediately after the selection process has concluded. If selected for the study, your son will have a school mentor with whom he will meet twice a day (in the morning before class and in the afternoon before returning home). We will set and monitor your son's daily goals on a daily behavior report card that his teachers will use to rate his academic performance. Your son will be rewarded when he meets his daily goals. The report card will be sent home daily to keep you informed of your son's progress. If your son is in need of additional support, I will teach him how to self-monitor

and record his behaviors using a mobile app. These interventions are intended to help improve your son's engagement in class, percentage of work he is able to complete during class, and the percentage of work he gets correct. If you decide to let your son participate, you will be asked to do the following:

(a) participate in a brief 20-minute question and answer training session about the intervention(s);
(b) review your son's daily behavior report card each night, sign it, and return it to school the next day; and
(c) view short videos of your son's performance in the classroom and complete a 10-minute survey indicating your opinions of the intervention(s).

I will train your son's teachers and the mentor to implement the interventions. Your son will be observed about 15-20 times for 30 minutes in the classroom and his behaviors will be documented to help us determine if the interventions are effective. Some observation sessions may be videotaped. Some of the mentor meetings may be audio recorded. At the end of the study, your son will also be asked to complete a survey to give his opinions of the program. The survey will take about 10 minutes. Your son will also participate in a 30-minute training session that will teach him the process for meeting with the mentor, how to use the daily behavior report card, review expectations, and discuss the point system. An additional 30-minute training session may be needed to teach your son how to use the self-monitoring app. All data collected from this study will only be shared with the research team (listed above), your son's mentor, his teachers, and the school administrators. You and your son's participation will be kept confidential at all times from individuals who are NOT serving on your child's team.

Length of Participation:
Your son's participation in this project will begin in October 2014 and end March 2015. If you decide to provide consent for your son to participate, your son will be one of four participants in this study.

Risks and Benefits of Participation:
There is no known risk associated with this study. There may be risks which are currently unforeseeable. The benefits of participation in this study include improved academic behaviors such as engagement and work completion, and improved social behaviors.

Volunteer Statement:
You and your son are volunteers. The decision to participate in this study is completely up to you and your son. If you decide to grant permission for you and your son to participate in the study, you may stop at any time. Your son will not be treated any differently if you and your son decide not to participate, or if your son stops once he has started. The study will not affect any existing services and education your son is currently receiving.

Confidentiality:
The data collected by the researchers will be kept confidential. The following steps will be taken to ensure this confidentiality:

- No real names will be reported in the results of this project.
- Your and your child's personal identifiers will be separated from data reporting.
- All educational record information and data sheets collected will be stored in a locked file cabinet in the office of the UNC Charlotte responsible faculty. All

educational record information for potential participants who were not selected will be destroyed immediately after the selection process.
- Any electronic data collected by the researchers will be stored in password-protected documents on a password-protected computer.
- All data maintained by the researchers with the exclusion of video recordings will be destroyed 5 years after the study has ended. Electronic data and audio recordings will be dismantled and/or rendered useless.
- Video recording may be edited and used for future professional development, but will exclude direct footage of your child's face.

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Office of Research Compliance if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact the Department of Special Education and Child Development at UNC Charlotte.

This form was approved for use on *October 14, 2014* for a period of one (1) year.

Participant Consent

I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project.

Permission Form

☐ I AGREE to allow my child to participate in the study, *Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion*. I understand that this means my son and I will take part in activities to enhance his academic performance.

☐ I agree to allow my child to be videotaped while participating in the study. I understand that portions of my child's participation in the study may be videotaped and used for future professional development of practitioners.

☐ I do not agree to allow my child to be videotaped while participating in the study.

☐ I DO NOT AGREE to allow my child to participate in the research study.

_____
Child's Name (print)

_____
Parent's Name (print)

_____ _____
Parent's Signature Date

UNCCHARLOTTE
The University of North Carolina at Charlotte
Department of Special Education and Child Development
9201 University City Boulevard
Charlotte, NC 28223-0001

Parental Informed Consent Comparison Peer
Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

Project Title and Purpose:
This letter is to ask your permission for your child to participate in a project called, "Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion." This is a project to see if behavior interventions can be applied to help improve students' academic engagement and work completion in the classroom.

Researchers:
This study is being conducted by Ms. Kimberly Bunch-Crump, Department of Special Education and Child Development, as part of the requirements for a doctoral degree. The responsible faculty member is Dr. Ya-yu Lo, Associate Professor, Department of Special Education and Child Development.

Description of Participation:
We ask that you read this letter and ask any questions you may have before agreeing to allow you and your child to be in this study. Your child has been nominated by a teacher to participate based on meeting participant pre-qualifications (gender, ethnicity, grade level, discipline data, and academic engagement). Not all individuals for whom parental permission is granted will be selected as participants in the study.

We are working with your child's teacher and students in the classroom to implement behavior interventions in hopes of improving student behavior. Your child does not need and will not receive the intervention, but will serve as one of the model peers whose behavior will be compared to other students' behaviors. If you decide to let your child participate, your child's classroom behaviors and academic performance will be observed and recorded about 15-20 times for 15 minutes. Your child's participation will be kept confidential at all times from individuals who are NOT serving on your child's team.

Length of Participation:
Your child's participation in this project will begin in October 2014 and end March 2015. If you decide to provide consent for your child to participate, your child will be one of four participants that will serve as peer models in this study.

Risks and Benefits of Participation:
There is no known risk associated with this study. There may be risks which are currently unforeseeable. The benefits of participation in this study include improved academic behaviors such as engagement and work completion, and improved social behaviors for students receiving the intervention.

Volunteer Statement:
Your child is a volunteer. The decision to participate in this study is completely up to you and your child. If you decide to grant permission for your child to participate in the study, you may stop at any time. Your child will not be treated any differently if he/she decides not to participate, or if he/she stops once he/she has started. The study will not affect any existing services and education your son is currently receiving.

Confidentiality:
The data collected by the researchers will be kept confidential. The following steps will be taken to ensure this confidentiality:

- No real names will be reported in the results of this project.
- Your child's personal identifiers will be separated from data reporting.
- All educational record information and data sheets collected will be stored in a locked file cabinet in the office of the UNC Charlotte responsible faculty.
- Any electronic data collected by the researchers will be stored in password-protected documents on a password-protected computer.
- All data maintained by the researchers will be destroyed 5 years after the study has ended. Electronic data and audio recordings will be dismantled and/or rendered useless.

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Office of Research Compliance if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact the Department of Special Education and Child Development at UNC Charlotte.

This form was approved for use on *October 14, 2014* for a period of one (1) year.

Participant Consent
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project.

Permission Form

☐ I AGREE to allow my child to participate in the study, *Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion*. I understand that this means my child will serve as a model by which other students' behaviors will be measured.

☐ I DO NOT AGREE to allow my child to participate in the research study.

