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IMPLEMENTATION PLANNING TO INCREASE TREATMENT INTEGRITY FOR CHECK-IN/CHECK-OUT WITH AN ELECTRONIC DBRC

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IMPLEMENTATION PLANNING TO INCREASE TREATMENT INTEGRITY FOR CHECK-IN/CHECK-OUT WITH AN ELECTRONIC DBRC

by

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ABSTRACT

The present investigation assessed the effectiveness of Implementation Planning (IP) as a strategy for improving the treatment integrity of a commonly implemented behavioral intervention, Check-In/Check-Out (CICO). An electronic daily behavior report card (E-DBRC) was used to monitor intervention effectiveness for three students across a non-concurrent multiple-baseline design. IP was not associated with consistent improvements in treatment integrity for teachers who served as mentors within the CICO intervention. Teacher treatment integrity improved for one student's teacher but had no sustained functional relation for the other two teachers. Student behavioral data were collected to determine if the implementation of CICO was associated with improvements for behavioral outcomes; however, since IP had minimal effect on treatment integrity, it was not possible to draw conclusions regarding a functional relation between implementation of CICO and student behavioral outcomes. Social validity data were collected, and teachers rated IP and CICO with an E-DBRC as being favorable. The results are discussed within the context of the limitations, difficulties associated with conducting research in applied settings, and directions for future research.

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DEDICATION

My doctoral journey began 11 years ago, as a sophomore in high school, when I first dreamt of becoming a psychologist. This project is dedicated to all of the people who walked with me along the way, lifting me up to make this dream possible. To Ian, my husband, thank you for your endless support and love over the past decade. Without your tireless efforts, unending patience, and unwavering commitment to my vision, I would not have accomplished all that I have. I would also like to thank my Dad, who inspires me to be better every day. Thank you for your never-ending support, generosity, encouragement, and for always believing in my dream. You have been my best friend and my greatest teacher; your impact on all I have achieved cannot be overstated. Mom, thank you for being my angel. You are my north star, always reminding me of my roots, acting as a guiding light for me, even as you watch my journey from heaven. Corey and Aubrey, thank you for encouragement and levity. Your steadfast support never wavered; I know I always have a home with you. Marley, I always look forward to our next adventure. Thank you for my love of travel and sense of curiosity. To the best in-laws, The Weavers; thank you for loving me as one of your own. I could not have accomplished all I have without your unwavering support. Mel, thank you for your daily encouragement from afar, it brings so much light into my day. And finally, my deepest gratitude to all the friends I have made, and the ones who have been with me from the start. Your encouragement has, at last, gotten me to the finish line: The Fishers, The Paveljacks, The Belles', The O'Learys, The Herricks, Kina McCard, Lauren Peak, Ryan Gillette, Rebecca Lovelace, Amanda Larkin, Samuel Marcucci, Rachel Adel, Kenny Ross, Maddy Klotz, Ward Parker, and Meleah Ackley.

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LIST OF ABBREVIATIONS

AEB	Appropriately Engaged Behavior
BC	Behavioral Consultation
CICO	Check-In/Check-Out
DRC	Daily Report Card
E-DBRC	Electronic Daily Behavior Report Card
IP	Implementation Planning
PB	Problem Behavior
PBIS	Positive Behavioral Interventions and Supports
SET	School-Wide Evaluation Tool

CHAPTER I – INTRODUCTION

Behavioral Consultation (BC) is a process for problem-solving, which typically includes four stages, the problem identification interview, the problem analysis interview, plan implementation, and the program evaluation interview (Bergan, 1977). Within this model, consultants typically work with consultees to collect data and implement evidence-based interventions for students within schools. Researchers have identified BC as the model that school psychologists report most frequently using to serve students in the school setting (Fischer et al., 2016). When implementing behavioral interventions from a BC framework, it is critical to study the treatment integrity with which the interventions are implemented.

Treatment Integrity

Treatment integrity is an important component of intervention implementation within a BC framework; treatment integrity is the extent to which an intervention is implemented as planned (Noell et al., 2005). Research demonstrates that when behavioral interventions are implemented with a high degree of integrity, student behavior is more likely to improve (Sterling-Turner et al., 2002). Many methods of reporting treatment integrity data have been assessed in the literature, including observation, self-report forms, interviews, and permanent products (Wilkinson, 2007). There are advantages and disadvantages of each method of assessing treatment integrity. For instance, observation of intervention implementation may yield accurate data about which intervention steps occurred; however, observations are vulnerable to reactivity from the individual implementing the intervention, require greater resources relative to other treatment integrity assessment methods, and may not account for each intervention step if

intervention steps are implemented across long periods of time (Sanetti & Collier-Meek, 2014; Sanetti & Collier-Meek, 2017). Conversely, self-report checklists are less resource intensive, but may also be less accurate (Sanetti & Collier-Meek, 2017; Wilkinson, 2007).

Within the behavioral consultation framework, several strategies have been used to improve the treatment integrity of behavioral intervention. Researchers have compared short weekly treatment integrity interviews, weekly interviews with a social influence procedure, and performance feedback to evaluate which method of treatment integrity evaluation was most effective (Noell et al., 2005). Findings of the study indicated that performance feedback was the most effective condition for improving teacher treatment integrity for behavioral intervention. Even though performance feedback was an effective procedure, it is a consequent strategy that is reactive in nature (Collier-Meek et al., 2017). Moreover, when performance feedback is conducted via daily face-to-face meetings between consultants and consultees, the consultation process requires tremendous resources (Fallon et al., 2018).

Although researchers have investigated consequent strategies to improve treatment integrity of behavioral interventions, the use of antecedent strategies is a proactive, resource-efficient approach to support the implementation of behavioral interventions (Andersen & Daly, 2013). A variety of antecedent strategies have been tested to evaluate intervention implementation, such as providing choice to teachers (Andersen & Daly, 2013) and Implementation Planning (IP; Sanetti et al., 2014). Researchers have reported that providing teachers with choice during the consultation process was associated with higher treatment integrity compared to teachers who were

not provided choice (Andersen & Daly, 2013). Similarly, teachers who were given the opportunity to test-drive interventions and select the preferred intervention implemented behavioral interventions with improved integrity compared to poor implementation of behavioral interventions prior to the choice procedure (Dart et al., 2012). Since antecedent strategies are proactive methods of increasing treatment integrity, it is important to further study these approaches.

Implementation Planning

IP is an antecedent strategy that has been used to promote treatment integrity of behavioral interventions (Sanetti et al., 2014). IP consists of two primary phases, action planning and coping planning (Sanetti et al., 2014). Within the action planning phase, the interventionist discusses the intervention steps, proposes potential changes to the intervention protocol to make it more feasible for the teacher within their classroom, and determines how those changes will be made. During the coping planning phase, the interventionist discusses at least four obstacles and practical ways to overcome each one during intervention implementation (Sanetti et al., 2014). IP is used as an antecedent strategy to ensure that interventions are implemented with a high degree of fidelity.

Recently, researchers have investigated the use of IP for improving treatment integrity (Byron et al., 2020; Sanetti et al., 2014). Research in the field has compared initial implementation of an intervention to the intervention with IP to evaluate changes in treatment integrity following IP (Byron et al., 2020; Sanetti et al., 2014). Specifically, researchers have created behavior support plans and compared treatment integrity with and without IP. Overall, investigators found that IP improved teacher adherence to interventions (Byron et al., 2020; Sanetti et al., 2014).

Student outcomes (i.e., academically engaged behavior and disruptive behavior) have been evaluated in conjunction with IP (Collier-Meek et al., 2016). In this study, treatment integrity was evaluated before and after IP with classroom behavior interventions. IP was associated with an improvement in treatment adherence, which is a construct similar to treatment integrity. These researchers found that after the IP phase, students engaged in fewer disruptive behaviors and more academically engaged behaviors, according to Direct Behavior Ratings (DBR; Collier-Meek et al., 2016). While DBR and DBRC data yield similar information, DBR has empirically supported scaling and formal procedures for creating operational definitions and training raters (Christ et al., 2010). Within this study, the DBR was used to gather research data on student behavior after classroom management strategies were implemented; IP was not used to increase adherence to completing the DBR. Student outcome data within this study were limited because student behavior was evaluated in a pre-test, post-test fashion, rather than graphed in a single-case design format (Collier-Meek et al., 2016). Therefore, it is not possible to determine that there was a functional relation between increased treatment adherence and improvements in student behavior.

Similarly, IP is associated with improvements in teacher treatment adherence to class-wide behavioral interventions (Sanetti et al., 2017). Within this study, student disruptive behavior decreased in conjunction with IP. However, the researchers reported that student behavioral effects were stronger for some classes compared to others, with Tau-U effect sizes ranging from 0.47 to 0.75, indicating weak to moderate effects (Sanetti et al., 2017). Other studies have examined student outcomes on an individual level, rather than a class-wide level (Sanetti et al., 2014). Researchers found that academic

engagement increased, and disruptive behavior decreased for three students when IP was used to increase treatment integrity of behavior specific praise (Sanetti et al., 2014). To date, many studies evaluating student outcomes with IP have focused on class-wide interventions or simple interventions, such as behavior specific praise, that include few treatment steps and limited implementation resources. The goal of the present study is to evaluate the effect of student outcomes after IP with more complex interventions that include several steps and multiple resources.

Check-In/Check-Out

Check-In/Check-Out (CICO), a Tier 2 behavioral intervention within a Positive Behavioral Interventions and Supports (PBIS) framework, may be used when students need supports beyond Tier I, universal supports (Crone et al., 2010). CICO, also referred to as the Behavior Education Program, is frequently used within elementary and middle schools (Crone et al., 2010). CICO requires few school resources, and the intervention can be implemented by teachers or school staff with little external support (Filter et al., 2007).

As CICO includes several components aimed to improve behavioral performance at school, it is a more complex intervention than those previously tested with IP. Prior to the start of intervention, behavioral targets are determined based upon problem behaviors that are occurring in the classroom. During intervention, the student meets with a mentor before the day begins to establish goals for the day (Hawken & Horner, 2003). During this meeting, the mentor provides positive adult attention. Positive adult attention is a critical element of this intervention, because behavioral expectations are frequently explained and the student is prompted to engage in them each day (Crone et al., 2010).

Next, teachers rate student behavior and provide behavioral feedback in the classroom during designated periods of time on a Daily Behavior Report Card (DBRC). The DBRC is a form on which teachers rate student behavior several times a day, usually on a Likert scale; then, the DBRC is shared with and signed by parents (Hawken & Horner, 2003). There is a point system based on the DBRC, which is a critical element of CICO. Contingent on receiving a number of points in correspondence with the student's goals, adults provide a reward or corrective feedback when the student checks out at the end of the day (Hawken & Horner, 2003). DBRC data are collected and continually monitored. According to Crone et al. (2010), achieving a criterion of 80% of their points indicates that a student is responding to the intervention.

Evidence Base for CICO

CICO is a well-documented and researched Tier 2 intervention. Specifically, meta-analyses (Drevon et al., 2018) and systematic reviews (Wolfe et al., 2016) have revealed positive student outcomes. Drevon et al. (2018) analyzed 32 CICO studies, including journal articles, theses, and dissertations. This analysis showed that CICO was effective in both increasing academically engaged behavior (e.g., on-task behavior) and decreasing problem behavior (e.g., disruptive and off-task behaviors). Overall, this research reported an "average" effect size of the CICO intervention across studies, as represented by a Hedge's g value of 1.16. This effect size indicates that significant improvement in student behaviors occurred with the implementation of CICO. Furthermore, Drevon et al. (2018) found there was variability in the effect sizes between studies; this is attributed to the fact that CICO is implemented in many ways, with and without accommodations, and effect size may depend on variations in implementation.

Similarly, Wolfe et al. (2016) reviewed the CICO literature, including 15 single-case design studies and one group design study. Participants in the studies were recruited from varying populations ranging from typically-developing kindergarten students to 15-year-olds in a residential facility. Overall, findings from this review indicate that CICO is an evidence-based intervention for decreasing inappropriate behaviors. At the elementary level, CICO resulted in reductions in problem behaviors in all four elementary school participants, with an average of 17.5% reduction (Todd et al., 2008). These findings are important because CICO is resource efficient and changes in behavior were a result of the intervention (Todd et al., 2008).

Additionally, researchers have also established effectiveness at the middle school level (e.g., Hawken & Horner, 2003; Simonsen et al., 2010). Researchers have implemented the Behavior Education Program, an early version of CICO, with middle school students in need of behavioral intervention (Hawken & Horner, 2003). Results from this investigation indicate that when the intervention was implemented with this population, there was a reduction in problem behavior and increases in academic engagement (Hawken & Horner, 2003). Similarly, another study found that middle school students who were in the CICO group had statistically significant reductions in off-task behavior compared to those in the standard practice group (Simonsen et al., 2010). Thus, CICO is a viable intervention for reducing middle school students' problem behaviors.

Within the CICO literature, several studies have assessed the social validity of the intervention and reported favorable results. A recent systematic review indicated that a majority of studies (81%) reported social validity data, and a majority of these studies

reported high or positive ratings (Wolfe et al., 2016). Similarly, Filter et al. (2007) reported that district personnel in the study rated CICO as both an effective and efficient intervention in terms of time, effort, and ease of implementation. Further evidence of social validity comes from Hawken et al. (2007), who report that teachers, parents, and students all rated the intervention as highly acceptable. However, more social validity data should be collected to determine the extent to which teachers and personnel in this setting find it to be acceptable to use an electronic Daily Behavior Report Card (E-DBRC). Although there has been limited research evaluating the social validity of E-DBRCs, a recent study compared teacher perceptions of paper and E-DBRCs and reported 75% of teachers agreed that E-DBRCs were preferable (Yassine & Tipton-Fisler, 2022). Further research is necessary to replicate this finding.

Monitoring Intervention Effectiveness

DBRC forms have traditionally been used in CICO as a tool to monitor progress and provide frequent feedback to the students (Hawken & Horner, 2003). Typically, these DBRCs are completed via pencil and paper and a teacher rates the student's behavior numerically throughout the day. However, Filter et al. (2007) reported that it was difficult for the school officials to obtain the signed DBRCs back from parents, which is an intervention step. E-DBRCs are one way to eliminate barriers, such as lost or destroyed DBRCs. Online programs, such as the Daily Report Card Online (DRC.O), exist to aid teachers in E-DBRC development, use, and data management (Owens et al., 2019). These additional resources may help teachers to implement E-DBRCs with integrity.

Researchers have investigated the utility of E-DBRCs. Williams et al. (2012) used an E-DBRC with and without performance feedback delivered to parents. The researchers

then measured the impact of E-DBRC use on disruptive classroom behavior. Findings indicate that use of the E-DBRC was associated with an increase in on-task behavior (Williams et al. 2012). To date, this is one of the only studies published in a peer reviewed journal evaluating the effectiveness of an E-DBRC.

