The Effects of Check-in, Check-up, Check-out for Students with Moderate Intellectual Disability During On- and Off-Site Vocational Training

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Abstract

Check-in/check-out is a secondary-tier intervention within the positive behavior interventions and supports framework. Check-in/check-out pairs the use of an adult mentor with a daily progress report to help students meet individualized behavioral goals. This study adds to the research base by examining the effects of check-in, check-up, check-out for students with moderate intellectual disability. A modified version of the traditional check-in/check-out cycle was implemented with three high school students during vocational training. All three students demonstrated decreases in off-task behavior. Treatment fidelity and social validity were assessed. Limitations, future directions, and implications for practice are discussed.

Keywords: Check-in/Check-out, moderate intellectual disability, PBIS, vocational training, High-school

Introduction

Students with a moderate intellectual disability (MoID) often display a variety of social and behavioral challenges. These challenges include exhibiting inappropriate behaviors such as aggression, self-injury, and stereotypy (Emerson et al., 2001), demonstrating an inability to perform appropriate social behaviors at the appropriate time (Leffert, Siperstein, &

Millikan, 2000), and lacking the skills to form and maintain relationshipswith peers (Guralnick, Conner, & Johnson, 2011). Researchers have shown that students with MoID experience greater difficulty in forming meaningful relationships beginning as early as preschool (Buysse, Goldman, & Skinner, 2002; Hall & Strickett, 2002; Guralnick et al., 2011; Wishart, 2007) and continuing through adulthood (McVilly, Stancliffe, Parmenter, & Burton-Smith, 2006a; 2006b). These social characteristics then led to further isolation from their same-age peers for students with MoID. Students with MoID need to receive direct and systematic social skills instruction that explicitly teaches appropriate social behaviors (Boden, Ennis, & Jolivette, 2012).

Students with MoID often receive instruction within applied community contexts to promote improved generalization of skills necessary to function in an integrated community (Cihak, Alberto, Kessler, & Taber, 2004). Community-based instruction (CBI) and community-based vocational training (CBVT) allow students the opportunity to learn necessary post-school skills to live and work within an integrated community as adults. Students with MoID who exhibit inappropriate behavior may be limited in their access to post-school employment options (Alberto, Taber, & Fredrick, 1999; Hughes, Alberto, & Fredrick, 2006; Kemp & Carr, 1995). As a result, it is imperative that effective behavioral interventions are implemented with this population of students within these applied settings to increase appropriate behavior within the community.

One approach to teach, model, and reinforce appropriate social behavioral development in students with MoID is a multi-tiered system of support such as positive behavior interventions and supports (PBIS framework). PBIS is a three-tiered behavioral framework in which students are explicitly taught behavioral expectations and are reinforced for engaging in the expected behaviors across persons and settings (Sugai et al., 2000). The three tiers are designed to address the behavioral needs of all students within the school setting in a systematic and differential, intensified manner based on student needs. The primary tier provides school-wide support for all students while secondary and tertiary tiers provide more intensive levels of support for students who are not responding to school-wide PBIS (SWPBIS). The secondary tier of SWPBIS provides targeted interventions for students who are not responding to SWPBIS as a means of reversing current behavior problems. Secondary tier supports are implemented with students who require more behavioral support than what is provided for all students at the primary tier, but do not require intensive and individualized supports delivered at the tertiary tier.

While the PBIS framework is designed for all students regardless of disability status, there is scant evidence that students with MoID are being included in interventions within SWPBIS frameworks (Hawken & O'Neil, 2006). Students with MoID who display inappropriate behaviors often receive tertiary-tier interventions through the implementation of a behavioral intervention plan (BIP) as opposed to less intensive secondary-

tier interventions which may be just as effective (Hawken & O'Neil, 2006). Providing students with MoID with secondary-tier interventions may be a more effective and less-intensive method for reversing current levels of problem behavior and may increase the inclusiveness of this population of students with less-restrictive educational practices (Freeman et al., 2006; Hawken & O'Neil, 2006). One secondary-tier intervention that may be effective for students with MoID is check-in, check-out (CICO).