_____
Child's Name (print)

_____
Parent's Name (print)

_____ _____
Parent's Signature Date

UNCCHARLOTTE
The University of North Carolina at Charlotte
Department of Special Education and Child Development
9201 University City Boulevard
Charlotte, NC 28223-0001

Student Assent: Target Students

Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

My name is Mrs. Crump and I am a student at The University of North Carolina at Charlotte. I am doing a study to see if teachers and mentors can help students improve their performance in class.

If you want to be in my study, you will meet with an adult mentor twice a day (in the morning before class and in the afternoon before dismissal) to help you set and monitor your daily goals. You will be given a recording sheet to take with you to class so that teachers can record your progress on your goals in your class and you can share this information with your mentor and parent(s). You will be rewarded for meeting your goals. You may also be asked to use a tablet to help you monitor your goals. You will be asked to participate in one or two 30-minute training(s) on how the program(s) in the study will work. At the end of the study, I will ask you to complete a survey so that I can get your opinion on the program(s). If you choose to participate in the study you will be observed in the classroom and I will get information from your teacher and the school about your behaviors and academic performance.

You can ask questions at any time. You do not have to be in the study. If you start the study, you can stop any time you want and no one will be mad with you.

I hope that this program will help you and other students improve classroom behaviors, but I cannot be sure it will. This study will not hurt you. It could help you to improve your academic performance so you can be more successful in the classroom and in school.

When I am done with the study, I will write a report. I will not use your name in the report. Some of the sessions will be audio or video recorded, but video recordings will not show your face.

If you want to be in this study, please sign your name.

_____ _____

Signature of Participant Date

_____ _____

Signature of Investigator Date

Emancipated Minor (as defined by NC General Statute 7B-101.14) is a person who has not yet reached their 18th birthday and meets at least one of the following criteria: 1) has legally terminated custodial rights of his/her parents and has been declared 'emancipated' by a court; 2) is married, or 3) is serving in the armed forces of the United States.

UNCCHARLOTTE
The University of North Carolina at Charlotte
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9201 University City Boulevard
Charlotte, NC 28223-0001

Student Assent: Peer Comparison

Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

My name is Mrs. Crump and I am a student at The University of North Carolina at Charlotte. I am doing a study to see if teachers and mentors can help students improve their performance in class.

If you want to be in my study, you will be observed in the classroom and I will get information from your teacher about your academic performance.

You can ask questions at any time. You do not have to be in the study. If you start the study, you can stop any time you want and no one will be mad with you.

I hope that this program will help students improve classroom behaviors, but I cannot be sure it will. This study will not hurt you. It could help improve the academic performance of students in your class.

When I am done with the study, I will write a report. I will not use your name in the report.

If you want to be in this study, please sign your name.

_____ _____

Signature of Participant Date

_____ _____

Signature of Investigator Date

Emancipated Minor (as defined by NC General Statute 7B-101.14) is a person who has not yet reached their 18th birthday and meets at least one of the following criteria: 1) has legally terminated custodial rights of his/her parents and has been declared 'emancipated' by a court; 2) is married, or 3) is serving in the armed forces of the United States.

UNCCHARLOTTE
The University of North Carolina at Charlotte
Department of Special Education and Child Development
9201 University City Boulevard
Charlotte, NC 28223-0001

Administrator Informed Consent
Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

Dear _____,

The following information is provided to ascertain whether _____ Elementary School would like to participate in a research study, Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion. As the principal of the school, you should be aware that you are free to decide not to participate or to withdraw at any time without consequences.

The purpose of the study is to evaluate the effects of a Tier II intervention, Check-in Check-out, and a Tier III intervention, function-based self-monitoring, on the academic engagement, work completion, and work accuracy of African American male students at risk for academic failure due to their classroom problem behaviors. This study is being conducted by Ms. Kimberly Bunch-Crump, Department of Special Education and Child Development, as part of the requirements for a doctoral degree. The responsible faculty member is Dr. Ya-yu Lo, Associate Professor, Department of Special Education and Child Development.

Should you give consent for this study to be conducted at your school, four African American male students identified by your staff as at risk for academic failure due to classroom behaviors (e.g., low academic engagement, infrequent completion of class assignments, low performance on assignments, disruptions) will be selected to participate in the study. Students will be assigned a mentor/facilitator at your school based on your recommendations and student approval. Goals of academic engagement and work completion will be set and monitored daily through brief meetings (5-10 minutes) twice a day with the mentor (one in the morning before class and one before dismissal) and daily monitoring of the goal by teachers on a daily behavior report card. I will conduct 30-minute trainings with your staff (students' classroom teachers and the mentor), students, and parents on the Check-in Check-out process. I will conduct direct observations of student behaviors daily in the classroom. Observations may be video recorded and mentor meetings may be audio recorded. Students whose behaviors have not improved after receiving Tier II intervention will receive the Tier III intervention of function-based self-monitoring. Students will be taught to self-monitor using a mobile app.

I will review the students' educational records (e.g., attendance, discipline referrals, individualized education program) to verify the students' participation eligibility only. I will request graded classwork and discipline data for the participants weekly. The teachers will be asked to complete behavior rating scales for students two to three times during the study. Each rating will take no more than 10 minutes. Students, parents,

teachers, and the facilitators will be asked to complete a questionnaire giving their opinions of the interventions at the end of the study. This will take no more than 10 minutes. This study will begin in October 2014 and is estimated to end March 2015.

There is no known risk associated with this study. There may be risks which are currently unknown. The benefits of participation in this study include improved academic performance and improved social behaviors for the students and access to training for school staff in implementing effective behavioral interventions to support at-risk students.

Any information collected for this study about the participants and school will be kept confidential. We will use pseudonyms in all reports, store all data in a locked file cabinet in the office of the UNC Charlotte responsible faculty, keep electronic data in password-protected files and computers, and destroy all participant data 5 years after the study has ended, with the exception of video recording. Video recording may be edited and used for future professional development, but will exclude direct footage of students' face. We will destroy all information collected on potential participants who were not selected to participate in the study immediately after the selection of participants has been made.

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Office of Research Compliance if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact the Department of Special Education and Child Development at UNC Charlotte.

Please sign this consent form if you agree for _____ Elementary School and the selected teachers to participate in the study. You are signing it with the knowledge of the nature and purpose of this research study. A copy of this form will be given to you for your records.

_____
Administrator Name (print)

_____ _____
Administrator Signature DATE

_____ _____
Investigator Signature DATE

UNCCHARLOTTE
The University of North Carolina at Charlotte
Department of Special Education and Child Development
9201 University City Boulevard
Charlotte, NC 28223-0001

CICO Implementer/Trainer Informed Consent
Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

Project Title and Purpose:
You are invited to participate in a research study entitled, "Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion." This is a study to evaluate the effects of a Tier II intervention, Check-in Check-out, and a Tier III intervention, function-based self-monitoring, on the academic engagement and work completion of students at risk of academic failure due to their classroom behaviors.