There are also a limited number of theses and dissertations evaluating the effectiveness of an E-DBRC (e.g., Lopach, 2016, Riden, 2018). One study investigated the impact of an electronic home-school note on on-task behavior and math performance (Lopach, 2016). In this study, the electronic home school note was implemented through Google Forms©, and teachers only completed the measure based on the student's behavior during 15 minutes of math work. The study reported that the intervention was implemented with 100% fidelity, according to treatment fidelity checklists (Lopach, 2016). Additionally, the electronic home-school note was associated with an overall increase in on-task behavior and math performance, as measured by the number of problems completed correctly (Lopach, 2016). It is important to note that this study implemented the home-school note for only 15 minutes each day; therefore, it is necessary to investigate the extent to which these gains would be replicated in a complete implementation of CICO.

Similarly, another study investigated the extent to which an E-DBRC impacted problem behaviors in two high school students with disabilities (Riden, 2018). The methodology of this study was similar to CICO (e.g., reminders of behavioral expectations, performance feedback, reward for meeting goal). Yet, it was conducted on a smaller scale by implementing the intervention for six 10-minute time periods rather than checking in and checking out throughout an entire school day. The study reported that the

intervention was implemented by both interventionists with treatment fidelity of 95% or greater (Riden, 2018). Results from this study demonstrated that intervention resulted in lower levels of off-task and talking out behaviors, which maintained even when the intervention was faded (Riden, 2018).

Notably, studies exclusively evaluating E-DBRC have not implemented E-DBRCs in the context of a full implementation of CICO. Therefore, it is important to investigate the extent to which the E-DBRC is feasible and effective within a CICO intervention package. Moreover, research may evaluate the extent to which an E-DBRC within CICO is implemented with integrity.

Implementation Fidelity of CICO

Recent meta-analyses and systematic reviews have evaluated treatment integrity within the CICO literature (Weaver, 2021; Wolfe et al., 2016). A systematic review reported that all 15 studies within their sample collected treatment integrity data and reported values greater than 90% (Wolfe et al., 2016). In this study, 81% of treatment integrity data were collected via treatment integrity checklists. A recent thesis used a data set of 52 CICO studies that reported treatment integrity data (Weaver, 2021). Within this data set, all 52 studies reported treatment integrity data. Of these 52 studies, 44 studies (84.61%) reported treatment integrity of 80% or higher. However, a large proportion of the studies within meta-analyses are efficacy studies with a high degree of experimental control. That is, many studies were conducted by teams of researchers on-site to supervise implementation and provide implementation support, evidenced by 50% of the studies having enough experimental control to meet What Works Clearinghouse standards fully or with reservations (Weaver, 2021). Since treatment integrity data are

often completed via checklist (Wolfe et al., 2016), and researchers often complete the checklists, it is possible that teachers are reactive to observation. Taken together, there are concerns that high treatment integrity of CICO reported in systematic reviews may not be representative of implementation of CICO in real-world settings with typical school resources. Finally, researchers should consider testing antecedent strategies for increasing treatment integrity of CICO, especially in schools in which typical resources are available.

Gaps in the Literature and Purpose of the Project

IP has been tested and found to be effective for increasing treatment integrity for both behavioral and academic interventions (Byron et al., 2020, Sanetti et al., 2014; Sanetti et al., 2017). However, many studies that have tested IP have done so using class-wide strategies and simple interventions, such as behavior specific praise (Sanetti et al., 2014; Sanetti et al., 2017). Further research is needed to determine the effectiveness of IP with more complex interventions, especially those that are commonly used as part of PBIS. Specifically, CICO, which is a commonly used Tier 2 PBIS strategy, requires multiple individuals to work with the student throughout the day to complete various tasks, such as behavioral feedback, completion of the DBRC, providing check-ins and check-outs, and providing reinforcement. As a result, testing the effects of IP on school personnel's CICO implementation would provide a socially valid extension of the IP and CICO literatures.

CICO has also been evaluated across numerous studies and demonstrated to be an effective behavioral intervention for improving myriad student outcomes (Drevon et al., 2018; Weaver, 2021). Additionally, meta-analyses and systematic reviews have reported

that in research studies, CICO is implemented with integrity (Weaver, 2021; Wolfe et al., 2016). However, these studies are conducted under ideal conditions and may not be representative of the level of implementation support teachers receive in a typical school setting. Therefore, it is necessary to test antecedent strategies for supporting teachers and mentors in a typical setting as they implement CICO in practice.

In addition to testing the effects of IP with CICO, there has been a call for research on the use of E-DBRCs (Burke & Vannest, 2008). These researchers cite several key areas that should be investigated regarding E-DBRCs; notably, the social validity of the measure must be assessed. While the social validity of DBRCs has been reported (Filter et al., 2007; Wolfe et al., 2016), there is a need to determine the extent to which teachers and school personnel find the E-DBRC to be feasible. Though Williams et al. (2012) report that an emailed DBRC was socially valid, this study did not use the emailed DBRC within the context of CICO. Furthermore, Burke and Vannest (2008) report a plethora of potential uses for the E-DBRC within behavioral intervention. Specifically, they report that behavior tracking is an important part of the CICO intervention. Yet, the utility of an E-DBRC within this context has not been investigated. As Filter et al. (2007) reported difficulty obtaining a signed DBRC from parents, the E-DBRC may be one way to engage families with the process more easily.

Studies which have investigated the effectiveness of E-DBRCs have not done so within the context of CICO. Although Williams et al. (2012) found the emailed DBRC to be useful in increasing on-task behaviors, this was vastly different from a traditional CICO intervention. Specifically, parents were charged with prompting teachers to complete the DBRC and providing reinforcement contingencies to students at home. It

will be important to investigate the impact of an E-DBRC with the addition of core CICO elements such as providing feedback frequently throughout the school day and the opportunity to earn a reward based on reaching some E-DBRC criterion.

In sum, researchers report that IP and CICO are effective interventions, but there are gaps in the literature regarding the treatment integrity of CICO under natural conditions, the use of IP with complex interventions, and the use of E-DBRCs. This study tested the effects IP on treatment integrity with CICO. The following research questions were addressed:

1. **Research Question 1:** Does IP increase CICO mentors' treatment integrity for CICO with an E-DBRC?
2. **Research Question 2:** Does IP increase teachers' treatment integrity for E-DBRC completion within CICO?
3. **Research Question 3:** Does the implementation of CICO result in a decreased level of problem behavior exhibited by students relative to baseline levels of performance?
4. **Research Question 4:** Does the implementation of CICO result in an increased level of appropriate behavior exhibited by students relative to baseline levels of performance?
5. **Research Question 5:** Do teachers and mentors rate CICO with an E-DBRC as socially valid?
6. **Research Question 6:** Do teachers and mentors rate IP as socially valid?

CHAPTER II – METHOD

Participants and Setting

Prior to the recruitment of participants, the study was approved by the University of Southern Mississippi's Institutional Review Board (Appendix A). The study took place in a public elementary school in the Southeastern United States. The school was a Title I school with 100% of students eligible for free or reduced-priced lunch. Furthermore, 49% of the students at the school were female and 51% of students were male. Additionally, 87.1% of the enrolled students were Black, 5.1% were White, 1.2% were Hispanic, 0.8% were Asian, and 5.7% of students identified with two or more races. School administrators indicated that the school implemented PBIS; however, School-wide Evaluation Tool (SET) data were not available to evaluate PBIS implementation. The consultant in the study was a 25-year-old White female who worked as a graduate extern within the district.

Students were recruited from grades 1-5. Participants included three students exhibiting problem behaviors in the classroom during instructional activities. Office discipline referrals, universal screening data, and administrator referral were used to recruit students. Screening data were based upon the Student Risk Screening Scale-Internalizing and Externalizing (SRSS-IE; Lane & Menzies, 2009), which was collected twice per year within the district. Students with frequent absences were excluded since intervention implementation is dependent upon regular attendance and participation. Prior to the start of intervention, students who had missed more than 10% of school days during the academic year were excluded because the Mississippi Department of Education states that students who are absent for 10% of the school year are considered

chronically absent (Mississippi Department of Education, n.d.). All students referred for the study received general education services and had no record of retention. Once administrators identified potential participants, informed consent was sent home with each student. Once informed consent forms were completed, each student selected a school staff member to act as a mentor. Finally, participating teachers and mentors provided consent to participate.

Trevor

Trevor (pseudonyms used throughout) was a seven-year-old Black male in first grade. At the time of consent, Trevor had five absences and zero discipline referrals. During the spring semester, Trevor was in the high-risk category for externalizing behavior and the moderate risk category for internalizing behavior on the SRSS-IE. Trevor's teacher, Mrs. Smith, was a 32-year-old White female. Mrs. Smith had been teaching for ten years at the time of the study and had her doctorate in Education. Mrs. Smith had experience implementing CICO prior to the beginning of the study. As part of typical practice within the district, some teachers implemented CICO as part of a student's behavior intervention plan written by the district's behavior specialist. In these cases, the behavior specialist provided materials and instructions to teachers when the behavior intervention plan was written. Trevor selected his P.E. teacher, Mr. Williams, to serve as his mentor. Mr. Williams was a 40-year-old Black male. At the start of the study, Mr. Williams had 15 years of teaching experience and had completed his bachelor's degree. Mr. Williams had no experience implementing CICO prior to the beginning of the study.

Levi

Levi was an eleven-year-old Black male in fourth grade. At the time of consent, Levi had ten absences and four discipline infractions. During the spring semester, Levi was in the high-risk category for externalizing behavior and the low-risk category for internalizing behavior on the SRSS-IE. Levi had three primary teachers who participated in the study. Levi's reading teacher, Mrs. Morrison, was a 28-year-old Black female. Mrs. Morrison had four years of teaching experience and had completed her master's degree. Levi's math teacher, Mrs. Newhart, was a 26-year-old White female. Mrs. Newhart had two years of teaching experience and had completed her bachelor's degree. Levi's science teacher, Mrs. Sullivan, was a 47-year-old Black female. Mrs. Sullivan had 25 years of teaching experience and had completed her master's degree. Levi chose Mrs. Sullivan to serve as his CICO mentor. None of Levi's teachers had prior experience implementing CICO.

Ramsay

Ramsay was an eleven-year-old Black male in fifth grade. At the time of consent, Ramsay had two absences and zero discipline infractions. During the spring semester, Ramsay was in the low-risk category for externalizing and internalizing behavior on the SRSS-IE. Ramsay was referred by school administration because administrators requested extra behavioral support for Ramsay to prepare him for sixth grade. School counselors reported that Ramsay received mental health services through community mental health; moreover, he had a behavior intervention plan at school during prior school years. As a result, he was deemed to be an appropriate candidate to receive CICO.

Ramsay had three primary teachers who participated in the study. Ramsay's reading teacher, Mrs. Wilkinson, was a 31-year-old Black female. Mrs. Wilkinson had five years of teaching experience and had completed her bachelor's degree. Ramsay chose Mrs. Wilkinson to serve as his CICO mentor. Ramsay's math teacher, Mrs. Collins, was a 38-year-old Black female. Mrs. Collins had 11 years of teaching experience and had completed her master's degree. Ramsay's science teacher, Mrs. Cook, was a 50-year-old Black female. Mrs. Cook had 24 years of teaching experience and had completed her master's degree. Prior to the start of the study, Mrs. Cook and Mrs. Wilkinson had prior experience implementing CICO as part of typical practice within the district.

Instruments and Materials

Functional Assessment Informant Record for Teachers (FAIR-T II) and Teacher Interview

Each student's teachers were asked to complete the FAIR-T II prior to data collection. The FAIR-T II (Edwards, 2002) is an instrument used to gather functional information about problem behaviors in a systematic manner. The FAIR-T II is an updated version of the original FAIR-T, including demographic information, a section to rank order severity of problem behaviors, and rating scales to establish antecedents and consequences of the problem behaviors (Edwards, 2002). Preliminary research indicates that the FAIR-T II demonstrates adequate test-retest reliability, and is useful for intervention planning (Ackley et al., 2019). Due to difficulty obtaining completed FAIR-T II forms from the teachers prior to baseline, the primary investigator completed a brief teacher interview to determine behavioral goals. During the teacher interview, teachers were asked to select the top three problem behaviors that the student exhibited in class

from the FAIR-T II. Then the primary investigator asked the teachers to operationally define the problem behavior, discuss the frequency and intensity, provide context about antecedents and consequences, and select an appropriate replacement behavior. Teachers were asked to finish completing the FAIR-T II after the teacher interview. All FAIR-T II forms were returned to the primary investigator after the start of data collection.

Electronic Daily Behavior Report Card

An E-DBRC was used to collect behavioral data via Google Forms©. A sample E-DBRC is contained in Appendix B. To protect confidentiality, each student's information was de-identified on the Google Form© and replaced with a first initial. The E-DBRC included behavior goals which each teacher rated at the end of the class period. Each teacher rated each behavior on a scale from 0-5 at the end of each class period, and total points were counted by the primary investigator electronically each day. Based upon Miller et al. (2015), the rating scale allowed the teacher to rate the behavior as occurring "0% of the time", "1-20% of the time", "21-40% of the time", "41-60% of the time", "61-80% of the time", and "81-100% of the time". The E-DBRC also included spaces for each teacher to write positive comments indicating what the student did well during the day. At the end of the day, the CICO mentor emailed the student's data to the student's parent. The email included the percentage of points earned. The E-DBRC is similar to the traditional DBRC used in Miller et al. (2015) and has been shown to positively and significantly correlate with systematic direct observation data, which provides evidence for convergent validity.

Trevor

During the teacher interview, and on the FAIR-T II, Trevor's teacher reported that out-of-seat, off-task, and emotional behavior were behavioral concerns in the classroom. Emotional behavior included crying in class. Based upon these concerns, the items on Trevor's e-DBRC included "T. remained in his seat or asked permission to leave", "T. remained on-task (eyes on teacher or schoolwork, completing assigned tasks)", and "When T. became upset, he appropriately regulated his emotions (told the teacher if he becomes upset; took deep breaths)". If Trevor did not become upset during that period, his teachers were instructed to rate the last item with five points.

Levi

During the teacher interview, and on the FAIR-T II, Levi's teachers reported that off-task behavior, inappropriate vocalizations, and bullying were behavioral concerns in the classroom. Inappropriate vocalizations included speaking at inappropriate times, and bullying included making rude comments to peers about their appearance. Based upon these concerns, the items on Levi's e-DBRC included "L. used appropriate words with peers (e.g., kind statements)", "L. remained on-task (eyes on the teacher or schoolwork, completing schoolwork)", and "L. asked permission before speaking or only spoke at appropriate times.".

Ramsay

During the teacher interview, and on the FAIR-T II, Ramsay's teacher reported that emotional behavior, off-task behavior, and inappropriate vocalizations were behavioral concerns in the classroom. Ramsay's emotional behavior was described as "explosive" and included becoming very anxious when he was unsure of what to do.

Inappropriate vocalizations included speaking at inappropriate times. Based upon these concerns, items on Ramsay's e-DBRC included "R. asked for help when he needed help.", "R. remained on-task and completed his work", and "R. raised his hand before speaking during class or spoke at appropriate times".