CICO is a common intervention implemented in schools that have adopted and used the PBIS framework for students not responding to SWPBIS (Campbell & Anderson, 2008; Lane, Capizzi, Fisher, & Ennis 2012; Simonsen, Myers, & Briere, 2011). CICO is a five-step cycle that incorporates the use of a daily progress report card (DPR) to monitor progress toward behavioral goals, to provide consistent and predictable positive adult attention, and to provide reinforcement for goal attainment and/or improvement (Swoszowski, Patterson, & Crosby, 2011). The CICO steps include: check-in, feedback, check-out, home component, and return to school.

During check-in, students meet with an adult facilitator to review their daily goals, receive their DPR, and discuss strategies to meet their goals as well as reinforcement for meeting their goals. The daily check-in emphasizes a positive interaction between the student and the facilitator. Next, students take their DPR to each class and receive feedback from their teacher on their progress toward each goal. At the end of the day, the student meets with the adult facilitator to discuss the day. The interaction focuses on positive aspects from the day and solutions for areas in which the student could improve. If the point goal has been meet for the day, the student receives the pre-determined reinforcer. Finally, the student takes their DRP home for a guardian signature allowing for an additional opportunity for the student to discuss their day with an adult. The home component should also be a positive conversation focusing on the student's success and providing strategies to help the student improve. The following morning, the student returns the DPR to school and the cycle begins again.

CICO has been effectively implemented in a variety of educational settings with a wide range of students. CICO has been implemented in typical and alternative elementary (Campbell & Anderson, 2008; Fairbanks, Sugai, Guardino, & Lathrop, 2007; Filter et al., 2007; Hawken, MacLeod, & Rawlings, 2007; Hawken, O'Neill, & MacLeod, 2011; McIntosh, Campbell, Carter, & Dickey, 2009; Mong, Johnson, & Mong, 2011; Swoszowski, Jolivette, & Fredrick, 2013; Swoszowski, McDaniel, Jolivette, & Melius, 2013; Todd, Campbell, Meyer, & Horner, 2008), middle (Hawken, 2006; Hawken & Horner, 2003; Lane et al., 2012; March & Horner, 2002; Simonsen, Myers, & Briere, 2011), and high school settings (Ennis, Jolivette, Swoszowski, & Johnson, 2012; Swoszowski, Jolivette, Fredrick, & Heflin, 2012) with students with and without disabilities. These studies were implemented with students who have individualized education plans (McIntosh et al., 2009; Simonsen et al., 2011; Todd et al., 2008), students

with learning disabilities (Hawken & Horner, 2003; Hawken et al., 2007; Fairbanks et al., 2007; Todd et al., 2008), ADHD (Lane et al., 2012), and emotional and behavioral disorders (E/BD) (Ennis et al., 2012; Swozowski et al., 2012; Swozowski et al., 2013) with overall positive results.

To date, there is no research on the implementation of CICO with students with MoID; however, researchers have suggested that students with MoID who are receiving behavioral interventions may benefit from less intensive secondary-tier interventions rather than tertiary-tier interventions (Hawken & O'Neill, 2006). Due to the intensive needs of this population of students it may be assumed that the most intensive interventions are necessary when problem behavior occurs. While some students with MoID will require tertiary interventions such as a functional behavioral assessment (FBA) these can be time consuming and may not be necessary for all students within this population.

A less-intensive, secondary-tier intervention such as CICO may be sufficient to reverse current problem behavior. It has been posited that students with MoID may require an adapted version of CICO (Boden et al., 2012). For example, students with MoID who have attention delays may benefit from more frequent feedback or shorter check-ins as part of their process while others with language delays may benefit from picture prompts as opposed to text as a part of their daily progress report (Boden et al., 2012). Another adaptation may be that CICO occurs during a specific time of the day or activity in which the student displays high levels of challenging behavior; as opposed to use throughout the entire school day. Also, with such adaptations for students with MoID, it is likely that check-in, check-up, check-out cycle (CICUCO), as used in alternative settings for students with E/BD and other comorbid disabilities (Swoszowski et al., 2013), would be even more appropriate for meeting their diverse needs, adapted curricula, and vocational foci. CICUCO may be a better cycle to further adapt for students with MoID. Such further adaptations may benefit students with MoID whom have difficulty processing feedback.