Researchers:
This study is being conducted by Ms. Kimberly Bunch-Crump, Department of Special Education and Child Development, as part of the requirements for a doctoral degree. The responsible faculty member is Dr. Ya-yu Lo, Associate Professor, Department of Special Education and Child Development.

Description of Participation:
As the CICO implementer and trainer, you will be asked to:

(a) meet with the researchers to receive training on the CICO process and protocol for training facilitators, teachers, students, and parents during a 45-minute session;
(b) conduct training with the CICO facilitators, teachers, target students, and their parents; and
(c) complete a 10-minute survey at the end of the study to indicate your opinions of the intervention and your role being the CICO trainer.

Four African American male students identified by staff as being at risk for academic failure due to classroom behaviors (e.g., low academic engagement, infrequent completion of class assignments, low performance on assignments, disruptions) will be selected to participate in the study. Students will receive mentoring through two meetings daily, targeted behavioral goals (focusing on increased academic engagement, work completion, and work accuracy), a behavioral report card to record behaviors and accomplishment of goals, and if needed, an electronic device with an app to assist with self-monitoring. Students will be observed for approximately 30 minutes 10 to 15 times in the classrooms, to measure the effectiveness of the interventions in increasing academic engagement and work completion. Behavioral observations may be video-recorded.

Length of Participation:
This project will begin in October 2014 and is estimated to end March 2015.

Risks and Benefits of Participation:
There is no known risk associated with this study. There may be risks which are currently unknown. The benefits of participation in this study include improved academic performance and improved social behaviors for the students and access to training for school staff in implementing effective behavioral interventions to support the students.

Volunteer Statement:
You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate or if you stop once you have started.

Confidentiality:
Any information about your participation, including your identity, will be kept confidential. The following steps will be taken to ensure confidentiality:

- Pseudonyms will be used in all reports.
- All educational record information and data sheets collected will be stored in a locked file cabinet in the office of the UNC Charlotte responsible faculty. All educational record information for potential participants who were not selected will be destroyed immediately after the selection process.
- Any electronic data collected by the primary investigator and the responsible faculty will be stored in password-protected documents on a password-protected computer.
- All data maintained by the researchers with the exclusion of video recordings will be destroyed 5 years after the study has ended. Electronic data and audio recordings will be dismantled and/or rendered useless.
- Video recording may be edited and used for future professional development, but will exclude direct footage of the students' faces.

Fair Treatment and Respect:
UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Office of Research Compliance if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact the Department of Special Education and Child Development at UNC Charlotte.

This form was approved for use on *October 14, 2014* for a period of one (1) year.

Participant Consent
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the Principal Investigator.

_____ _____
Participant Name (print) DATE

_____ _____
Participant Signature DATE

_____ _____
Investigator Signature DATE

UNCCHARLOTTE
The University of North Carolina at Charlotte
Department of Special Education and Child Development
9201 University City Boulevard
Charlotte, NC 28223-0001

Teacher Informed Consent

Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

Project Title and Purpose:
You are invited to participate in a research study entitled, "Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion." This is a study to evaluate the effects of a Tier II intervention, Check-in Check-out, and a Tier III intervention, function-based self-monitoring, on the academic engagement and work completion of students at risk for academic failure due to their classroom behaviors.

Researchers:
This study is being conducted by Ms. Kimberly Bunch-Crump, Department of Special Education and Child Development, as part of the requirements for a doctoral degree. The responsible faculty member is Dr. Ya-yu Lo, Associate Professor, Department of Special Education and Child Development.

Description of Participation:
As the teacher of the selected student participant(s), you will be asked to:

(a) allow access to participants' graded classwork;
(b) complete behavior rating scales for your student(s), initially during the participant selection process, before intervention, and at the end of the study; the rating scale will take 10-15 minutes to complete;
(c) participate in a 30-minute interview session to assist in determining the function of the participants' problem behavior for those needing to enter into Tier III intervention, function-based self-monitoring;
(d) participate in a 30-minute training session on the interventions;
(e) rate the student daily on his progress towards his goals; and
(f) complete a 10-minute survey at the end of the study to indicate your opinions of the intervention(s).

Four African American male students identified by staff as being at risk for academic failure due to classroom behaviors (e.g., low academic engagement, infrequent completion of class assignments, low performance on assignments, disruptions) will be selected to participate in the study. Students will meet with a mentor at your school twice a day (once before class and again at the end of the day). Students will have targeted behavioral goals (focusing of increased academic engagement, work completion, and work accuracy), and be given a daily behavior report card for teachers to record behaviors and accomplishment of goals. If needed, students will be given an electronic device with an app to assist with self-monitoring. Students will be observed for approximately 30 minutes 10 to 15 times in the classroom, to measure the effectiveness of the interventions in increasing students' academic engagement. Behavioral observations may be video-recorded.

Length of Participation:
This project will begin in October 2014 and is estimated to end March 2015.

Risks and Benefits of Participation:
There is no known risk associated with this study. There may be risks which are currently unknown. The benefits of participation in this study include improved academic performance and improved social behaviors for the students and access to training for school staff in implementing effective behavioral interventions to support the students.

Volunteer Statement:
You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate or if you stop once you have started.

Confidentiality:
Any information about your participation, including your identity, will be kept confidential. The following steps will be taken to ensure confidentiality:

- Pseudonyms will be used in all reports.
- All educational record information and data sheets collected will be stored in a locked file cabinet in the office of the UNC Charlotte responsible faculty. All educational record information for potential participants who were not selected will be destroyed immediately after the selection process.
- Any electronic data collected by the primary investigator and the responsible faculty will be stored in password-protected documents on a password-protected computer.
- All data maintained by the researchers with the exclusion of video recordings will be destroyed 5 years after the study has ended. Electronic data and audio recordings will be dismantled and/or rendered useless.
- Video recording may be edited and used for future professional development, but will exclude direct footage of the students' faces.

Fair Treatment and Respect:
UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Office of Research Compliance if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact the Department of Special Education and Child Development at UNC Charlotte.

This form was approved for use on *October 14, 2014* for a period of one (1) year.

Participant Consent
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the Principal Investigator.

_____ _____
Participant Name (print) DATE

_____ _____
Participant Signature DATE

Participant's Email Address: _____

_____ _____
Investigator Signature DATE

UNCCHARLOTTE
The University of North Carolina at Charlotte
Department of Special Education and Child Development
9201 University City Boulevard
Charlotte, NC 28223-0001

Facilitator Informed Consent
Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion

Project Title and Purpose:
You are invited to participate in a research study entitled, "Implementing Check-In Check-Out and Function-Based Self-Monitoring to Improve Academic Engagement and Work Completion." This is a study to evaluate the effects of a Tier II intervention, Check-in Check-out, and a Tier III intervention, function-based self-monitoring, on the academic engagement and work completion of students at risk of academic failure due to their classroom behaviors.