Reward List

A reward list adapted from Crone et al. (2010) was used to assess student preference for reinforcement. The checklist contained activity, material, edible, and social reinforcers. Examples of potential rewards include games, homework passes, candy, and free time. The student chose which rewards he would like to receive. Trevor rated computer time, slinkies, free time to draw, and Takis as preferred rewards. Levi preferred stretchy bracelets and Takis as rewards. Ramsay indicated that he would like to earn chips as his reward.

Check-In/Check-Out Log

A Check-In/Check-Out log was used to keep track of daily meetings with mentors (Crone et al., 2010). Mentors completed the form at the end of each check-in and check-out and indicated whether or not the following events occurred: (1) the student came prepared with materials for the day; (2) the mentor reviewed expected behaviors and the point goal for the day; (3) the mentor determined whether or not student met the point goal; (4) a reward was provided to the student if the point goal was obtained or withheld the reward if the point goal was not obtained; and (5) the mentor emailed the parent and included the mentor.

Consultation Acceptability and Satisfaction Scale (CASS)

The CASS is a social validity measure in which participants rate acceptability of consultation services. Teachers and mentors completed the CASS to rate social validity of IP. There are 12 items on the CASS, which are rated on a Likert scale. Ratings of zero indicate "Strongly Disagree" and ratings of five indicate "Strongly Agree". Although no formal cut scores have been cited, higher scores reflect greater social validity. The CASS contains items which assess the quality and appropriateness of consultation, including whether procedures were intrusive, if procedures were explained, and the of consultant addressed the consultee's concerns. Dufrene and Ware (2018) reported an alpha value of .98, indicating that the CASS has high internal consistency.

Intervention Rating Profile – 15 (IRP-15)

The IRP-15 was used to assess the social validity of CICO with an E-DBRC (Martens et al., 1985). An additional item was added to the IRP-15 to measure the acceptability of the online nature of the DBRC. The IRP-15 contains 15 items and each item is rated on a six point Likert scale, with a rating of 1 indicating that the rater "strongly disagrees", and a rating of 6 indicating that the rater "strongly agrees". High overall scores indicate treatment acceptability. An overall score of 52.5, indicating that the rater scored each item 3.5 or greater on average, indicates acceptability (Von Brock & Elliot, 1987). Chronbach's Alpha, an internal consistency statistic, was reported to be .98, while a factor analysis yielded one factor, general acceptability, with high ratings (Martens et al., 1985). Thus, this measure has high internal consistency, and factor analysis confirms that there is one underlying factor of treatment acceptability.

Dependent Measures and Data Collection

Treatment Integrity

The primary dependent variable was mentors' treatment integrity. Additionally, teachers' treatment integrity for the E-DBRC component served as a secondary dependent measure. Treatment integrity for teachers and mentors was collected and graphed daily. Treatment integrity was monitored through permanent products (Appendix F). The primary investigator reviewed DBRCs and Check-In/Check-Out logs daily. The primary investigator completed the mentor treatment integrity checklist based upon the information recorded on the Check-In/Check-Out Mentor Log. Additionally, teachers completed treatment integrity checklists daily (Appendix G). Mentor and teacher treatment integrity were calculated by adding the total number of steps completed, dividing by the total possible steps, and multiplying by 100.

Steps on the mentor treatment integrity form included the mentor checking in with the student before first period, the mentor reviewing expected behaviors and point goals, the mentor checking out with the student at the end of the day, the mentor correctly recording the percentage of points earned, the mentor providing a reward if applicable, and the mentor emailing the parents and including the primary investigator.

On the teacher treatment integrity form, the teacher reported if they completed the E-DBRC before the start of the next period and if they provided feedback prior to the start of the next period. Trevor and Ramsay had four class periods for behavior ratings and feedback, while Levi had five class periods. The primary investigator used time-stamped E-DBRC entries to calculate the percentage of steps that the teacher completed on-time. The completion of the E-DBRC was considered on-time if it occurred within 15

minutes of the scheduled end of the period due to schedule fluctuation. If the paper treatment integrity form was not completed by the teacher, the E-DBRC entry was counted as having occurred, but the teacher was not marked as having provided verbal feedback to the student, because this could not be verified without completed integrity sheets.

Treatment integrity was assessed for 100% of days of intervention by reviewing permanent product data and completing direct observations. An independent observer was present to observe at least 25% of student check-in and check-out sessions in each phase. The observer reviewed the Check-In/Check-Out form and wrote down any steps that were completed incorrectly or missed. These steps were counted off on the treatment integrity checklist. In addition, a procedural integrity checklist was filled out by primary and secondary observers after observations to ensure that they followed steps to minimize reactivity (Appendix H).

Student Behavior

Behavioral observations were conducted to measure students' appropriately engaged behavior (AEB) and problem behavior (PB). AEB was defined as any instance in which the student attended to the teacher or looked at and/or engaged with classroom materials. PB was defined as any instance in which the student was out of seat, engaged in inappropriate vocalizations, or was off-task. Out of seat behavior was defined as any instance in which the student's buttocks left his chair for longer than five seconds without teacher permission. Inappropriate vocalizations included any instance in which the student made an audible utterance when the task demand required him to be quiet without teacher permission. Examples included whispering, speaking, humming, or singing. Off-

task behavior included any instance in which the student was looking at or engaging with materials irrelevant to the task demand. In certain instances, AEB and PB could occur in the same interval if the student was standing and completing classwork. Scores for AEB and PB were be reported as the percentage of intervals in which the behavior was recorded as having occurred during 20-min observations using a momentary time-sampling procedure (MTS).

AEB and PB were collected via systematic direct observations during academic class periods (i.e., data were not collected during lunch, recess, or physical education classes). Each student was observed three to five times per week during an academic class period using MTS. Observers were doctoral-level graduate students who have been trained to complete MTS observations for similar behaviors with similar operational definitions and have demonstrated 90% or greater agreement with an already established observer. Prior to data collection, the primary investigator briefly trained the observers on the operational definitions of AEB and PB, as well as a review of the MTS procedure. Observations were 20-min in duration and were segmented into 10-sintervals, resulting in a total of 120 intervals (See Appendix I). Observers used an interval timer app to prompt them to look up at the end of the interval and record whether or not any of the target behaviors were occurring.

To minimize reactivity, observers completed an observation procedural integrity checklist (Appendix I) including the following items (a) observers arrived to the classroom three to five minutes early, (b) did not interact with students or teachers, and (c) sat in an unobtrusive location. Procedural integrity for observations was 86% (range = 67-100%) for Trevor, 98% (range = 67-100%) for Levi, and 100% for Ramsay.

Daily percentages of DBRC points were graphed daily to monitor student progress of behavioral goals set by teachers. E-DBRC data auto-filled into a Google Sheet©. The Google Sheet© was programmed to add the points for each behavior at each time period, divide by the total number of points, and multiply by 100 to calculate the daily percentage of points earned.

Interobserver Agreement and Procedural Fidelity

Interobserver agreement for classroom observations was calculated for at least 20% of behavioral observations for each behavior, participant, and phase. The point-by-point method of calculating interobserver agreement was used. At the end of the observation, the primary observer marked each interval in which the two observers rated the same behavior as occurring. Then, the total agreements were be divided by the total number of intervals and multiplied by 100 to obtain interobserver agreement scores.

IOA data were collected for Trevor's behavioral observations on 20% of sessions in the baseline phase and 33% of sessions during the IP phase. IOA for Trevor's behavioral observation data was 83% in baseline and 89.5% (range = 88-91%) during the IP phase. IOA data were collected for Levi's behavioral observations on 37.5% of sessions in baseline and 33% of observations in the IP phase. IOA was 86.3% (range = 80.8-95%) during baseline and 84.5% (range = 82-87%) during the IP phase. IOA data were collected for Ramsay's behavioral observations on 37.5% of sessions in the baseline phase and 28.6% of sessions during the IP phase. IOA for Ramsay's behavioral observation data was 87.7 (range = 77.5-93%) in baseline and 90% (89-91%) during the IP phase. IOA was less than 80% during one observation during baseline, and a brief retraining occurred on this occasion. Retraining included meeting with observers,

reviewing observation procedures and operational definitions and discussing and resolving inconsistencies.

Procedural fidelity was recorded for all the training sessions and IP sessions. Procedural fidelity was reported as the percentage of steps implemented correctly by the primary investigator (Appendices J, K, & L). Procedural fidelity checklists were completed by the primary investigator for all training and IP meetings and was 100% for each participant.

Experimental Design

This study included a non-concurrent multiple baseline design across participants. Data collection occurred during the spring of 2022. Data collection was staggered such that data were collected for Trevor between 3/31/22 and 4/19/22, data for Levi were collected between 4/7/22 and 4/29/22, and data for Ramsay were collected between 4/25/22 and 5/19/22.

Standards for a multiple-baseline design set forth by What Works Clearinghouse (2020) were followed within the current investigation, including six phases (i.e., at least three baseline and three treatment phases; two phases per participant) with at least five data points in each phase and IOA observations were conducted for at least 20% of data points per phase, with IOA of at least 80%. Further, WWC (2020) specifies that data must be presented graphically, the dependent variables must be manipulated systematically, and there should be no indication of residual treatment effects. The multiple-baseline included (a) implementation baseline and (b) IP. Data-based decision-making was used to determine phase changes. Once data for one participant were stable and at least five data points were obtained, the student was provided with the CICO

intervention. The next two participants entered the intervention phase in a staggered manner when respective baseline phases achieved stability and two additional data points are collected.

Data Analysis

Data were analyzed for level, trend, variability, immediacy of effect, consistency of effect, and overlap/non-overlap of data points (Cooper et al., 2019). For each participant, data were analyzed to determine if treatment integrity, percentage of AEB, and percentage of DBRC points increased and if levels PB immediately decreased once intervention was implemented, if the effect was consistent across participants, and if data points did not overlap between baseline and intervention. Further, the mean and range of each phase was reported and evaluated.

A baseline-corrected Tau-U calculator was used to produce an effect size for each behavior for each participant (Tarlow, 2016). Baseline-corrected Tau-U is a non-parametric technique for evaluating overlap across adjacent phases and is able to test for and control baseline trend (Parker et al., 2011). According to Vannest and Ninci (2015), a value of .20 or less indicates a small effect, values between .20 and .60 indicate a moderate effect, values between .60 and .80 indicate a large effect, and values above .80 indicate a very large effect. Baseline-corrected Tau-U has limitations, including the fact that it sometimes produces values that are difficult to interpret because they are greater than 1.0, and when baseline corrections are applied, the phase length alters the degree of the correction (Fingerhut et al., 2021).

Social validity ratings on the CASS and the IRP-15 were added and averaged for each participant. On the CASS, each rater's average score was evaluated to determine if it

was above 2.5, indicating above average acceptability. On the IRP-15, average scores were compared to the established cut-score (Von Brock & Elliot, 1987).

Procedures

Teacher Training for DBRC

Prior to teacher training, the teacher was provided with the FAIR-T II and instructed to complete it. None of the teachers completed and returned the FAIR-T II to the primary investigator prior to intervention implementation; as a result, the primary investigator conducted a brief teacher interview and asked the teacher to identify three problem behaviors in the classroom. During the teacher training, the primary investigator trained each teacher to complete the E-DBRC. Appendix J includes the training steps, and the primary investigator used the appendix as a prompt to implement each step. The primary investigator emailed a link to the E-DBRC to each teacher. The teacher opened the E-DBRC via laptop during the training so the primary investigator could verify that the teacher was able to access the form. The primary investigator instructed the teacher to access the form after each class period. The primary investigator then explained the operational definitions of each student's target behaviors, including examples and non-examples. The primary investigator instructed the teacher to provide positive behavioral feedback to the student at the conclusion of the class period. Next, the primary investigator explained the E-DBRC scale based on Miller et al. (2015) to the teacher (a score of 0 means the behavior occurred 0% of the time, a score of 1 indicates that the behavior occurred 1-20% of the time, a score of 2 indicates that the behavior occurred 21-40% of the time, a score of 3 indicates that the behavior occurred 41-60% of the time, a

score of 4 indicates the behavior occurred 61-80% of the time, and a score of 5 indicates that the behavior occurred 81-100% of the time).

Mentor Training

The primary investigator provided a brief didactic training on CICO procedures. The primary investigator used the CICO treatment integrity checklist as a guide for teaching intervention steps (Appendix K). Steps include checking in with the student before first period, reviewing expected behaviors and point goal, checking out with the student at the end of the day, correctly recording the percentage of points earned, providing a reward if applicable, and emailing the parents and including the primary investigator. The E-DBRC data automatically fed into a spreadsheet that was programmed to calculate the daily percentage. The spreadsheet was shared with the mentor at the beginning of the training. The primary investigator described each step and provided examples and non-examples of appropriate implementation. Each mentor was provided with a sample email script to guide their wording of the daily email home. Mentors were given an opportunity to ask questions at the end of the training session. Since Levi and Ramsay's teachers also served as mentors, the teacher and mentor trainings occurred during the same sessions for these students.

Student Orientation

Next, the primary investigator met with each student to describe intervention procedures. The primary investigator described the expected behaviors and provided examples of expected behaviors. Next, the primary investigator described the student's CICO responsibilities (e.g., attend check-in meeting at designated location, show the mentor the book bag and classroom materials to demonstrate that they are prepared for

class). Finally, students completed the reward survey, the primary investigator identified the top three rewards and told the student their E-DBRC goal (e.g., 70% of E-DBRC points), and instructed the student to meet with their mentor at the beginning of the next school day.

Implementation Baseline

After the completion of all trainings, each student checked in with his mentor before the beginning of first period on the next school day. On the first day of intervention, the mentor reminded the student that points would be recorded based on behaviors during each class period and that the student could earn rewards for meeting the point goal. The mentor ensured that the student was prepared for the day with necessary materials. The mentor reviewed each expected behavior with the student and reminded him of the expected point goal. In addition, the mentor used the CICO form to indicate whether or not the student arrived to check-in. On the first day of intervention, if the mentor missed any step or implemented a step incorrectly, the primary investigator prompted the mentor to implement the step correctly. Check-in meetings typically took fewer than five minutes each morning.

At the end of each class, the teacher used the E-DBRC to rate student performance on all behavioral goals. The teacher also provided behavioral feedback to the student and discussed the number of points earned. This occurred at the end of each academic class period throughout the day and took roughly one minute.

At the end of the day, the student returned to the mentor for the check-out portion of the intervention. The mentor reviewed the number of points the student earned, acknowledged appropriate behaviors, and provided coaching for behaviors that needed to

be improved. The percentage of points was obtained from the E-DBRC and written on the Check-In/Check-Out form. If the 70% point goal was met, the mentor prompted the student to select one of the rewards. Check-out meetings typically took fewer than five minutes each day. After the check-out, the mentor sent an email with the percentage of points earned to the student's parent or guardian. Levi's guardian did not have a valid email account, so his mentor communicated his daily results through the school's messaging system. No additional steps were taken to ensure that the parent reviewed the E-DBRC with the student. Previous research indicates that CICO may be successful despite poor parent participation (Maggin et al., 2015).