CICUCO adapts the CICO cycle to include a mid-day check-up for students who require more frequent feedback (Swoszowski et al., 2013). The mid-day check-up provides an additional opportunity to check student progress, remind the student of their goals, and motivate to continue making progress toward their goals. Other adaptations include altering the dosage, quantity, and intensity of the feedback, the language used in such feedback, to name a few. The CICUCO cycle may be an appropriate intervention for students with MoID as the additional check-up provides more frequent feedback and reinforcement, both of which are beneficial for this population of students.

The purpose of this study is to extend the CICUCO research by examining its effectiveness when implemented with students with MoID in vocational settings. This study addressed the following research questions: What is the effect of adapted CICUCO on the off-task behavior of students with MoID during vocational training? What are the perceptions of the student and adult participants on the social validity of adapted CICUCO?

Table 1
Participant Demographics

Student	Age	IQ[1]	Eligibility[2]	Grade	Ethnicity/ Race	Gender
Micah	18	55 WASI	MoID ED SLI	12	African American	Male
Brandon	14	47 WISC	MoID SLI	9	African American	Male
Hameed	21	55 WASI	MoID	12	Afghan	Male

Paraeducator and Teacher Demographics

Role	Age	Years in Position	Years Teaching	Ethnicity/ Race	Gender	Mentor Student Name
Paraeducator	52	6	15	Caucasian	Female	Brandon and Hameed
Paraeducator	41	9	12	African American	Male	Micah
Teacher	48	1	18	Caucasian	Female	N/A

Note: [1] = WASI = Wechsler Abbreviated Scale of Intelligence, WISC = Wechsler Intelligence Scale for Children; [2] = MoID = moderate intellectual disability, ED = emotional disorder, SLI = speech language impairment.

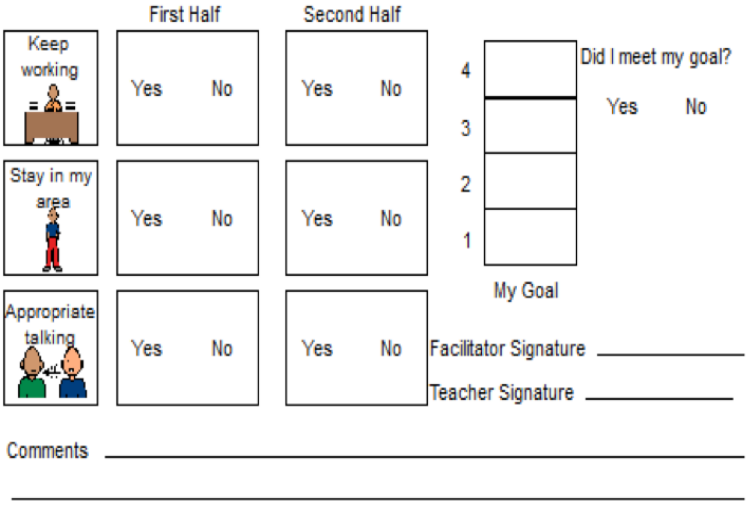
Methods

Participants and Setting

Participants included three high school students, Brandon, Hameed, and Micah, receiving special education services in a large Southeastern suburban school district, two special education paraprofessionals, and one special education teacher (see Table 1 for all demographics). Student inclusion criteria were: (a) moderate intellectual disability eligibility per state special education code, (b) ages 14-21 years, (c) a nomination by a classroom teacher based on a history of and observed off-task behavior during vocational training, (d) provision of verbal assent, and (e) provision of parental permission.

The study was conducted in three vocational training locations where the students worked one day a week per setting as part of their individualized education plan. The first vocational training location was the student's special education classroom where they worked on tasks varying from clerical (e.g., shredding paper and filing) to assembly (e.g., boxing sets of items) jobs. The second location was the school coffee shop where the students served customers, made change, stocked supplies, and cleaned. The third location was a local restaurant where students rolled silverware, prepared food, and prepared the restaurant for opening (e.g., taking down chairs, placing condiments on tables, etc.).

Figure 1. Daily Progress Report



Materials

The materials used were (a) a researcher created daily progress report card (DPR); (b) coupons for computer time; and (c) additional items for immediate reinforcement (i.e., mints, pencils, and gum). The DPR consisted of three individualized, positive vocational behavioral expectations in visual and text form, the work shift split in half per expectation for two opportunities for feedback, a visual box of the goal (one box per yes shaded in), a yes/no did I met my goal, signature of facilitator, and a comment space (see Figure 1 above).