Researchers:
This study is being conducted by Ms. Kimberly Bunch-Crump, Department of Special Education and Child Development, as part of the requirements for a doctoral degree. The responsible faculty member is Dr. Ya-yu Lo, Associate Professor, Department of Special Education and Child Development.

Description of Participation:
As the facilitator, you will be asked to:

(a) conduct 5-10 minute meetings (mentoring sessions) with the participants twice a day (in the morning before class and in the afternoon before dismissal) to set daily expectations and goals, and review progress toward the accomplishment of those goals;
(b) audio record your mentoring sessions;
(c) participate in a 30-minute training session on the intervention;
(d) reward the students for meeting their goal;
(e) collect returned daily behavior report cards; and
(f) complete a 10-minute survey at the end of the study to indicate your opinions of the intervention.

Four African American male students identified by staff as being at risk for academic failure due to classroom behaviors (e.g., low academic engagement, infrequent completion of class assignments, low performance on assignments, disruptions) will be selected to participate in the study. Students will receive mentoring through two meetings daily, targeted behavioral goals (focusing on increased academic engagement, work completion, and work accuracy), a behavioral report card to record behaviors and accomplishment of goals, and if needed, an electronic device with an app to assist with self-monitoring. Students will be observed for approximately 30 minutes 10 to 15 times in the classrooms, to measure the effectiveness of the interventions in increasing academic engagement and work completion. Behavioral observations may be video-recorded.

Length of Participation:
This project will begin in October 2014 and is estimated to end March 2015.

Risks and Benefits of Participation:
There is no known risk associated with this study. There may be risks which are currently unknown. The benefits of participation in this study include improved academic performance and improved social behaviors for the students and access to training for school staff in implementing effective behavioral interventions to support the students.

Volunteer Statement:
You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate or if you stop once you have started.

Confidentiality:
Any information about your participation, including your identity, will be kept confidential. The following steps will be taken to ensure confidentiality:

- Pseudonyms will be used in all reports.
- All educational record information and data sheets collected will be stored in a locked file cabinet in the office of the UNC Charlotte responsible faculty. All educational record information for potential participants who were not selected will be destroyed immediately after the selection process.
- Any electronic data collected by the primary investigator and the responsible faculty will be stored in password-protected documents on a password-protected computer.
- All data maintained by the researchers with the exclusion of video recordings will be destroyed 5 years after the study has ended. Electronic data and audio recordings will be dismantled and/or rendered useless.
- Video recording may be edited and used for future professional development, but will exclude direct footage of the students' faces.

Fair Treatment and Respect:
UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the University's Office of Research Compliance if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact the Department of Special Education and Child Development at UNC Charlotte.

This form was approved for use on *October 14, 2014* for a period of one (1) year.

Participant Consent
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the Principal Investigator.

_____	_____
Participant Name (print)	DATE
_____	_____
Participant Signature	DATE
_____	_____
Investigator Signature	DATE

APPENDIX B: SUBJECT/COURSE RANKING

Identification of Class with Most Prominent Display of Disruptive Behavior

Student: _____ Date: _____

Instructions: Please list the core classes in order from the one in which the student displays the most disruptive behavior to the class in which the student displays the least disruptive behavior according to the following definition.

A student is considered to be disruptive when he exhibits:

- Any verbal and/or non-verbal behaviors that would disrupt teacher' s instruction, student's own learning, and/or the learning of his/her peers (e.g., talking out, talking to peers, noncompliance, negative verbal or physical interaction with peers or teacher, out of seat or location, inappropriate use of materials, head on desk).

Most Disruptive	Course/Subject	Teacher	Time (Start-End)
1.			
2.			
3.			
4.			
5.			
6.			
Least Disruptive			

APPENDIX C: CLASS RANKING

Teacher Listing: Academically Engagement

Teacher: _____ Grade: _____ Date: _____

Instructions: Please list the students in your class from most to least engaged academically according to the following definition.

A student is considered to be academically engaged during classroom instruction when s/he shows any of these behaviors:

- Facing toward the classroom presenter (e.g., teacher, guest speaker, student) or demonstration materials (e.g., white board, computer, map) OR
- Actively using instructional materials to complete assigned work (e.g., reading, writing) or responding to the presenter' s question or comment related to academic tasks

Most Engaged	Student's Name
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	
21.	
22.	
23.	
24.	
25.	

Least Engaged	

Teacher Listing: Disruptive Behavior

Teacher: _____ Grade: _____ Date: _____

Instructions: Please list the students in your class from most disruptive to least disruptive according to the following definition.

A student is considered to be disruptive when he exhibits:

- Any verbal and/or non-verbal behaviors that would disrupt teacher' s instruction, student's own learning, and/or the learning of his/her peers (e.g., talking out, talking to peers, noncompliance, negative verbal or physical interaction with peers or teacher, out of seat or location, inappropriate use of materials, head on desk).

Most Disruptive	Student's Name
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	
21.	
22.	
23.	
24.	
25.	
Least Disruptive	

APPENDIX D: DATA COLLECTION SYSTEM

Behavioral Observation Data Collection Form

Participant #: _____ Comparison Peer #:_____

Observer: _____ Class/Subject: _____

Reason for Observation: □ Training □ IOA □ Behavioral Observation

Date: _____ Start Time: _____ End Time: _____

Directions:

- Observations should occur 30 min, alternating between the participant and the comparison peer for each 10-s interval. Randomly predetermine the student (participant or peer) to be observed during the first interval prior to starting the observation.

Disruptive Behaviors:

- Partial Interval: Indicate [+] if the student displayed disruptive behavior *at any point* during the 10-s interval. Indicate [-] if the student did not engage in disruptive behavior during the 10-s interval.

Definition

- Disruptive behaviors are behaviors that impede the students learning or that of his peers.
- Behaviors that disrupts instruction, the students learning, or the learning of his peers (e.g., talking out, talking to peers, noncompliance, negative verbal or physical interaction with peers or teacher, out of seat or location, inappropriate use of materials, head on desk).

Academic Engagement:

- Whole Interval: Indicate [◯] if the student was academically engaged the *entire* 10-s interval. The student must be academically engaged for the entire interval (10-s) to be recorded as [◯].

Definition

- Orienting toward the classroom presenter (e.g., teacher, teacher assistant, guess speaker, student presenter) or demonstration materials (e.g., white board, computer, map) OR
- Actively using materials to complete work (e.g., reading book, using computer, writing with pencil and paper), responding to the presenter's question or comment related to academic tasks, or monitor own behavior using designated electronic device

IOA:

Total # of Agree ____ / Total # of Agree + Disagree ____ = ____ X 100 = ____ (IOA)

Student name: _____________________________						Student name: _____________________________					
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s	:10-s
Total number of (+) / 90 (intervals) x 100 = _______%						Total number of (+) / 90 (intervals) x 100 = _______%					

PAWS Card

Student's Name: _____ Date: _____

Please rate the student's level of academic engagement in your class. For any rating less than a 2, please provide suggestions as to how the student could improve to a rating of 2.