Implementation Planning

When each student transitioned into the IP phase, the primary investigator had a meeting with the student's teachers and mentor for action planning and coping planning based upon the IP procedure delineated by Sanetti et al. (2017). The primary investigator reviewed each step in the CICO procedure in detail with the teachers and mentor. The primary investigator collaborated with the teachers and mentor to determine if any steps need to be modified to better fit the classroom and school context. Changes included minor details that did not threaten the integrity of the intervention, such as adding email reminders or changing what time the E-DBRC was completed (between class periods instead of during dismissal time). However, since changes were implemented to the CICO protocol as written, it may be difficult to compare student outcomes from the present study to traditional implementations of CICO. Next, the primary investigator collaborated with the teacher and mentor in creating a coping plan. Teachers and mentors determined four specific obstacles and a practical way to overcome each. For example, if

a barrier was that the student forgets to check-in, an email reminder could be sent to the student's teacher to prompt the student to check-in. Procedural integrity for the IP meeting was 100%. Following the IP meeting, the intervention was implemented as described in the CICO phase.

Trevor

IP was conducted separately for Trevor's teacher and mentor because they had different planning periods and after-school duties. Trevor's mentor identified two steps that needed to be altered for contextual fit. Due to bus duty, the mentor did not arrive to his office until 8:30am and needed to leave at 2:00pm. This frequently resulted in Trevor missing his mentor at check-in and check-out time. Check-in time was changed to 8:30am and check-out time was changed to 1:50pm. The four barriers that the mentor reported included the student not checking out, the student not remembering expected behaviors and percentage in the morning, and the student leaving school early. To address these barriers, changes included asking Trevor's teacher to send him for check-out at 1:45pm, the primary investigator providing a paper copy of the student's expected behaviors and point goal, and the primary investigator talking with the student's teacher to ask her to send him for check-out if the student leaves early.

Trevor's teacher indicated that all the intervention steps fit in with her classroom context. Barriers that Trevor's teacher identified were Trevor not getting his prize if the mentor was gone when he checked out, difficulty completing the E-DBRC on time, having to search her email for the link to the E-DBRC, and having a paper treatment integrity form while the DBRC was electronic. To address these concerns, the check-out time was changed to 1:50pm, email reminders were scheduled for each E-DBRC time

along with the link to the form, and an item was added to the E-DBRC asking if the teacher provided feedback to the student.

Levi

One IP meeting occurred for Levi because one of his teachers also served as a mentor. Two intervention steps were altered to assist with contextual fit. First, one of the E-DBRC times was changed from 9:30am to 9:20am to make this step more feasible. Additionally, two of the E-DBRC periods were merged into one time because although they were two periods on the class schedule, the instruction was continuous through this one time period. Barriers that the teachers identified included forgetting to complete the E-DBRC, schedule changes during state testing, having a paper treatment integrity form while the DBRC was electronic, and difficulty finding the link to the spreadsheet with the E-DBRC points. To address these issues, email reminders were scheduled by the primary investigator for each E-DBRC time along with the link to the E-DBRC form and E-DBRC spreadsheet, an item was added to the E-DBRC asking if the teacher provided feedback to the student, and the reminders were sent to all of Levi's teachers each period in case his schedule changed due to testing.

Ramsay

Since one of Ramsay's teachers served as his mentor, one IP meeting occurred. One intervention step was altered to assist with contextual fit. Ramsay's teacher indicated that she would prefer to send home a weekly progress report to Ramsay's parent instead of daily emails. She reported that his parent would prefer receiving one report so that she could compare scores across the week easily. Barriers that the teachers identified included a miscommunication about who was completing the E-DBRC, schedule changes

during testing, having a paper treatment integrity form while the DBRC was electronic, and lack of time to email the parent. The miscommunication was that Mrs. Cook thought her TA was completing the E-DBRC, but it was not being completed. To address these issues, an email reminder was sent to Mrs. Cook daily with the link, Ramsay's homeroom teacher was emailed on each day of state testing to remind her of the E-DBRC times if his schedule changed, and the daily email home was changed to an email home on Friday.

CHAPTER III - RESULTS

FAIR-T II Ratings

Trevor

Mrs. Smith rated out-of-seat behavior, off-task behavior, and emotional behavior (tantrums, crying) as being the three primary behavioral concerns for Trevor. Out-of-seat and off-task behavior were rated as usually occurring 1-3 times per day, while emotional behavior was rated as occurring 7-9 times per day. All three problem behaviors were more likely to occur before lunch, during independent work, during difficult tasks, when the student was asked to stop an activity, when routines were disrupted, or when a request has been denied. Emotional behavior was also likely to occur in large group and during transition periods. According to Mrs. Smith's ratings, all three problem behaviors often resulted in escape or avoidance of task demands, positive attention from peers, teacher redirections, and escape or avoidance of attention from the teacher.

Levi

Mrs. Morrison rated off-task behavior, inappropriate vocalizations, and bullying (calling peers names) as her three primary behavioral concerns for Levi. According to Mrs. Morrison, all three behaviors were very disruptive and unmanageable. Mrs. Morrison rated all 34 antecedents on the FAIR-T as often or very often preceding each of the behaviors, indicating that there was no apparent pattern of antecedents for these behavioral concerns. When rating consequences for the problem behaviors, Mrs. Morrison rated that access to activities or items, access to attention from peers and adults, and automatic reinforcement (e.g., student displays the behaviors even when alone,

student appears calm as a result of engaging in the behaviors) most often followed all three problem behaviors.

Ramsay

Mrs. Wilkinson rated that emotional behavior, off-task behavior, and inappropriate vocalizations (talking out) were her primary behavioral concerns in the classroom. According to Mrs. Wilkinson, the problem behaviors were mildly disruptive. Emotional behavior was most likely to be preceded by certain types of tasks, including when items were presented verbally or during motor activities. Off-task behavior was most likely to be preceded by difficult task demands, large group activity, during recess and in the cafeteria, and when the student's request has been denied. Talking out was most often preceded by difficult tasks, independent work, during verbally presented tasks, when his request has been denied, and when a specific person was absent from the room. Emotional behavior and off-task behavior were most often followed by other individuals stopping their interaction with Ramsay. No consequences for talking were rated as two or higher, indicating that there is no apparent pattern for consequences for this behavior.

Results of Dependent Variables

The results of mentor, teacher, and student behavior are graphed below. Effect sizes for each student and dependent variable are contained in Table 1.

Mentor Percentage of Treatment Integrity

Trevor

Data for mentor treatment integrity are contained in Figure 1. During baseline, Mr. Williams' treatment integrity was variable. On average, Mr. Williams completed 46.7% (range = 0-100%) of steps correctly during baseline, indicating a low level of treatment integrity. During the intervention phase, data continued to be variable. On average, Mr. Williams completed 44.3% (range = 0-83%) of steps correctly during the IP phase. On the first day after IP, treatment integrity was 0% and then subsequently increased to 83% for two days. Treatment integrity data overlapped from baseline to IP phases, and although some days in the IP phases had high treatment integrity, the effect was not consistent. The effect size for Trevor's mentor treatment integrity was zero, indicating no effect, $\tau = 0.00$, $p = 1.07$.

Levi

During baseline, Mrs. Sullivan's treatment integrity was variable. On average, Mrs. Sullivan completed 76.7% (range = 40-100%) of steps correctly during baseline, indicating a moderate level of treatment integrity. There was no trend in baseline data. During the IP phase, Mrs. Sullivan implemented 66.6% (range = 0-83.3%) of steps correctly, on average. On day 14, Levi began state testing and Mrs. Sullivan indicated that she did not implement the intervention. Treatment integrity data overlapped from baseline to IP phases and there was no consistent effect of IP on treatment integrity. The effect size for Levi's mentor treatment integrity was small and not significant, $\tau = 0.051$, $p = 0.89$.

Ramsay

During baseline, Mrs. Wilkinson's treatment integrity was stable. On average, Mrs. Wilkinson completed 67.12% (range = 50-83%) of steps correctly during baseline, indicating moderate treatment integrity. During the IP phase, Mrs. Wilkinson implemented 57.4% (range = 0-100%) of steps correctly, on average. From baseline to IP, there was an immediate increase in treatment integrity. However, after three days of IP, the data became variable and there was overlap between baseline and IP. The effect of IP on treatment integrity was not consistent. Tau-U values indicate that the effect size for Ramsay's mentor treatment integrity was small and not significant, $\tau = -0.08$, $p = 0.71$.

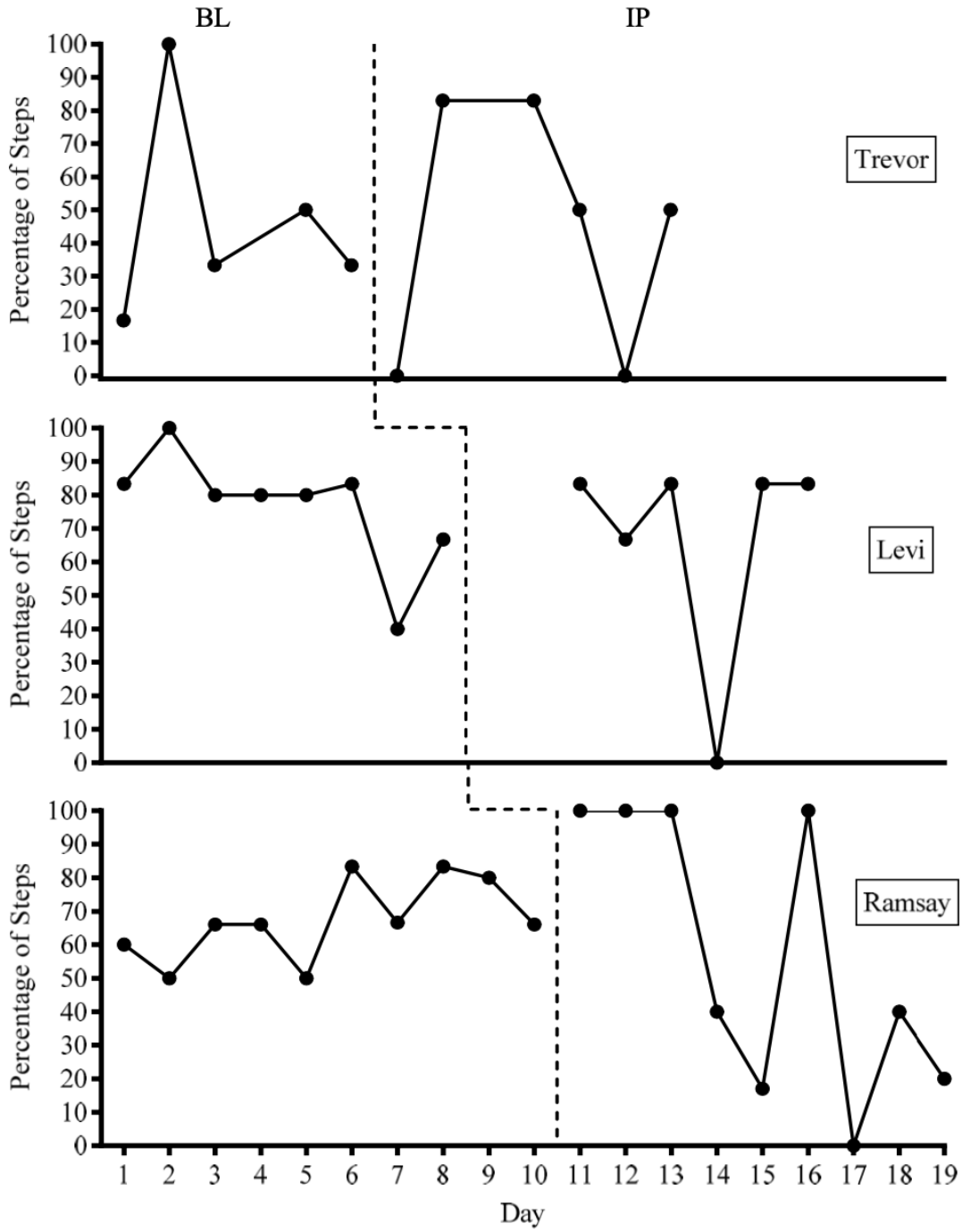

Figure 1. Mentor Percentage of Treatment Integrity

Teacher Percentage of Treatment Integrity

Trevor

Data for teacher treatment integrity are contained in Figure 2. During baseline, Mrs. Smith's treatment integrity was low and stable. On average, Mrs. Smith accurately completed 15% (range = 0-25%) of steps during baseline. Treatment integrity was 0% for two days, and then increased to 25% for three subsequent days. During the IP phase, there was an immediate increase in treatment integrity. However, the data were variable. At the beginning of the IP phase, data trended downwards, followed by an upward trend and then a downward trend. On average, Mrs. Smith accurately completed 75% (range = 50-100%) of steps during the IP phase. There was no overlap between data in the baseline and IP phase, and there was a consistent effect of IP on treatment integrity. The effect size for Trevor's teacher treatment integrity was large and significant, $\tau = 0.78$, $p = 0.005$.

Levi

During baseline, treatment integrity for Levi's teachers was low and stable. On average, Levi's teachers accurately completed 8.8% (range = 0-20%) of steps during baseline. During the IP phase, there was no immediate change in treatment integrity. Treatment integrity continued to be low and stable. On average, Levi's teachers accurately completed 6.3% (range = 0-25%) of steps during the IP phase. Data overlapped between baseline and the IP phase. The effect size for Levi's mentor treatment integrity was small and not significant, $\tau = -0.121$, $p = 0.65$.

Ramsay

During baseline, treatment integrity for Ramsay's teachers was low and stable. On average, Ramsay's teachers accurately completed 8.8% (range = 0-25%) of steps during baseline. During the IP phase, there was no immediate change in treatment integrity. Treatment integrity continued to be low and stable. On average, Levi's teachers accurately completed 13.9% (range = 0-50%) of steps during the IP phase. Data overlapped between baseline and the IP phase, and there was no effect of IP on teacher treatment integrity. The effect size for Ramsay's mentor treatment integrity was small and not significant, $\tau = 0.089$, $p = 0.72$.