Dependent Variable and Data Collection

The dependent variable was off-task behavior during vocational training. Off-task behavior was defined as any instance in which the student was not actively engaged in the assigned task including horse playing, not responding to teacher commands, making off-topic comments, standing/sitting idly, and leaving the designated area. Waiting quietly for the next direction, transitioning to the next activity, and on-topic conversation with customers and restaurant employees were non-examples of off-task behavior. Momentary time sampling data were collected using two-minute intervals for 30 min sessions in each location. The percentage of off-task intervals was calculated by dividing the number of intervals of off-task behavior by the total number of sessions and multiplying by 100.

Design and Phases

A multiple-baseline across settings design was used to examine the effects of CICUCO on the off-task behavior of students with MoID during vocational training.

Baseline. During baseline, all typical vocational training procedures occurred. This included individualized instruction, frequent feedback, and positive reinforcement in the form of verbal praise. Behavioral expectations were reviewed prior to leaving the classroom with students; however, these expectations were not student specific and were broad (e.g., be on your best behavior, raise your hand, etc.). During vocational training, feedback was specific to each student; however, verbal praise was generic (e.g., nice work).

CICUCO. During intervention, an adapted version of CICO was implemented; the check-in occurred before, during, and at the end of each vocational training session (e.g., Swoszowski et al., 2013); the DPR was picture-based with little narrative text; the feedback length was shorter with modified language; and the classroom served as the home component (e.g., Ennis et al., 2012; Swoszowski et al., 2012; Swoszowski et al., 2013). The classroom served as the home component of the intervention to provide the students with more immediate feedback and reinforcement. Prior to the intervention, the classroom teacher and paraeducators decided who would serve as the mentor for each student.

The paraeducators served the role of mentor for the three students and the classroom teacher served as the home component for each student. First, each student met with his mentor just prior to beginning his vocational training session. Check-in took place at the vocational training site for one to two minutes per student. The student received his CICUCO DPR, the mentor discussed the expected behaviors, and were reminded how many "yeses" were needed to meet the daily goal (i.e., four out of six possible yeses). Students were required to verbalize the expected behaviors by reading them from the DPR or repeating them after the mentor. Second, each student received feedback on their DPR halfway through and at the end of the vocational training session. Each student received a "yes" if they demonstrated the appropriate work behavior (e.g., stayed in their assigned area, kept working, etc) and a "no" if more than one reminder to exhibit the appropriate work behavior was provided.

Mentors circled the appropriate "yes" or "no" on the DPR in front of the student. If a student received a "no," they were told why they received the "no," and told what they could do to improve their performance. In addition, each student gave ideas as to how they could improve their performance during future vocational training sessions. Third, at the end of the vocational training session the student met with their mentor to check-out. During check-out, the student determined whether or not they met the goal for the session by filling in one box on their goal visual for each "yes" received. If the student met the goal, they received immediate reinforcement in the form of a small tangible item and behavior specific praise from their mentor. If the student did not meet his goal, they were provided with verbal encouragement and both discussed what could be done differently during the next vocational training session. Fourth, each student took their CICUCO DPR back to the classroom and met with the classroom teacher. The classroom teacher served in the role of the home component by delivering behavior specific praise to

students who met their goal providing the student with a coupon for computer time to be redeemed later in the day. If a student did not meet their goal, the teacher provided verbal encouragement to the student. For all students, the classroom teacher signed the DPR. Fifth, each student immediately returned their CICUCO DPR to their mentor (that same day).

Social Validity. One week after the last session, social validity was assessed using the Intervention Rating Profile (IRP-15; Witt & Elliott, 1985). The classroom teacher and paraprofessionals independently rated CICUCO on procedures and outcomes using a 6-point Likert-type scale. In addition, student participants were administered a researcher created questionnaire in an interview format to determine student perceptions of CICUCO. Student participants were asked the following questions by the researcher: Was CICUCO fun, was CICUCO hard for you, do you think CICUCO helped you do better work, did CICUCO make you feel good about yourself when you met your goal, did you like working with your mentor, did you like doing CICUCO, and do you think CICUCO helped you learn to be a better worker?