School-wide Value Ratings	
2 = Excellent	The student demonstrated the identified goals without teacher/staff prompting.
1 = Good	The student demonstrated the identified goals with some teacher/staff prompting.
0 = No	The student did not demonstrate the identified goals during the class session.

GOALS		Language Arts	Math	Science	Social Studies	Specials	Other: _____
Be Respectful	▪ Follow directions & classroom routines. ▪ Allow others to learn. ▪ Use kind words and actions. ▪ Be considerate of other's property.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Be Responsible	▪ Participate and do quality work. ▪ Be a problem solver. ▪ Be prepared and on time. ▪ Keep all areas neat.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Be Safe	▪ Use materials and equipment carefully. ▪ Transition carefully. ▪ Keep hands, feet, and objects to yourself.	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2	0 1 2
Teacher Comments: Way to be _____.							
Teacher Initials							
Total Daily Points = _____ Total Possible Points = _____		**Today's percentage = _____**			**GOAL = 80%**		

Facilitator Signature: _____ **Student Signature:** _____

Parent Comments:

Parent Signature: _____

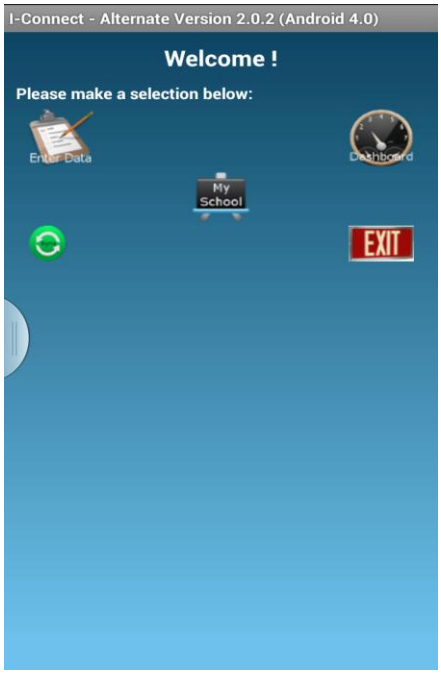
APPENDIX F: ABC ANALYSIS

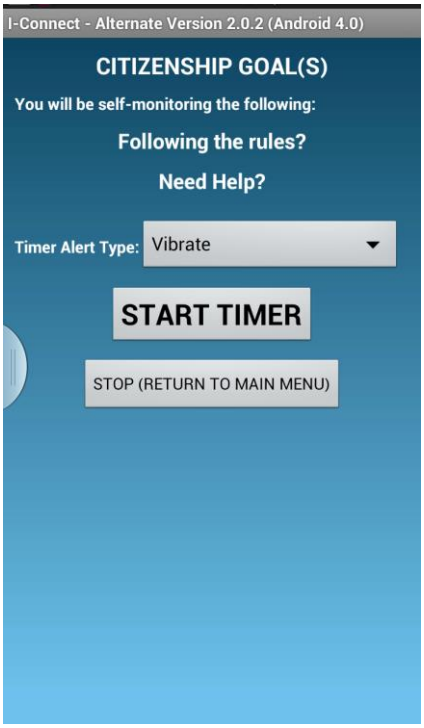
ABC Analysis

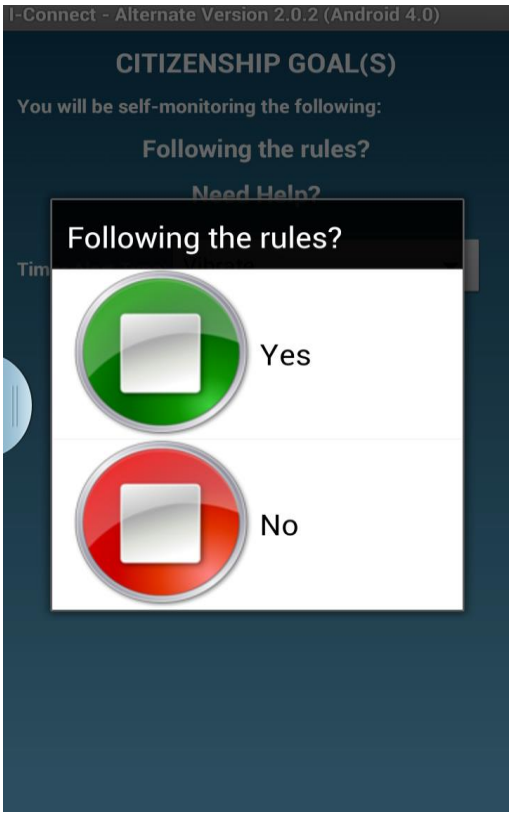
Date____/____/____
Name of Person Observed: _____
Observer: _____
Behavior(s):
_____

Date	Time	Antecedent	Behavior	Consequence	Possible Function

APPENDIX G: I-CONNECT SCREENSHOTS







APPENDIX H: "AT-RISK" STATUS RATING OF STUDENT

At-Risk Rating
(To be completed by student's teacher)

Participant #: _____

Teacher: _____ Class/Subject/Grade: _____

Date: _____

Please indicate your answer below by circling the number that best corresponds with your answer.

Item	Not at all likely 1	Likely 2	Very likely 3
How likely are you to refer the student for special education services due to low academic performance?	1	2	3
How likely are you to refer the student for special education services due to problem behaviors?	1	2	3
How likely are you to refer the student for assistance with behavior (e.g., behavior support plans)?	1	2	3
How likely are you to refer the student for office disciplinary referrals?	1	2	3

APPENDIX I: SWPBIS SCHOOL MATRIX FOR STUDENTS

	Hallways/ Walkways	Cafeteria	Playground	Bus	Assemblies	Restrooms	Classroom
BE RESPECTFUL	Remain silent (level 0) unless spoken to by an adult Follow adult directions Keep the school's property clean	Use table manners Level 0 in lines Level 0 = first 10 minutes Level 1 = after first 10 minutes	Play fairly Invite others to play Use kind word and actions	Speak at level 1 when permitted Sit quickly and slide over	Eyes on speaker Respond appropriately to presenter/performer Remain silent (level 0)	Give each other privacy Flush after each use Keep the bathroom and stalls clean	Be considerate of other's property Follow directions & classroom routines Allow others to learn Use kind words and actions
BE RESPONSIBLE	Go directly to your destination Keep up with your line Wait patiently at stop points	Be ready to make your selection Get all supplies before sitting down Wash tables, sweep floor and pick up trash	Follow adult directions Keep all mulch and sticks on the ground Pick-up and return equipment	Follow adult directions Keep all items on your lap Be ready to load and unload the bus at your stop	Respond appropriately (ex. applause) to presenter or performer Clap when appropriate (at end of song or if invited to by speaker)	Voice level 0 Use one squirt of soap and two pushes for paper towels Keep water in the sink Clean up after yourself Return to class promptly	Be a problem solver Be prepared and on time Participate and do quality work Keep all areas neat
BE SAFE	Stay to the right Always walk in a line Stop at each Intersection Keep hands and feet to self	Always walk in a line Keep a safe distance in line Follow established traffic pattern	Follow rules for swings and equipment use Dress appropriately Always walk on steps to and from playground	Face forward & stay seated until your stop Keep legs, arms, & all objects out of the aisle and inside the bus Keep all objects in a closed book bag	Walk quietly in & out of cafeteria Follow adult directions (ex. for where to sit) Stay seated during the performance	Wash hands with soap and water Use facilities appropriately Report any problems	Keep hands, feet, and objects to yourself Transition carefully Use materials and equipment carefully