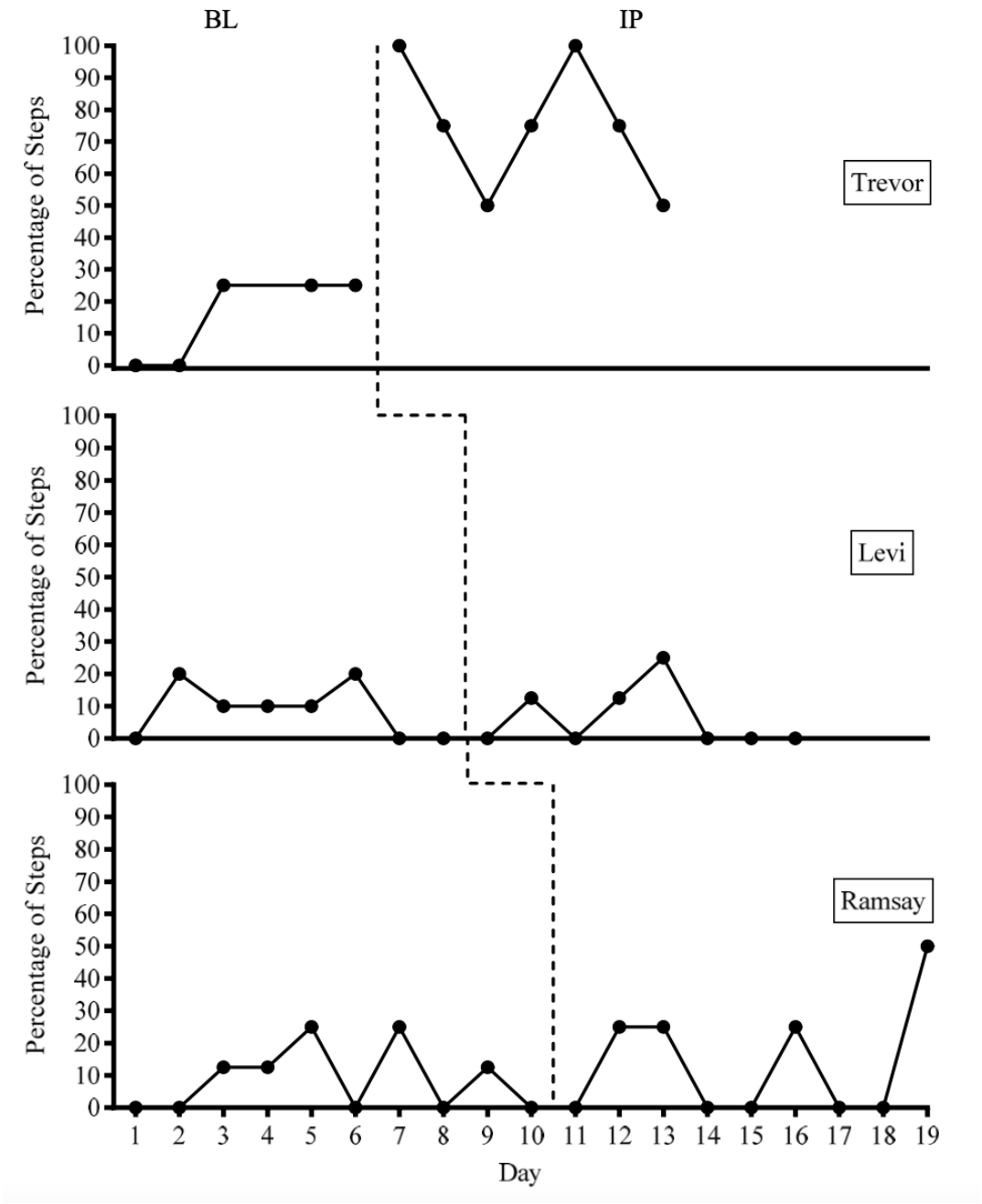

Figure 2. Teacher Percentage of Treatment Integrity

Student Percentage of AEB and PB

Trevor

Data for PB and AEB are contained in Figure 3. During baseline, Trevor's PB data were relatively stable. On average, Trevor's level of PB was 39.46% (range = 25.8-79.1%) during baseline. There was no trend in PB; however, there was a sharp increase in PB from day 5 to day 6. During the IP phase, there was an immediate decrease in PB. However, the data were variable. On average, Trevor's level of PB was 30.69% (range = 14.17-50.83%) during the IP phase. At the beginning of the IP phase, PB data trended downward. Beginning at day 10, PB data began to trend upward. There was substantial overlap between data in the baseline and IP phase, and there was no consistent effect of IP on PB. The effect size for Trevor's PB was small and not significant, $\tau = -0.148$, $p = 0.648$.

During baseline, Trevor's AEB was stable, with a slight downward trend. On average, Trevor's level of AEB was 71.48% (range = 62.2-80.8%) during baseline. During the IP phase, there was no immediate increase in AEB, and data were relatively stable. On average, Trevor's level of AEB was 73.44% (range = 53.33-85.83%) during the IP phase. There was substantial overlap between data in the baseline and IP phase, and there was no consistent effect of IP on AEB. The effect size for Trevor's AEB behavior was small and not significant, $\tau = 0.174$, $p = 0.583$.

Levi

On average, Levi's level of PB was 38.68% (range = 8-58.33%) during baseline. During baseline, Levi's PB data were variable. There was a downward trend in PB during baseline. On day seven, there was a sharp increase in PB, followed by a downward trend.

During the IP phase, there was no immediate change in PB, and the data were stable. On average, Levi's level of PB was 36.39% (range = 22.5-55%) during the IP phase. During the IP phase, Levi's PB data trended downwards. There was substantial overlap between data in the baseline and IP phase, and there was no consistent effect of IP on PB. The effect size for Levi's problem behavior was small and not significant, $\tau = -0.152$, $p = 0.561$.

On average, Levi's level of AEB was 66.97% (range = 43.33-91.66%) during baseline. At the beginning of baseline, Levi's level of AEB was low, and it increased throughout the phase as the data trended upwards. During the IP phase, there was no immediate increase in AEB. On average, Levi's level of AEB was 63.89% (range = 45.83-77.5%) during the IP phase. AEB data in the IP phase were relatively stable and trended downwards. Since there was a baseline trend for Levi's AEB, baseline-corrected Tau was used. Levi's percentage of AEB decreased during the IP phase, yielding a large and significant negative effect, $\tau = -0.696$, $p = 0.004$.

Ramsay

On average, Ramsay's level of PB was 51.04% (range = 24.17-73.33%) during baseline. At the beginning of baseline, Ramsay's level of PB was relatively high and variable. Beginning on day four, Ramsay's level of PB increased throughout the phase as the data trended upwards. During the IP phase, there was a small decrease in PB. On average, Ramsay's level of PB was 39.29% (range = 16.66-65.83%) during the IP phase, a decrease from baseline. PB data in the IP phase were variable and had no trend. The effect size for Ramsay's PB was moderate but not significant, $\tau = -0.339$, $p = 0.148$.

On average, Ramsay's level of AEB was 46.77% (range = 26.67-59.17%) during baseline. At the beginning of baseline, Ramsay's level of AEB was relatively low and variable. Beginning on day four, Ramsay's level of AEB decreased throughout the phase as the data trended downwards. During the IP phase, there was a small increase in AEB. On average, Levi's level of AEB was 60.871% (range = 34.17-83.33%) during the IP phase, an increase from baseline. AEB data in the IP phase were variable and had no trend. The effect size for Ramsay's AEB was moderate but not significant, $\tau = 0.391$, $p = 0.093$.

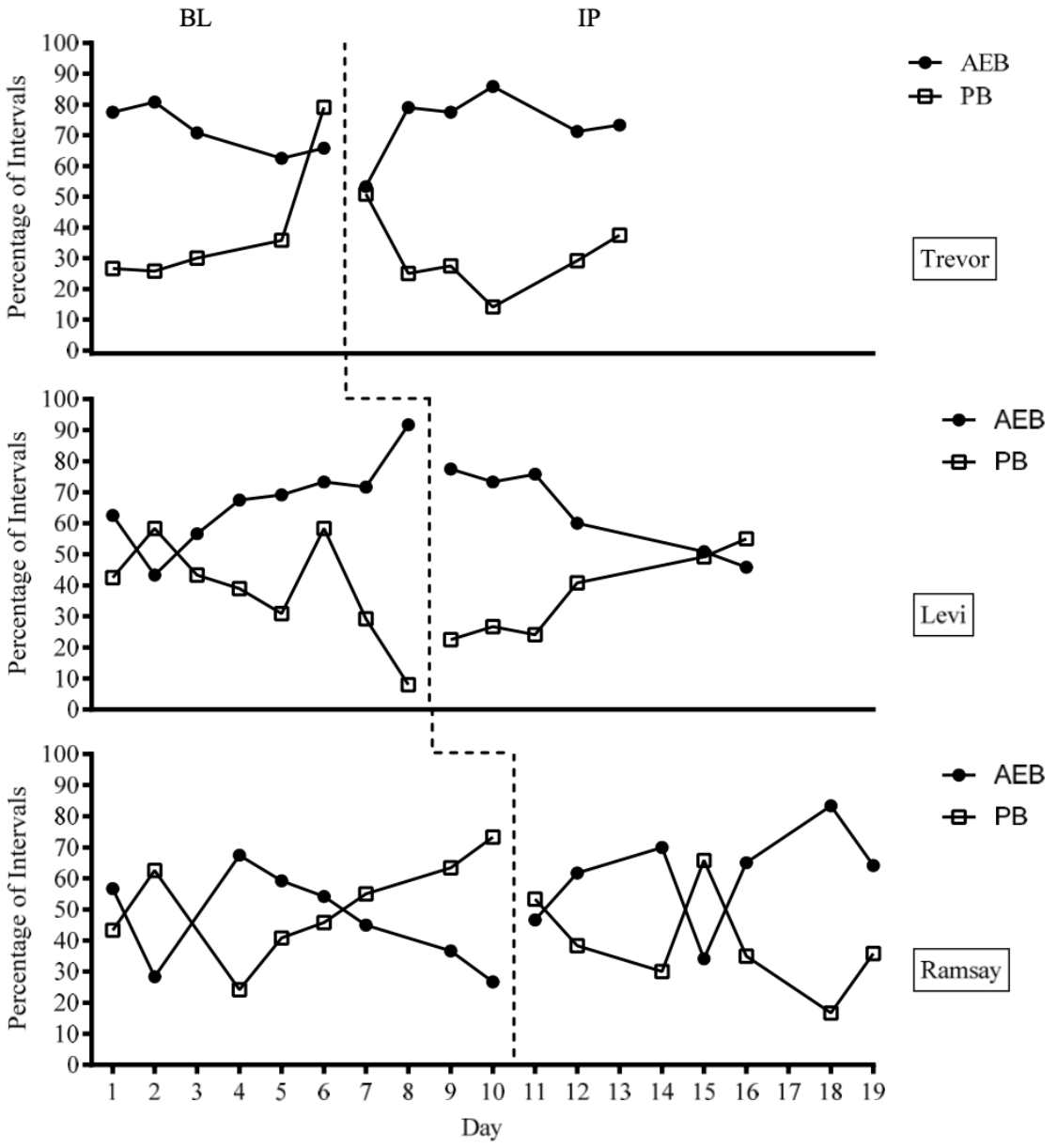

Figure 3. Student Percentage of AEB and PB

Percentage of DBRC Points

Trevor

Data for percentage of DBRC points are contained in Figure 4. During baseline, Trevor's percentage of DBRC points was high, but there was some variability. There was

a downward trend at the beginning of the phase, followed by an increase on day 6 of baseline. On average, Trevor earned 90.28% (range = 71.11-98.33%) of DBRC points during baseline. During the IP phase, there was no immediate change in percentage of DBRC points. However, data were more stable during the IP phase. On average, Trevor earned 97.9% (range = 88.88-100%) of DBRC points during the IP phase, which is higher than baseline. While there was overlap between data in the baseline and IP phase, there was a consistent effect. The effect size for Trevor's percentage of DBRC points was large but not significant, $\tau = 0.507$, $p = 0.09$.

Levi

During baseline, Levi's percentage of DBRC points was low compared to the 70% goal and the data were variable. On average, Levi earned 67.96% (range = 44.44-90%) of DBRC points during baseline. There was a downward trend in percentage of DBRC points at the beginning of the baseline phase, followed by an upward trend. During the IP phase, there was an immediate increase, followed by a decrease in percentage of DBRC points. From days 10-13 of the IP phase, there was an upward trend in percentage of DBRC points, followed by a downward trend in points at the end of the phase. Data continued to be variable during the IP phase. On average, Levi earned 83.81% (range = 60-100%) of DBRC points during the IP phase, which is higher than baseline. There was overlap between data in the baseline and IP phase, and the effect was not consistent. The effect size for Levi's percentage of DBRC points was moderate but not significant, $\tau = 0.425$, $p = 0.099$.

Ramsay

During baseline, Ramsay's percentage of DBRC points was variable. On average, Ramsay earned 75.92% (range = 66.67-93.33%) of DBRC points during baseline. At the beginning of the baseline phase, there was an upward trend in percentage of DBRC points. During the IP phase, there was an immediate increase in percentage of DBRC points. On day 14, there was a large decrease in percentage of DBRC points, followed by an increasing trend. Data continued to be variable during the IP phase. On average, Ramsay earned 77.69% (range = 50-100%) of DBRC points during the IP phase. There was substantial overlap between data in the baseline and IP phase, and the effect was not consistent. Ramsay's effect size for percentage of DBRC points was small and not significant, $\tau = 0.068$, $p = 0.813$.