Level 0 = Silent
Level 1 = Whisper
Level 2= Inside Voice
Level 3 = Outside Voice

APPENDIX J: INCENTIVE PLAN

Monday		Tuesday		Wednesday		Thursday		Friday		
% of Points Earned	Points Earned	% of Points Earned	Points Earned	% of Points Earned	Points Earned	% of Points Earned	Points Earned	% of Points Earned	Points Earned	Total Points

Daily Incentive

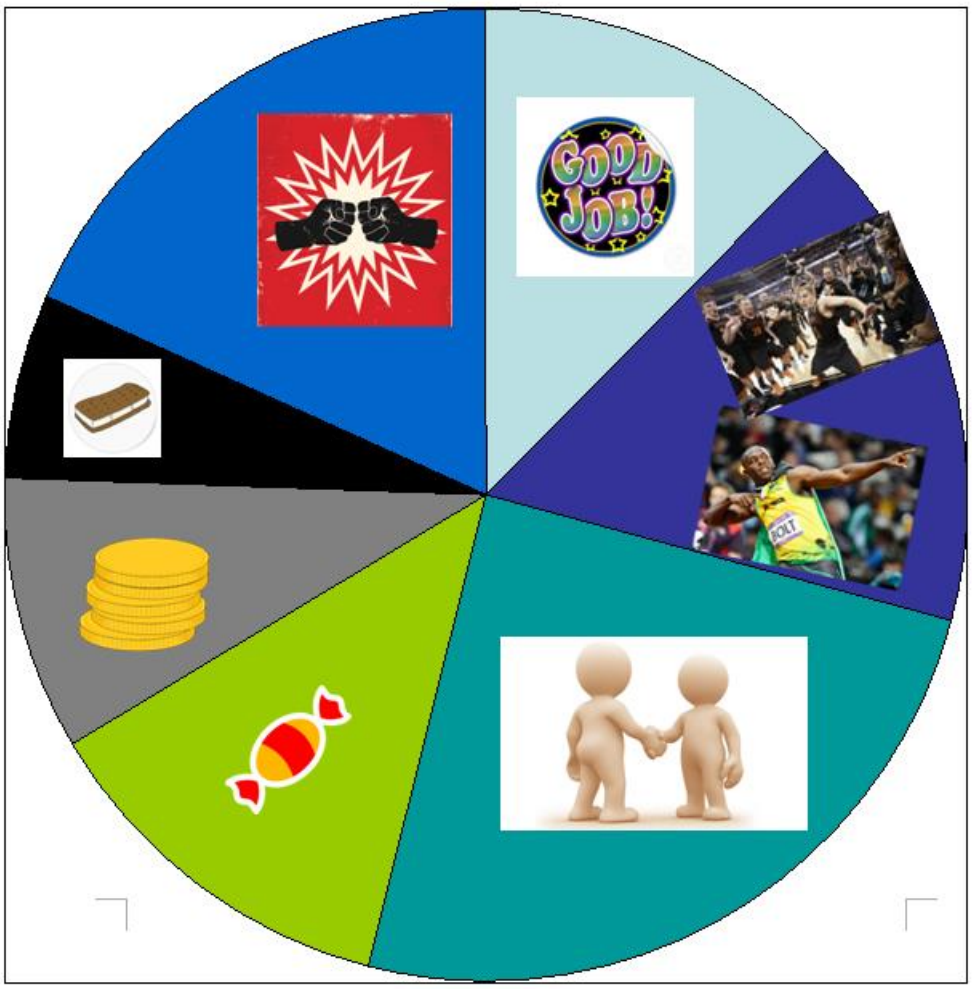
When _____ meets his daily goal, he will get to spin the "Wheel of Wonder."

Long-Term Reinforcers

_____ earns points for meeting a certain percentage of the total possible points on the daily behavior report card. Points can be turned in to receive smaller reinforcers or saving points to earn larger, long-term reinforcers.

- 70% on daily report card = 1 point
- 80% on daily report card = 2 points
- 90% on daily report card = 3 points
- 100% on daily report card = 4 points

Wheel of Wonder



APPENDIX K: PROCEDURAL FIDELITY & IMPLEMENTATION CHECKLIST FOR BASELINE

Procedural Fidelity & Implementation Checklist for Baseline

Interventionist: _____
Observer: _____
Date: _____

School	Yes	No
1. There are five or fewer agreed upon and positively stated schoolwide expectations.		
2. Schoolwide expectations are defined (discipline handbook, instructional materials, SWPBIS plan, website, SIP plan, etc.)		
3. Schoolwide expectations are posted (halls, common areas, classrooms, etc.)		
4. Behavior expectations are taught (lesson plans, materials, etc.)		
5. There is an ongoing system for rewarding demonstration of behavior expectations (discipline handbook, instructional materials, SWPBIS plan, website, SIP plan, etc.)		
6. There is a system for responding to behavior violations (behavior management chart, discipline handbook, SWPBIS plan, website, SIP plan, etc.)		
7. There is a system for monitoring and decision-making through use of referral forms that include (a) student/grade, (b) date, (c) time, (d) referring staff, (e) problem behavior, (f) location, (g) persons involved, (h) probable motivation, and (i) administrative decision; discipline data summary report; SWPBIS plan, etc.		
8. There is at least one school administrator on the SWPBIS team?		
Classroom	**Yes**	**No**
9. Classroom rules/behavior expectations are posted, taught/reviewed.		
10. Classroom rules/behavior expectations are consistent with the schoolwide expectations.		
11. There is an ongoing system for rewarding behavior expectations in the classroom level.		
12. There is system for responding to behavior violations in the classroom level.		
13. CICO is not implemented in the classroom.		
14. Behavior reports are not sent home daily.		
15. Self-monitoring is not occurring.		
Comments:		

Yes ____/Yes +No (15) x 100 = _____%

APPENDIX L: PROCEDURAL FIDELITY & IMPLEMENTATION CHECKLIST FOR CICO

Procedural Fidelity & Implementation Checklist for CICO Intervention

Interventionist: _____
Observer: _____
Date: _____

Check-In	Yes	No
1. Brief greeting and praise for checking in (e.g., "How are you today?" "You look happy to be here this morning", "You're here on time again; great!", "It's great to see you this morning.")		
2. Collection of daily behavior report card from previous day signed by parent/guardian (Verify by viewing daily behavior report card) and praise for returning it signed		
3. Delivery of the day's daily behavior report card (If student forgot to check in, take the daily behavior report card to the classroom and complete 1-7.)		
4. Reminders of behavioral expectations (Be Respectful, Be Responsible, Be Safe) and possible points and incentives		
5. Brainstorm ideas from the previous check-out on ways to improve behaviors		
6. Reminder of CICO process		
7. Positive affirmations (e.g., I can't wait to see how well you do today, do your best)		
Check-out	**Yes**	**No**
8. Involve the student in a discussion of his day (to include what went well and brainstorming ways to improve academic engagement)		
9. Calculation of points earned		
10. Make a copy of the daily behavior report card (verify by viewing copy of daily behavior report card)		
11. Reward as appropriate		
12. Remind the student to obtain parent signature and return daily behavior report card the next day.		
Classroom	**Yes**	**No**
13. Teacher gives feedback at the end of the subject.		
Comments:		

Yes ____/Yes +No (13) x 100 = _____%

APPENDIX M: PROCEDURAL FIDELITY FOR I-CONNECT

Procedural Fidelity Checklist for I-Connect Intervnetion

Participant #: _____
Observer: _____ Class/Subject: _____
Date: _____

Intervention	Yes	No
1. The device was charged and ready for use.		
2. No other self-monitoring system was used (e.g., paper and pencil, electronic device).		
3. Device is placed at the corner of the student's desk and it is not distracting to other students or teacher.		
4. The device is on and the I-Connect application is active.		
5. The student uses the device to actively self-monitor for 30 minutes.		
6. The self-monitoring prompts for incompatible behaviors are set at the appropriate intervals.		
7. The self-monitoring prompts to self-request reinforcement are addressing the student's behavioral function.		
8. The self-monitoring prompts to self-request reinforcement are set at the approariate intervals.		

Yes ____/Yes +No (8) x 100 = _____%

APPENDIX N: PROCEDURAL FIDELITY CHECKLISTS FOR TRAINING

Procedural Fidelity Checklist for CICO Training (30-min)

Trainer: _____

Observer: _____ Date: _____

CICO Implementer Training (45 min)	Yes	No
1. Instruction in the definition of CICO and steps in the process		
2. Instruction in the importance of relationships (e.g., CICO facilitator and student, teacher and student) and positive interactions		
3. Instruction in how to conduct the steps on the CICO implementation checklist for check-ins and check-outs		
4. Instruction in the components of and how to complete the daily behavior report card		
5. Instruction in how to assess and reward points for daily behavior report card		
6. Instruction in operational definitions of the behavioral goals listed on the daily behavior report card		
7. Instruction in how to use videos to conduct discrimination training for students		
8. Instruction in data collection procedures and confidentiality		
9. Instruction in how to conduct the CICO facilitator training		
10. Instruction in how to conduct the CICO teacher training		
11. Instruction in how to conduct the CICO participant training		
12. Instruction in how to conduct the CICO parent training		
13. Instruction in how to access trainee's learning		
14. Assessment of CICO and training procedures		
15. Implementer reached 100% accuracy on assessment		
Yes ____/Yes +No (15) x 100 = _____%		
CICO Facilitator Training (30 min)	Yes	No
1. Instruction in the definition of CICO and steps in the process		
2. Instruction in the importance of the student and CICO facilitator relationship		
3. Instruction in how to conduct the steps on the CICO implementation checklist for check-ins and check-outs		
4. Instruction in completing the daily behavior report card		
5. Instruction in how to assess and reward points for daily behavior report card		
6. Instruction in data collection procedures and confidentiality		
7. Assessment of CICO procedures		
8. Facilitator(s) reached 100% accuracy on assessment		
Yes ____/Yes +No (8) x 100 = _____%		
CICO Teacher Training (30 min)	Yes	No
1. Instruction in the definition of CICO and steps in the process		
2. Instruction in the components of the daily behavior report card to include daily goals, how to score student's behaviors, and student incentives		
3. Instruction in operational definition of the behavioral goals listed on the daily behavior report card		
4. Instruction in the importance of positive interactions (e.g., acknowledging participants' efforts and reiterating schoolwide behavioral expectations)		

5. Instruction in data collection procedures		
6. Assessment of CICO procedures		
7. Teacher(s) reached 100% accuracy on assessment		
Yes ____/Yes +No (7) x 100 = _____%		
CICO Participant Training (30 min)	Yes	No
1. Instruction in the steps in CICO process		
2. Instruction in the components of the daily behavior report card to include daily goals, scoring, and incentives		
3. Instruction in an operational definition of the school-wide expectations		
4. Instruction in discrimination expected school behaviors (e.g., clips of baseline video, researcher developed scenarios)		
5. Instruction in how to accept feedback on the daily behavior report card		
6. Assessment of CICO procedures		
7. Participants reached 100% accuracy on assessment of CICO procedures		
8. Participants reached 90% accuracy in discriminating school-wide behavior expectations		
Yes ____/Yes +No (8) x 100 = _____%		
CICO Parent Training (20 min)	Yes	No
1. Instruction in the steps in the process		
2. Instruction in the components of the daily behavior report card to include daily goals, scoring, and incentives		
3. Instruction in an operational definition of the schoolwide expectations		
4. Instruction in how to review and sign the daily behavior report card		
5. Parents reached 100% accuracy on assessment of CICO procedures		
Yes ____/Yes +No (5) x 100 = _____%		
Comments:		

Yes ____/Yes +No (43) x 100 = _____%

Procedural Fidelity Checklist for I-Connect Training (30 min)

Trainer: _____
Observer: _____ Date: _____

I-Connect Participant Training (30 min)	Yes	No
1. Instruction in how to operate the mobile device		
2. Instruction in how to access I-Connect on the mobile device		
3. Instruction in how to enter identifying information		
4. Instruction in how to discriminate between schoolwide rule compliance and violations		
5. Instruction in how to monitor/record behaviors (to include practice recording behaviors using baseline videos)		
6. Instruction in the proper use and care for the equipment		
7. Did instruction consist of demonstration?		
8. Did instruction consist of guided practice?		
9. Did the instruction consist of independent practice?		
10. Did the instruction consist of performance feedback?		
11. Assessment of I-Connect procedures		
12. Participants reached 90% accuracy on assessment (accessing the application twice)		
13. Participants reached 90% accuracy in discriminating and recording examples and nonexamples of academic engagement		
Yes ____/Yes +No (13) x 100 = _____%		
I-Connect Teacher Training (30 min)	Yes	No
1. An overview of self-monitoring and the use of I-Connect		
2. Instruction in how to access I-Connect and student data		
3. Instruction in student expectations for use and care of equipment		
4. Instruction in teacher storage of equipment		
5. Assessment of I-Connect intervention and procedures		
6. Participants reached 100% accuracy on assessment		
Yes ____/Yes +No (6) x 100 = _____%		
Comments:		