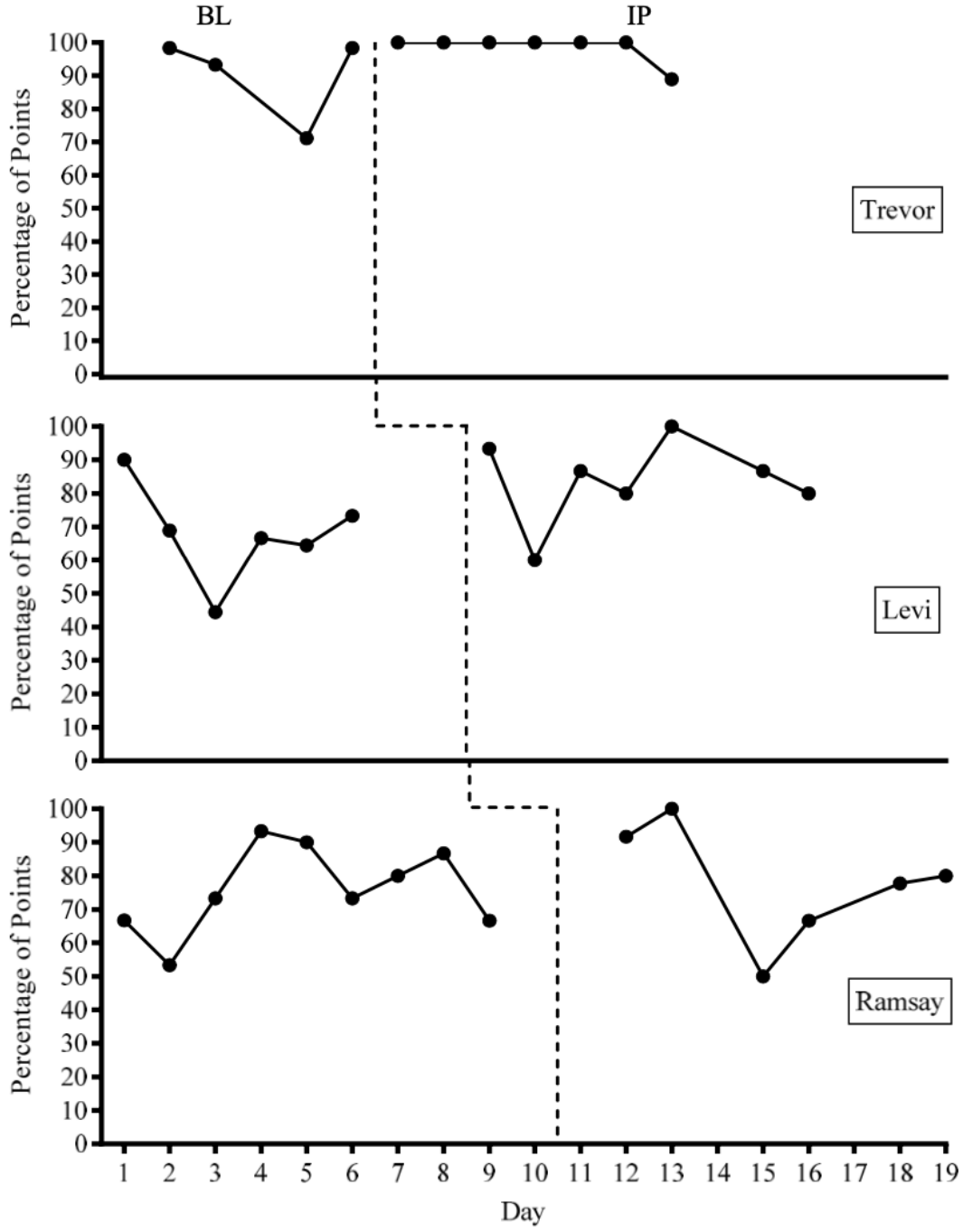

Figure 4. Percentage of DBRC Points

Table 1

Tau-U Effect Size by Dependent Variable

	Mentor Treatment Integrity	Teacher Treatment Integrity	Academically Engaged Behavior	Problem Behavior	Percentage of Points
Trevor	0.000	**0.784**	0.174	-0.148	0.507
Levi	0.051	-0.121	**-0.696***	-0.152	0.425
Ramsay	-0.084	0.089	0.391	-0.339	0.068

Bolded values indicate that Tau-U values are significant, $p \leq 0.05$. Asterisks indicate the presence of baseline trend.

Consultation Acceptability and Satisfaction Scale

Teacher ratings on the CASS are displayed in Table 2. On the CASS, higher ratings indicate greater social validity of the consultation process. Trevor's teachers' average rating of the consultation process was 4.79 (range = 4.58-5), indicating high acceptability. Levi's teachers' average rating was 4.72 (range = 4.42-4.83), also indicating high social validity. Ramsay's teachers' average rating was 3.98 (range = 3.33-4.5), indicating above average social validity of the consultation process. High ratings on the CASS indicate that the teacher rated that the consultation process was not intrusive, the consultee was knowledgeable, and the teacher understood the intervention steps.

Table 2

CASS Ratings

	Teacher/Mentor	Average Score
Trevor	Mrs. Smith	5
	Mr. Williams	4.58
Levi	Mrs. Morrison	4.42
	Mrs. Newhart	4.92
	Mrs. Sullivan	4.83
Ramsay	Mrs. Wilkinson	3.33
	Mrs. Collins	4.12
	Mrs. Cook	4.5

Intervention Rating Profile – 15

Teacher ratings on the modified IRP-15 are displayed in Table 3. On the IRP-15, higher average ratings indicate higher acceptability of the intervention. Trevor's teachers' average rating of CICO with an E-DBRC was 4.85 (range = 4.81-4.88), indicating high acceptability. Levi's teachers' average rating was 5.55 (range = 5.13-5.88), also indicating high acceptability. Ramsay's teacher's average rating was 4.75 (range = 4.25-5.56), indicating high acceptability of the intervention. One question was added to assess teacher perception of the E-DBRC. On average, teachers rated this question 5.12 (range = 3-6), indicating a majority of the teachers found the E-DBRC favorable. High ratings on IRP-15 indicate that teachers perceived the intervention as being appropriate and effective for the student.

Table 3

IRP-15 Ratings

	Teacher/Mentor	Average Score
Trevor	Mrs. Smith	4.81
	Mr. Williams	4.88
Levi	Mrs. Morrison	5.13
	Mrs. Newhart	5.88
	Mrs. Sullivan	5.63
Ramsay	Mrs. Wilkinson	4.25
	Mrs. Collins	4.44
	Mrs. Cook	5.56

CHAPTER IV – DISCUSSION

Treatment integrity is a vital component of the behavioral consultation process, and researchers have tested strategies for improving the treatment integrity of behavioral interventions (Noell et al., 2005). IP is an antecedent strategy that is intended to prevent deterioration in treatment integrity by collaborating with teachers to proactively identify barriers to implementation and then develop strategies for overcoming implementation barriers (Byron et al., 2020; Collier-Meek et al., 2016; Sanetti et al., 2014). The present study evaluated IP within the context of CICO, an intervention that has several steps and involves multiple individuals for implementation, because previous IP research has included simple strategies, such as behavior specific praise, and academic interventions (Byron et al., 2020; Collier-Meek et al., 2016). As a result, this study adds to the IP literature by testing a multi-component intervention that addresses externalizing student behaviors. The findings of each research question will be discussed, followed by limitations and considerations for future researchers.

Research Question 1: Mentor Treatment Integrity

The first research question assessed the effect of IP on mentor treatment integrity. Overall, visual analysis and Tau-U effect sizes indicated that IP had little effect on mentor treatment integrity. All three participants had significant overlap between the baseline and IP phases, as well as variability in the data across implementation baseline and IP phases. During the IP phase, Ramsay's mentor had several days with 100% treatment integrity; however, the data were variable, and the intervention was not consistently implemented as intended after the first three days. Since Ramsay's mentor implemented the intervention with 100% integrity for the first three days of intervention,

she may have needed extra support maintaining the high level of treatment integrity. Sometimes, when school personnel implement behavioral interventions, treatment integrity may deteriorate over time in the absence of strong implementation support (Oliver et al., 2015).

The intervention steps most frequently missed or implemented improperly were reviewing daily goals with the student and communicating the student's daily percentage of points with the parent. When reminding students of their daily goals, mentors frequently forgot to remind them of their percentage goals or provide coaching about each specific behavior. Traditionally, in CICO, the student brings home a paper DBRC to sign (Crone et al., 2010). However, with the E-DBRC, mentors were asked to email daily results to the parent. Although this removed the barrier of the student losing the paper DBRC or forgetting, a possible new barrier may include the E-DBRC link getting buried in teachers' email inboxes. Additionally, without a paper form requiring a parent signature, it is unclear if the parents read the messages and spoke with the student about their daily behavior.

One consideration for the treatment integrity for CICO is that it is possible that the teacher and mentor may need to coordinate and communicate to ensure that the student attends check-in and check-out meetings. Ramsay did not need to travel to another classroom to check-in and check-out because he chose his homeroom teacher as his mentor; however, Trevor's mentor was a coach whose office was on the other side of the school. Since Trevor was in first grade, it was his teacher and mentor's responsibility to coordinate and ensure that he checked in and checked out daily. This discussion would ordinarily happen during IP; however, due to their differing planning periods and duties

after school, IP occurred at two different times for Trevor's teacher and mentor, so the primary investigator helped to coordinate the timing of check in and check out meetings by communicating the mentor's concerns about timing with the teacher. Since CICO is a multi-step intervention in which the behavior of multiple implementers impact treatment integrity levels, it may be important for each implementer to be present at the same IP meeting. Levi and Ramsay's IP meetings included all implementers and although this did not result in consistent implementation of CICO as directed, logistical concerns about the timing of meetings were discussed at the IP meeting. When Trevor's mentor had concerns about the timing of check-in and check-out meetings during IP, the primary investigator needed to communicate these concerns and troubleshoot with the teacher.

Findings from this study are inconsistent with previous CICO research in which teachers implemented CICO with high integrity following training (e.g., Campbell & Anderson, 2011; Miller et al., 2015; Turtura et al., 2013). In certain instances, trainings have been in-depth, including opportunities for practice and feedback (Campbell & Anderson, 2011; Miller et al., 2015). In the present study, the primary investigator provided brief informational trainings in accordance with typical district practice. It is possible that consultants implementing CICO in practice may need to conduct in-depth trainings including opportunities for practice and feedback.

Furthermore, findings from this study may be inconsistent with the previous studies because in those studies researchers were present during check-ins, check-outs, and classroom feedback sessions, and as a result, researchers may have served as a discriminative stimulus for implementation, or implementation may have been reactivity to observation. In this study, researchers were not often present during check-ins and

check-outs and did not prompt implementation. Additionally, the primary investigator observed for treatment integrity of classroom feedback sessions by looking at time-stamped electronic forms, which reduced reactivity to observation. As a result, conditions in this study were quite different from previous CICO studies. Although some research indicates that teachers may not display reactivity to observation during consultation research, that research included reactivity in the context of performance feedback (Codding, 2008). As a result, explanations for high integrity in other studies is purely speculative and future research may test this.

Research Question 2: Teacher Treatment Integrity

The second research question assessed the impact of IP on teacher treatment integrity. Visual analysis and Tau-U values indicate the presence of a strong effect for Trevor. However, there was still significant variability during the IP phase, indicating that more intensive implementation support may have been needed. Visual analysis and Tau-U values indicate no effect of IP on teacher treatment integrity for Levi and Ramsay, as the level of teacher treatment integrity during the IP phase was low and significantly overlapped with baseline for both students.

One step that was frequently implemented incorrectly was the teacher completing the E-DBRC at an incorrect time. Although E-DBRC entries that were completed within 15 minutes before and after the scheduled time were marked as correct, teachers frequently completed the E-DBRC all at once at the end of the day or completed it in the morning before school started. One of the IP strategies that teachers selected was a reminder email; however, it is unclear if teachers opened and read the reminder emails sent by the primary investigator. It is helpful to have a completed E-DBRC, even if it was

done within the incorrect time frame because this gives the student more opportunity to earn points and increase their daily percentage; however, completing the E-DBRC before or after school does not allow the student to have feedback to improve their behavior throughout the day.

End of the year state testing and schedule changes began close to the start of the IP phase for Levi and during baseline for Ramsay. Scheduling changes for Levi included changes in the teaching approach. Specifically, Levi's three teachers began co-teaching and all students sat in the auditorium while teachers alternated providing instruction, which differed from the smaller class size during baseline. Trevor's teacher, who had improved implementation during the IP phase, did not experience these obstacles during intervention implementation. The primary investigator had conversations during the IP meeting to plan for these schedule changes, including sending reminder emails during testing days, and the hours that students were in testing were not counted in the overall treatment integrity percentage for the day. While it is possible that inconsistency in the student's schedules impacted treatment integrity, it is still vital for school professionals to implement behavioral interventions despite disruptions in the schedule. Therefore, teachers may need increased implementation support during end of the year activities.

Research Question 3 and 4: Student Behavior

The third and fourth research questions assess the extent to which the implementation of CICO improved appropriate behavior and reduced problem behavior. Since CICO was implemented in baseline, it is not possible to determine if the level of PB decreased and AEB increased with the initial implementation of CICO. Additionally, since IP did not have a reliably improve treatment integrity of CICO, the implementation

of CICO did not change from baseline to IP, with the exception of Trevor's teacher treatment integrity. Therefore, it is not surprising that visual analysis and Tau-U values show insignificant changes in PB between baseline and IP phases. For Trevor and Ramsay, there was no significant change in AEB from baseline to IP.

Levi's level of AEB reduced from baseline to the IP phase, and the effect size was significant. However, causal conclusions about the decrease in AEB should not be made due to potentially confounding variables. At the end of the baseline phase, Levi's teachers switched to a co-teaching model, where all three classes sat in one room under the supervision of all three teachers. With this change, students were in a larger room with more individuals, potentially increasing the number of distracting stimuli. It is possible that this change in environment impacted Levi's behavior.

Percentage of DBRC points was also used to measure the impact of CICO on AEB. Visual analysis for Trevor's DBRC data indicates that data were more stable in the IP phase, corresponding with improvement in teacher treatment integrity. This improvement should be interpreted with caution because it is not possible to demonstrate a functional relationship between treatment integrity and student DBRC points. Levi's percentage of points increased on average from baseline to IP, although this was not statistically significant. There was no difference in Ramsay's DBRC points from baseline to IP.

Research Question 5 and 6: Social Validity

The fifth research question assesses the extent to which the teachers and mentors found CICO with an E-DBRC to be socially valid. IRP-15 scores indicate that all teachers and mentors rated CICO with an E-DBRC as highly acceptable. Three teachers

indicated that they did not agree that the student's behavior problem was severe enough to warrant the intervention. This could have potentially impacted buy-in and treatment integrity if teachers did not think intervention was necessary. Further, one teacher rated "slightly disagree" that she liked the procedures and thought most teachers would find them acceptable. An additional question was asked to assess the acceptability of completing the DBRC electronically, and a majority of teachers rated the E-DBRC as favorable. One teacher rated the E-DBRC with a score of 3, indicating she "slightly disagreed" that the E-DBRC was favorable. Overall, the electronic format of the intervention was acceptable to teachers.

Findings from this study highlight an important issue for researchers; that is, acceptability, as measured by a rating scale, may not predict implementation. In fact, previous research indicates that one of the most frequently reported barriers to teachers implementing behavioral interventions with fidelity is difficulty balancing the demands of the intervention with other teaching responsibilities (Collier-Meek et al., 2019). Therefore, even though teachers reported the intervention to be socially valid, they may struggle to implement it in the midst of their other responsibilities. Further, teachers reported that remembering to implement interventions that must be implemented throughout the day or remembering to implement them after disruptions in the schedule was also a large barrier (Collier-Meek et al., 2019). In the context of the present study, CICO is a multi-step intervention that must be implemented throughout the day and there were several disruptions in classroom routine, including state testing and changes in the teaching model. While teachers may have found CICO to be valuable, these barriers could have impacted treatment implementation.

Research question 6 assessed the extent to which teachers found IP to be socially valid as a consultation procedure. All teachers rated the IP process as above average, with a majority of teachers rating the process as 4-5 out of 5. The item that was most frequently rated lowest, 3 out of 5, was "the consultant effectively taught me to implement their recommendations". While each intervention step was discussed in detail during IP meetings, the initial trainings were kept brief to be commensurate with typical teacher training practices in the district. It is possible that teacher perception of lack of training may have impacted treatment integrity.

Present findings regarding the social validity of IP are supported by previous literature. Studies that have evaluated IP and reported social validity data report that teachers generally find IP to be acceptable, easy to understand, and feasible (Byron et al., 2020; Sanetti et al., 2017; Sanetti et al., 2014). However, one study indicated that a participant reported requiring more intensive support beyond IP to implement the behavioral intervention (Sanetti et al., 2017). This finding indicates teachers may require a range of implementation supports depending on individual circumstances.