Yes ____/Yes +No (19) x 100 = _____%

APPENDIX O: CONSUMER SATISFACTION QUESTIONNAIRES

Social Validity CICO Implementer Form

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The training on being a trainer for facilitators, teachers, students, and parents was sufficient and useful in providing training.	1	2	3	4	5
2. Serving as the CICO implementer and trainer allowed me to take an active role in our schoolwide positive behavior support efforts.	1	2	3	4	5
3. Serving as the CICO implementer and trainer allowed me to build good relationship with the CICO facilitators, classroom teachers, students, and parents.	1	2	3	4	5
4. Overall, I feel CICO helped to improve the target students' social behavior.	1	2	3	4	5
5. Overall, I feel CICO helped to improve the target students' academic behavior.	1	2	3	4	5
6. We should try this with other students who may need Tier II level of support in our school.	1	2	3	4	5
7. What did you like most about CICO and being the CICO implementer/trainer?					
8. What did you like least about CICO and being the CICO implementer/trainer?					
9. What would you change about the implementation of the CICO program?					
10. What additional comments would you like to make regarding the feasibility and effectiveness of the CICO program?					

Social Validity Teacher Form

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. CICO intervention was effective in decreasing the student's disruptive behavior.	1	2	3	4	5
2. CICO intervention was effective in increasing the student's academic engagement.	1	2	3	4	5
3. CICO intervention was effective in increasing the student's work completion.	1	2	3	4	5
4. CICO intervention was effective in increasing the student's work accuracy.	1	2	3	4	5
5. Self-monitoring intervention was effective in decreasing the student's disruptive behavior. (cross out if not applicable)	1	2	3	4	5
6. Self-monitoring intervention was effective in increasing the student's academic engagement. (cross out if not applicable)	1	2	3	4	5
7. Self-monitoring intervention was effective in increasing the student's work completion. (cross out if not applicable)	1	2	3	4	5
8. Self-monitoring intervention was effective in increasing the student's work accuracy. (cross out if not applicable)	1	2	3	4	5
9. The intervention(s) focused on important behaviors (i.e., disruptive behavior, academic engagement, work completion, work accuracy).	1	2	3	4	5
10. The training on the application of the intervention(s) was sufficient in teaching me to implement the intervention(s).	1	2	3	4	5
11. CICO is easily incorporated into my classroom routine.	1	2	3	4	5
12. Self-monitoring using I-Connect is easily incorporated into my classroom routine. (cross out if not applicable)	1	2	3	4	5

13. The time requirements for implementing CICO are reasonable.	1	2	3	4	5
14. The time requirements for implementing self-monitoring using I-Connect are reasonable. (cross out if not applicable)	1	2	3	4	5
15. If in need, I will continue to use CICO with this student.	1	2	3	4	5
16. I will try CICO with other students who may need this level of behavioral support.	1	2	3	4	5
17. If in need, I will continue to use self-monitoring with this student. (cross out if not applicable)	1	2	3	4	5
18. I will try self-monitoring with other students who may need this level of behavioral support. (cross out if not applicable)	1	2	3	4	5
19. If in need and if the technology were available, I would continue to use self-monitoring via I-Connect with this student. (cross out if not applicable)	1	2	3	4	5
20. If the technology were available, I would try self-monitoring via I-Connect with other students who may need this level of behavioral support. (cross out if not applicable)	1	2	3	4	5
21. Overall, I feel the intervention(s) helped to improve the student's social behavior.	1	2	3	4	5
22. Overall, I feel the intervention(s) helped to improve the student's academic behavior.	1	2	3	4	5
23. What was the most helpful part of the intervention(s)?					
24. What was the most challenging part of the intervention(s)?					
25. What additional comments would you like to make regarding the feasibility and effectiveness of the intervention(s)?					

Social Validity CICO Facilitator Form

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The training on CICO was sufficient in teaching me how to implement the CICO program.	1	2	3	4	5
2. The time requirements for check-ins and check-outs are reasonable.	1	2	3	4	5
3. CICO provides a good way to involve parents in their child's education and behavioral support plan.	1	2	3	4	5
4. I feel that my relationship with the students improved through the implementation of the CICO program.	1	2	3	4	5
5. Overall, I feel CICO helped to improve the students' social behavior.	1	2	3	4	5
6. Overall, I feel CICO helped to improve the students' academic behavior.	1	2	3	4	5
7. We should try this with other students who may need Tier II level of support in our school.	1	2	3	4	5
8. What did you like most about CICO?					
9. What did you like least about CICO?					
10. What would you change about the implementation of the CICO program?					
11. What additional comments would you like to make regarding the feasibility and effectiveness of the CICO program?					

Social Validity Parents Form

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Receiving daily feedback from my child's teacher was helpful.	1	2	3	4	5
2. Meeting with the facilitator had a positive impact on my child's day.	1	2	3	4	5
3. The intervention(s) focused on an important behavior.	1	2	3	4	5
4. I've seen positive changes in my child's behavior.	1	2	3	4	5
5. My child had higher homework completion rate without prompting.	1	2	3	4	5
6. I think the school should continue to use the intervention(s) with my child.	1	2	3	4	5
7. Overall, I feel the intervention(s) helped to improve my child's social behaviors.	1	2	3	4	5
8. Overall, I feel the interventions helped to improve my child's academic behavior.	1	2	3	4	5
9. What was the most helpful part of this intervention(s)?					
10. What was the most challenging part of this intervention(s)?					
11. What additional comments would you like to make regarding the intervention?					

Social Validity CICO Participant Form

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The help I received helped me to improve a behavior that I needed to work on.	1	2	3	4	5
2. I thought it was helpful to work on my behavior.	1	2	3	4	5
3. I do a better job at school because my behaviors have improved.	1	2	3	4	5
4. I liked meeting with the facilitator.	1	2	3	4	5
5. I liked the feedback I received on my daily behavior report card.	1	2	3	4	5
6. I liked having my parents check my daily behavior report card.	1	2	3	4	5
7. I enjoyed the rewards I received from meeting the daily goals.	1	2	3	4	5
8. I want the help to continue.	1	2	3	4	5
9. Which part of the help did you like the most?					
10. Which part of the help did you like the least?					
11. Is there anything else you would like to say about the program?					

Social Validity Function-based Self-monitoring with I-Connect Participant Form

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I like using the handheld device to monitor my behavior.	1	2	3	4	5
2. I thought the handheld device was easy to learn and easy to use.	1	2	3	4	5
3. I think tracking my behaviors helped me to improve my behavior.	1	2	3	4	5
4. I think tracking my behavior helped me to complete my work.	1	2	3	4	5
5. I think tracking my behaviors helped me to do my work correctly.	1	2	3	4	5
6. I think tracking my behaviors helped me to learn better.	1	2	3	4	5
7. Which part of the self-monitoring help did you like the most?					
8. Which part of the self-monitoring help did you like the least?					
9. Is there anything else you would like to say about the program?					