Considerations for Implementation Planning

Researchers have investigated the use of IP to improve treatment integrity of simple behavioral interventions and found favorable results (Byron et al., 2020; Collier-Meek, 2016; Sanetti et al., 2014). Although Sanetti et al. (2014) tested IP within the context of behavior plans, each intervention in the plan was simple, such as providing praise, posting behavioral expectations, or providing breaks. CICO is a multi-step intervention, which often includes multiple adults to implement. Therefore, treatment integrity is dependent on the behavior of multiple individuals. Within the context of the

current investigation, students within different grade levels had a different number of individuals who coordinated the intervention. Trevor, the only student whose teacher's treatment integrity improved after the IP meeting, had only one teacher. Levi and Ramsay both had three teachers, which increased the complexity of the intervention. It is possible that more intensive implementation supports are necessary for interventions which require several implementers.

When implementing interventions with many steps, or interventions which require multiple individuals, the addition of consequent strategies may be necessary to support and maintain treatment integrity. For example, performance feedback is an effective intervention for improving teacher treatment integrity (Noell et al., 2005). IP may be used as an antecedent strategy to reduce the probability of deterioration in treatment integrity, but if treatment integrity falls below an acceptable criterion, performance feedback may be added to increase treatment integrity.

IP may be used within the context of multi-tiered consultation. Multi-tiered consultation has been used to support implementation of behavioral interventions, including universal, targeted, and more intensive support for training and implementation (LaBrot et al., 2020). This tiered model has been successful in training teachers to implement behavioral interventions, such as behavior-specific praise (Galan-Torres, 2018; LaBrot et al., 2020). If implemented with a multi-tiered system of consultation supports, IP may be considered a universal or targeted strategy and performance feedback may be used only in instances in which teachers requires individualized, intensive supports for intervention implementation (Galan-Torres, 2018; LaBrot et al., 2020).

Limitations

The present findings should be interpreted within the context of several limitations. First, unavoidable schedule changes due to state testing interfered greatly with the students' day to day schedules, including the implementation of behavioral interventions. Although these changes minimally impacted Trevor's data collection, the change in teaching format and state tests began at the end of the baseline phase for Levi and the state testing began in the middle of baseline for Ramsay. These changes may pose a threat to the internal validity of the findings. While results should be interpreted with caution, valuable information was still obtained about treatment integrity because it is important to understand the implementation of behavioral interventions with real-world disruptions.

Secondly, there is the potential for self-report data and reactivity to the researcher to have impacted the data. Treatment fidelity checklists were completed based upon the CICO log that the mentor completed daily. It is possible that mentors filled out the log from memory after the check-in and check-out sessions. Further, teachers reported whether or not they provided behavioral feedback after each time they completed the E-DBRC. These self-report ratings were not time-stamped during baseline, before teachers asked for the self-report to be added to the E-DRBC, so there was no way to verify when and if these check-out sessions occurred because student feedback sessions were not observed.

Additionally, when the primary investigator attended 25% of check-in and check-out sessions, steps were taken to reduce the likelihood of reactivity. Specifically, the primary investigator did not provide any reminders about the check-in and check-out or

provide any indication that she was there to observe the mentor. During typical practice, the consultant would troubleshoot implementation failures; however, due to the nature of the treatment integrity study, the consultant was unable to provide support outside of the IP protocol to avoid confounding variables. However, it is still possible that primary investigator's presence served as a prompt to implement intervention steps.

Further, findings from this study are inconsistent with previous CICO and IP studies. However, this study was conducted during the COVID-19 global pandemic, and although the study occurred later in the pandemic, some pandemic protocols were in place, and certainly the cumulative effects of the pandemic could have impacted teachers and students. As a result, there are obvious historical differences present in this study which were not present in previous studies, and as such, comparing the results of this study to previous CICO and IP studies must be done will full recognition of the potential impact of the cumulative effects of the global pandemic on teachers' treatment integrity and students' classroom behavior. Further, changes to the intervention protocol were implemented as part of IP, such as the addition of email reminders and reduced frequency of communication with parents in Ramsay's case. Because of these alterations, comparisons between this study and prior implementations of CICO should be interpreted with caution.

Finally, the use of Tau-U effect size estimates should be interpreted within the context of the previously noted limitations of baseline-corrected Tau-U. Specifically, there is literature indicating that Tau-U and baseline-corrected Tau-U are difficult to interpret due to estimates outside of typical effect-size bounds, and differences in baseline correction depending on phase length (Fingerhut et al., 2021). However, in the

present study, there was only baseline trend present for one effect size estimate, so the impact of this limitation is minimal.

Conclusions and Future Directions

This study tested IP as a strategy for supporting teachers' implementation of CICO with an E-DBRC using a multiple-baseline design in accordance with WWC (2020) standards; however, IP was not effective for supporting consistently high levels of CICO implementation. It is important to consider that these are the findings of a single study conducted during a time period in which teachers may be less responsive to consultation supports. Therefore, future research should continue to test the effects of IP for supporting teachers' implementation of CICO and other multi-component interventions that require multiple individuals to implement the intervention. Additionally, researchers may test IP for supporting teachers' implementation of more complex intervention by using a multi-tiered system of consultation supports (Galan-Torres, 2018; LaBrot et al., 2020). Then, researchers can verify progress monitoring tools that are sensitive to changes in teachers' treatment integrity (e.g., permanent product measurement) and gradually increase intensity of consultation supports based on teachers' response to universal, targeted, and intensive supports.

As previously noted, end of the year testing and schedule changes interfered with data collection. In the future, researchers may study the impact of IP on CICO earlier in the year, to determine if IP is an effective strategy under typical circumstances. If IP increases treatment integrity earlier in the school year, it may provide evidence that extra implementation support is needed for teachers at the end of the school year. Again, researchers may identify multi-tiered systems of consultation supports that included

strategies for supporting teachers' treatment integrity during times when there are known seasonal barriers to implementation such as state-wide testing.

Finally, teachers indicated that they did not believe their student's problem behavior was severe enough to warrant intervention, despite screening data and administrator referral. It is possible that teacher buy-in may have impacted treatment integrity if teachers did not implement the intervention because they did not think it was necessary. Future studies could ameliorate this issue by using teacher rating of behavioral severity as a screening criterion. Students whose teachers do not believe they are in need of in-depth intervention could be referred for alternative evidence-based interventions.

APPENDIX A - IRB Approval Letter

Office *of*
Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER:	21-297
PROJECT TITLE:	Implementation Planning to Increase Treatment Integrity for Check-In/Check-Out with an Electronic DBRC
SCHOOL/PROGRAM	School of Psychology
RESEARCHERS:	PI: Caitlyn Weaver Investigators: Weaver, Caitlyn~Dufrene, Brad~Lovelace, Rebecca~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Expedited Category
PERIOD OF APPROVAL:	10-Feb-2022 to 09-Feb-2023

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

APPENDIX B – Sample E-DBRC

R's Daily Behavior Report Card

0 = 0% of the time, 1 = 1-20% of the time, 2= 21-40% of the time, 3= 41-60% of the time, 4= 61-80% of the time, 5= 81-100% of the time

cicoprojectusm@gmail.com (not shared) Switch account

* Required

Feedback session *

- ◯ Feedback 1: 11:35
- ◯ Feedback 2: 12:20
- ◯ Feedback 3: 1:35
- ◯ Feedback 4: 2:50

R. asked for help when he needed help. *

- ◯ 0
- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

APPENDIX C – CICO Mentor Log

Check-In			**Check-Out**		
Date/Time	Checked materials? (Y/N)	Expected behaviors/point goal reviewed? (Y/N)	Percentage daily points	Provided reward, if applicable? (Y/N)	Emailed parent? (Y/N)

APPENDIX D – Consultation Acceptability and Satisfaction Scale

	Strongly Disagree					Strongly Agree
1. The consultant seemed knowledgeable about effective classroom practices.	0	1	2	3	4	5
2. The consultant effectively answered my	0	1	2	3	4	5
3. The consultant provided recommendations that were appropriate given the concerns about the student/class.	0	1	2	3	4	5
4. The consultant clearly explained the assessment and/or intervention procedures.	0	1	2	3	4	5
5. The consultant effectively taught me how to implement their recommendations.	0	1	2	3	4	5
6. The consultant provided me with the resources to implement their recommendations.	0	1	2	3	4	5
7. The consultation process seemed appropriate given the severity of the student's/class's referral concern.	0	1	2	3	4	5
8. The consultation process did NOT significantly interfere with classroom activities.	0	1	2	3	4	5
9. The consultation process was completed in a timely fashion.	0	1	2	3	4	5
10. The referred student/class benefited from the consultation process.	0	1	2	3	4	5
11. I would like to work with this consultant again in the future.	0	1	2	3	4	5
12. Other teachers would benefit from working with this consultant.	0	1	2	3	4	5

APPENDIX E – Modified Intervention Rating Profile-15

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. This would be an acceptable intervention for the child's problem behavior.	1	2	3	4	5	6
2. Most teachers would find this intervention appropriate for behavior problems in addition to the one described.	1	2	3	4	5	6
3. This intervention should prove effective in changing in the child's problem behavior.	1	2	3	4	5	6
4. I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
5. The child's behavior problem is severe enough to warrant use of this intervention.	1	2	3	4	5	6
6. Most teachers would find this intervention suitable for the behavior problem described.	1	2	3	4	5	6
7. I would be willing to use this intervention in the classroom setting.	1	2	3	4	5	6
8. This intervention would not result in negative side effects for the student.	1	2	3	4	5	6
9. This intervention would be appropriate for a variety of children.	1	2	3	4	5	6
10. This intervention is consistent with those I have used in classroom settings.	1	2	3	4	5	6
11. The intervention was a fair way to handle the child's problem behavior.	1	2	3	4	5	6
12. This intervention is reasonable for the problem behavior described.	1	2	3	4	5	6
13. I like the procedures used in this intervention.	1	2	3	4	5	6
14. This intervention was a good way to handle this child's behavior problem.	1	2	3	4	5	6
15. Overall, this intervention would be beneficial for the child.	1	2	3	4	5	6
16. The electronic DBRC was suitable within my classroom.	1	2	3	4	5	6

APPENDIX F - CICO Treatment Fidelity Checklist (Mentor)

Mentor checked in with student before first period.	Yes	No	
Mentor reviewed expected behaviors and point goal.	Yes	No	
Mentor checked out with student at the end of the day.	Yes	No	
The mentor correctly recorded the percentage of points earned.	Yes	No	
The mentor provided a reward if applicable.	Yes	No	N/A
The mentor emailed the parents the percentage of points earned and CC'd the researcher	Yes	No	N/A

APPENDIX G - CICO Treatment Fidelity Checklist (Teacher)

Feedback 1: Each teacher completed feedback for the period before teaching the next period.	Yes	No	N/A
The teacher provided behavioral feedback to the student before teaching the next period.	Yes	No	N/A
Feedback 2: Each teacher completed feedback for the period before teaching the next period.	Yes	No	N/A
The teacher provided behavioral feedback to the student before teaching the next period.	Yes	No	N/A
Feedback 3: Each teacher completed feedback for the period before teaching the next period.	Yes	No	N/A
The teacher provided behavioral feedback to the student before teaching the next period.	Yes	No	N/A
Feedback 4: Each teacher completed feedback for the period before teaching the next period.	Yes	No	N/A
The teacher provided behavioral feedback to the student before teaching the next period.	Yes	No	N/A

APPENDIX H – Observation Procedural Integrity Form

The observer arrived three to five minutes prior to the start of the scheduled observation.	Yes	No	
The observer did not talk to any students upon entering the classroom.	Yes	No	
The observer sat in the back of the classroom in an unobtrusive location.	Yes	No	
The primary and secondary observers sat separately in the classroom.	Yes	No	N/A

APPENDIX I – Observation Form

Date: **IOA?**
Observer: **Percentage AEB**
Percentage PB

1.1 AEB PB	**4.3** AEB PB	**7.5** AEB PB	**11.1** AEB PB	**14.3** AEB PB	**17.5** AEB PB
1.2 AEB PB	**4.4** AEB PB	**7.6** AEB PB	**11.2** AEB PB	**14.4** AEB PB	**17.6** AEB PB
1.3 AEB PB	**4.5** AEB PB	**8.1** AEB PB	**11.3** AEB PB	**14.5** AEB PB	**18.1** AEB PB
1.4 AEB PB	**4.6** AEB PB	**8.2** AEB PB	**11.4** AEB PB	**14.6** AEB PB	**18.2** AEB PB
1.5 AEB PB	**5.1** AEB PB	**8.3** AEB PB	**11.5** AEB PB	**15.1** AEB PB	**18.3** AEB PB
1.6 AEB PB	**5.2** AEB PB	**8.4** AEB PB	**11.6** AEB PB	**15.2** AEB PB	**18.4** AEB PB
2.1 AEB PB	**5.3** AEB PB	**8.5** AEB PB	**12.1** AEB PB	**15.3** AEB PB	**18.5** AEB PB
2.2 AEB PB	**5.4** AEB PB	**8.6** AEB PB	**12.2** AEB PB	**15.4** AEB PB	**18.6** AEB PB
2.3 AEB PB	**5.5** AEB PB	**9.1** AEB PB	**12.3** AEB PB	**15.5** AEB PB	**19.1** AEB PB
2.4 AEB PB	**5.6** AEB PB	**9.2** AEB PB	**12.4** AEB PB	**15.6** AEB PB	**19.2** AEB PB
2.5 AEB PB	**6.1** AEB PB	**9.3** AEB PB	**12.5** AEB PB	**16.1** AEB PB	**19.3** AEB PB
2.6 AEB PB	**6.2** AEB PB	**9.4** AEB PB	**12.6** AEB PB	**16.2** AEB PB	**19.4** AEB PB
3.1 AEB PB	**6.3** AEB PB	**9.5** AEB PB	**13.1** AEB PB	**16.3** AEB PB	**19.5** AEB PB
3.2 AEB PB	**6.4** AEB PB	**9.6** AEB PB	**13.2** AEB PB	**16.4** AEB PB	**19.6** AEB PB
3.3 AEB PB	**6.5** AEB PB	**10.1** AEB PB	**13.3** AEB PB	**16.5** AEB PB	**20.1** AEB PB
3.4 AEB PB	**6.6** AEB PB	**10.2** AEB PB	**13.4** AEB PB	**16.6** AEB PB	**20.2** AEB PB
3.5 AEB PB	**7.1** AEB PB	**10.3** AEB PB	**13.5** AEB PB	**17.1** AEB PB	**20.3** AEB PB
3.6 AEB PB	**7.2** AEB PB	**10.4** AEB PB	**13.6** AEB PB	**17.2** AEB PB	**20.4** AEB PB
4.1 AEB PB	**7.3** AEB PB	**10.5** AEB PB	**14.1** AEB PB	**17.3** AEB PB	**20.5** AEB PB
4.2 AEB PB	**7.4** AEB PB	**10.6** AEB PB	**14.2** AEB PB	**17.4** AEB PB	**20.6** AEB PB

APPENDIX J – Procedural Integrity for Mentor Training

The Check-In/Check-Out Form was presented to the mentor.	Yes	No
The researcher explained how to greet the student in a positive manner.	Yes	No
The researcher explained how to check if the child has materials to be prepared for the day.	Yes	No
The researcher instructed the mentor to remind the student of the daily point goal.	Yes	No
The researcher explained where to record the number of points earned during the day.	Yes	No
The researcher instructed the mentor to email the parents after the check-out each day, ensured the mentor has access to email addresses, and provided a sample script.	Yes	No

APPENDIX K – Procedural Integrity for Teacher Training

Researcher emailed link to electronic DBRC to teacher.	Yes	No
Researcher explained operational definitions of target behaviors.	Yes	No
Researcher explained when to complete the DBRC and provide feedback to the student.	Yes	No
Researcher explained 0-5 rating scale (0= 0% of the time, 1= 1-20% of the time, 2= 21-40% of the time, 3=41-60% of the time, 4=61-80% of the time, and 5=81-100% of the time).	Yes	No
Researcher explained how to access DBRC.	Yes	No
Researcher provided examples and non-examples of appropriate feedback to the student.	Yes	No

APPENDIX L – Implementation Planning Fidelity Form

The primary investigator asked the teacher/mentor which steps may not fit classroom context.	Yes	No	
Changes were made to address contextual fit.	Yes	No	
Changes did not threaten the integrity of intervention.	Yes	No	
The teacher/mentor determined four obstacles to implementation.	Yes	No	
A coping plan was developed to address each obstacle.	Yes	No	

REFERENCES

Ackley, M., Rózsa, A. J., Bell, B., & Dufrene, B. A. (2019, February). Reliability and validity of a functional assessment rating scale. Poster session presented at the National Association of School Psychologists Annual Convention, Atlanta, Georgia.

Andersen, M., & Daly, E. J. (2013). An experimental examination of the impact of choice of treatment components on treatment integrity. *Journal of Educational and Psychological Consultation, 23*(4), 231-263. https://doi.org/10.1080/10474412.2013.845493

Bergan, J. R. (1977). *Behavioral consultation*. Columbus, Ohio: Charles E. Merrill Publishing Co.

Burke, M. D., & Vannest, K. J. (2008). Behavioral progress monitoring using the electronic daily behavioral report card (e-DBRC) system. *Preventing School Failure: Alternative Education for Children and Youth, 52*(3), 51-60. https://doi.org/10.3200/PSFL.52.3.51-60

Byron, J., Sanetti, L. M. H., & Charbonneau, S. (2020). Increasing teacher treatment fidelity to cover, copy, compare through consultation and computer-based implementation planning. *International Journal of School & Educational Psychology*, 1-15. https://doi.org/10.1080/21683603.2020.1753605

Campbell, A., & Anderson, C. M. (2011). Check-in/check-out: A systematic evaluation and component analysis. *Journal of Applied Behavior Analysis, 44*(2), 315–326. https://doi.org/10.1901/jaba.2011.44-315

Christ, T. J., Riley-Tillman, T. C., Chafouleas, S. M., & Boice, C. H. (2010). Direct Behavior Rating (DBR): Generalizability and Dependability Across Raters and Observations. *Educational and Psychological Measurement, 70*(5), 825–843. https://doi.org/10.1177/0013164410366695

Codding, R. S., Livanis, A., Pace, G. M., & Vaca, L. (2008). Using performance feedback to improve treatment integrity of classwide behavior plans: an investigation of observer reactivity. *Journal of applied behavior analysis, 41*(3), 417–422. https://doi.org/10.1901/jaba.2008.41-417

Collier-Meek, M. A., Sanetti, L. M. H., & Boyle, A. M. (2019). Barriers to implementing classroom management and behavior support plans: An exploratory investigation. *Psychology in the Schools, 56*(1), 5–17. https://doi.org/10.1002/pits.22127

Collier-Meek, M. A., Sanetti, L. M., & Boyle, A. M. (2016). Providing Feasible Implementation Support: Direct Training and Implementation Planning in Consultation. *School Psychology Forum 10*(1), 106-119.

Collier-Meek, M. A., Sanetti, L. M. H., & Fallon, L. M. (2017). Incorporating applied behavior analysis to assess and support educators' treatment integrity. *Psychology in the Schools, 54*(4), 446–460. https://doi.org/10.1002/pits.22001

Cooper, J.O., Heron, T.E., & Heward, W.L. (2019). Applied behavior analysis (3rd edition). Boston, MA: Pearson.

Crone, D., Hawken, L., & Horner, R. (2010). Responding to problem behavior in schools, second edition: The behavior education program. The Guilford Practical Intervention in the Schools Series. New York: Guilford Press.

Dart, E. H., Cook, C. R., Collins, T. A., Gresham, F. M., & Chenier, J. S. (2012). Test Driving Interventions to Increase Treatment Integrity and Student Outcomes. *School Psychology Review, 41*(4), 467–481. https://doi.org/10.1080/02796015.2012.12087500

Drevon, D. D., Hixson, M. D., Wyse, R. D., & Rigney, A. M. (2018). A meta-analytic review of the evidence for check-in check-out. *Psychology in the Schools, 56*, 393-412. https://doi.org/10.1002/pits.22195

Dufrene, B. A., & Ware, M. (2018). The consultation acceptability and satisfaction scale (Report No. 001). Hattiesburg, MS: School Psychology Service Center.

Edwards, R. P. (2002). A tutorial for using the functional assessment informant record for teachers. *Proven Practice: Prevention and Remediation Solutions for Schools, 4*, 31–33.

Fallon, L. M., Collier-Meek, M. A., Kurtz, K. D., & DeFouw, E. R. (2018). Emailed implementation supports to promote treatment integrity: Comparing the effectiveness and acceptability of prompts and performance feedback. *Journal of School Psychology, 68*, 113–128. https://doi.org/10.1016/j.jsp.2018.03.001

Filter, K. J., McKenna, M. K., Benedict, E. A., Horner, R. H., Todd, A., & Watson, J. (2007). Check in/Check out: A post-hoc evaluation of efficient, secondary level targeted intervention for reducing problem behaviors in schools. Education and Treatment of Children, 30(1), 69-84. https://doi.org/10.1353/etc.2007.0000

Fingerhut, J.E., Xu, X., & Moeyaert, M. (2021). Selecting the proper Tau-U measure for single-case experimental designs: Development and application of a decision

flowchart. *Evidence-Based Communication Assessment and Intervention, 15*, 99 - 114. https://doi.org/10.1080/17489539.2021.1937851

Fischer, A. J., Dart, E. H., LeBlanc, H., Hartman, K. L., Steeves, R. O., & Gresham, F. M. (2016). An investigation of the acceptability of videoconferencing within a school-based behavioral consultation framework. *Psychology in the Schools, 53*(3), 240–252. https://doi.org/10.1002/pits.21900

Galan-Torres, Mariangely Melendez, "Tired Consultation to Improve and Maintain Teachers' Behavior Specific Praise" (2018). *Dissertations*. 1597.

Hawken, L. S., & Horner, R. H. (2003). Evaluation of a targeted intervention within a schoolwide system of behavior support. *Journal of Behavioral Education, 12*(3), 225-240.

Hawken, L. S., Macloed, S, K., & Rawlings, L. (2007). Effects of the Behavior Education Program (BEP) on office discipline referral of elementary school students. *Journal of Positive Behavior Interventions, 9*(2), 94–101. https://doi.org/10.1177/10983007070090020601

LaBrot, Z.C., Dufrene, B.A., Whipple, H., McCargo, M., & Pasqua, J. L. (2020) Targeted and intensive consultation for increasing Head Start and elementary teachers' behavior-specific praise. *Journal of Behavioral Education 29,* 717–740. https://doi.org/10.1007/s10864-019-09342-9

Lane, K. L. & Menzies, H. M. (2009). Student Risk Screening Scale for Internalizing and Externalizing Behavior (SRSS-IE). Screening scale. Available at Ci3t.org/screening.

Lopach, L. C. (2016). *The electronic daily school note: A study examining an evidence-based school intervention package for improving on-task behavior, academics, and home-school collaboration* (Order No. 10159121). Available from ProQuest Dissertations & Theses Global. (1840192828). Retrieved from http://lynx.lib.usm.edu/dissertations-theses/electronic-daily-school-note-study-examining/docview/1840192828/se-2

Maggin, D. M., Zurheide, J., Pickett, K. C., & Baillie, S. J. (2015). A Systematic Evidence Review of the Check-In/Check-Out Program for Reducing Student Challenging Behaviors. *Journal of Positive Behavior Interventions, 17*(4), 197–208. https://doi.org/10.1177/1098300715573630

Martens, B. K., Witt, J. C., Elliott, S. N., & Darveaux, D. (1985). Teacher judgments concerning the acceptability of schoolbased interventions. *Professional Psychology: Research and Practice, 16*, 191–198.

Miller, L. M., Dufrene, B. A., Sterling, H. E., Olmi, D. J., & Bachmayer, E. (2015). The effects of check-in/check-out on problem behavior and academic engagement in elementary school students. *Journal of Positive Behavior Interventions, 17*(1), 28-38. https://doi.org/10.1177/1098300713517141

Mississippi Department of Education. (n.d.). Chronic Absenteeism. Retrieved January 21, 2020, from https://www.mdek12.org/chronicabsenteeism

Noell, G. H., Witt, J. C., Slider, N. J., Connell, J. E., Gatti, S. L., Williams, K. L., Koenig, J. L., Resetar, J. L., & Duhon, G. J. (2005) Treatment implementation following behavioral consultation in schools: A comparison of three follow-up

strategies. *School Psychology Review, 34*(1), 87-106. https://doi.org/10.1080/02796015.2005.12086277

Oliver, R. M., Wehby, J. H., & Nelson, J. R. (2015). Helping teachers maintain classroom management practices using a self-monitoring checklist. Teaching and Teacher Education, 51, 113–120. https://doi.org/10.1016/j.tate.2015.06.007

Owens, J. S., McLennan, J. D., Hustus, C. L., Haines-Saah, R., Mitchell, S., Mixon, C. S., & Troutman, A. (2019). Leveraging technology to facilitate teachers' use of a targeted classroom intervention: Evaluation of the Daily Report Card. Online (DRC.O) system. *School Mental Health, 11*, 665–677. https://doi.org/10.1007/s12310-019-09320-6

Parker, R. I., Vannest, K. J., Davis, J. L., & Sauber, S. B. (2011). Combining nonoverlap and trend for single-case research: Tau-U. *Behavior Therapy, 42*(2), 284-299. https://doi.org/10.1016/j.beth.2010.08.006

Riden, B. S. (2018). The effects of an electronic daily behavior report card on challenging student behavior (Order No. 13804050). Available from ProQuest Dissertations & Theses Global. (2160629820).

Sanetti, L. M. H., & Collier-Meek, M. A. (2014). Increasing the rigor of procedural fidelity assessment: An empirical comparison of direct observation and permanent product review methods. *Journal of Behavioral Education, 23*(1), 60–88. https://doi.org/10.1007/s10864-013-9179-z

Sanetti, L. M. H., & Collier-Meek, M. A. (2017). Treatment integrity: Evidence-based Interventions in applied settings. In L. A. Theodore (Ed.), *Handbook of evidence-*

based interventions for children and adolescents (pp. 3–14). Springer Publishing Company.

Sanetti, L. M. H., Collier-Meek, M. A., Long, A. C. J., Kim, J., & Kratochwill, T. R. (2014). Using implementation planning to increase teachers' adherence and quality to behavior support plans. *Psychology in the Schools, 51*(8), 879–895. https://doi.org/10.1002/pits.21787

Sanetti, L. M., Williamson, K. M., Long, A. C., & Kratochwill, T. R. (2017). Increasing in-service teacher implementation of classroom management practices through consultation, implementation planning, and participant modeling. *Journal of Positive Behavior Interventions, 20*(1), 43-59. https://doi.org/10.1177/1098300717722357

Simonsen, B., Myers, D., & Briere, D. E. (2011). Comparing a behavioral check-in/check-out intervention to standard practice in an urban middle school setting using an experimental group design. *Journal of Positive Behavior Interventions, 13*, 31–48. https://doi.org/10.1177/1098300709359026

Sterling-Turner, H. E., Watson, T. S., & Moore, J. W. (2002). The effects of direct training and treatment integrity on treatment outcomes in school consultation. *School Psychology Quarterly, 17*(1), 47–77. https://doi.org/10.1521/scpq.17.1.47.19906

Tarlow, K. R. (2016). Baseline Corrected Tau Calculator. Retrieved from http://www.ktarlow.com/stats/tau

Todd, A. W., Campbell, A. L., Meyer, G. G., & Horner, R. H. (2008). The effects of a targeted intervention to reduce problem behaviors: Elementary school

implementation of Check In-Check Out. *Journal of Positive Behavior Interventions, 10*, 46–55. https://doi.org/10.1177/1098300707311369

Turtura, J. E., Anderson, C. M., & Boyd, R. J. (2014). Addressing task avoidance in middle school students: Academic behavior check-in/check-out. *Journal of Positive Behavioral Interventions, 16*(3), 159–167. https://doi.org/10.1177/1098300713484063

Vannest, K. J., & Ninci, J. (2015). Evaluating intervention effects in single-case research designs. *Journal of Counseling & Development. 93*(4), 403-411. https://doi.org/10.1002/jcad.12038

Von Brock, M. B., & Elliott, S. N. (1987). The influence of treatment effectiveness information on the acceptability of classroom interventions. *Journal of School Psychology, 25*, 131–144. https://doi.org/10.1016/0022-4405(87)90022-7.

Weaver, C. M. (2021). A meta-analysis of Check-In/Check-Out: Effectiveness, social validity, and design standards. Master's Theses, 797.

What Works Clearinghouse. (2020). What Works Clearinghouse Standards Handbook, Version 4.1. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.

Williams, K. L., Noell, G. H., Jones, B. A., & Gansle, K. A. (2012). Modifying students' classroom behaviors using an electronic daily behavior report card. *Child & Family Behavior Therapy 34*(4), 269-289. https://doi.org/10.1080/07317107.2012.732844

Wilkinson, L. A. (2007). Assessing treatment integrity in behavioral consultation. *International Journal of Behavioral Consultation and Therapy, 3*(3), 420-432. https://doi.org/10.1037/h0100816

Wolfe, K., Pyle, D., Charlton, C. T., Sabey, C. V., Lund, E. M., & Ross, S. W. (2016). A systematic review of empirical support for check-in check-out. *Journal of Positive Behavior Interventions, 18*(2), 74-88. https://doi.org/10.1177/1098300715595957

Yassine, J., & Tipton-Fisler, L. A. (2022). Check-In/Check Out: Electronic adaptation and individual progress monitoring. *Journal of Special Education Technology, 37*(2), 215–224. https://doi.org/10.1177/0162643421994107