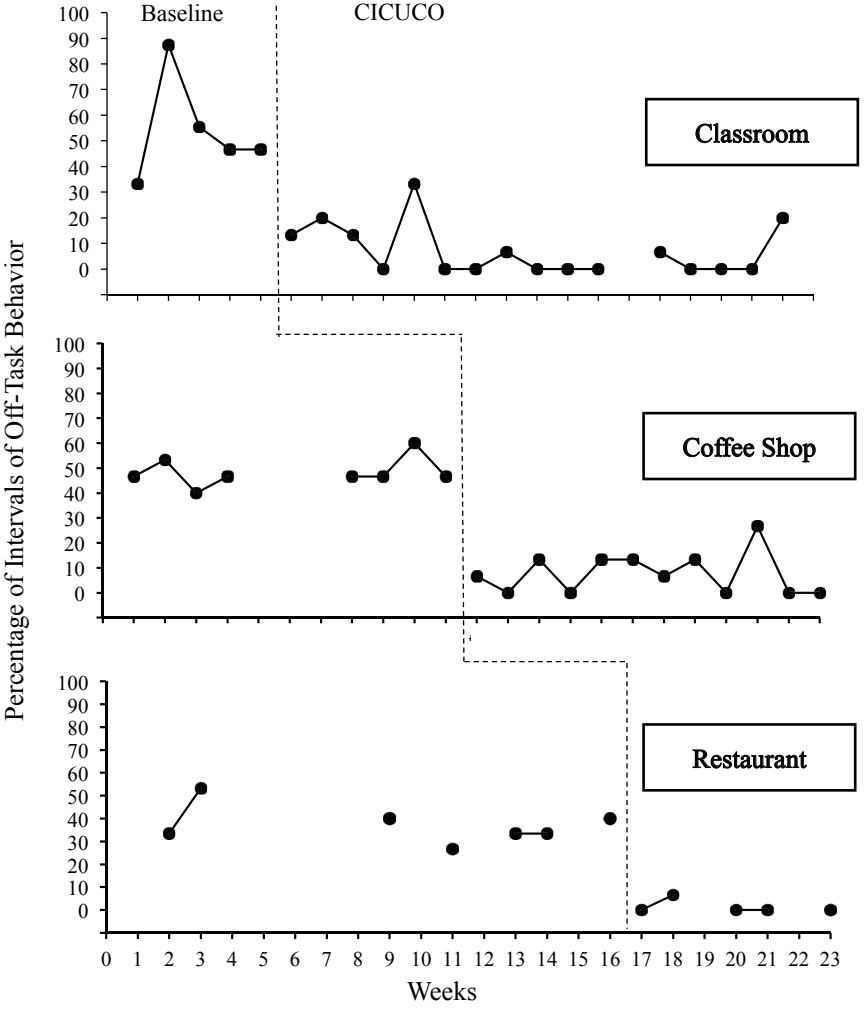
Interobserver Agreement. A second trained observer independently and concurrently collected inter-observer agreement data (IOA) on off-task behavior during baseline and intervention. Point-by-point agreement was calculated by dividing the number of agreements by the number of disagreements and multiplying by 100%. IOA was conducted for 30.91%, 30.19%, and 36.54% of sessions for Micah, Brandon, and Hameed, respectively. The mean IOA for each student follows: Micah, 99.52% (range, 93.33% to 100%); Brandon, 99.05% (range, 93.33% to 100%); and Hameed 99.56% (range, 93.33% to 100%).

Treatment Fidelity. Treatment fidelity was measured during intervention using a 14-item researcher created checklist. The first author conducted all treatment fidelity measures through direct observation of the CICUCO cycle. The 14-item checklist contained all necessary steps to be conducted by the mentors and the classroom teacher each time the students participated in CICUCO. Treatment fidelity was calculated by dividing the number of observed behaviors by the number of planned behaviors and multiplying by 100%. Treatment fidelity data were collected for 31.25%, 30.30%, and 36% of sessions for Micah, Brandon, and Hameed, respectively. The mean treatment fidelity for each student follows: Micah, 96.43% (range, 85.71% to 100%); Brandon, 99.29% (range, 92.86% to 100%); and Hameed, 98.41% (range, 92.86% to 100%).

Results

All three students displayed a decrease in off-task behavior during vocational training sessions across all three settings (see Figures 2-4). Breaks in the data were due to absences or missed opportunities (i.e., cancelation of community-based instruction and scheduling conflicts with the work site) to participate in vocational training.

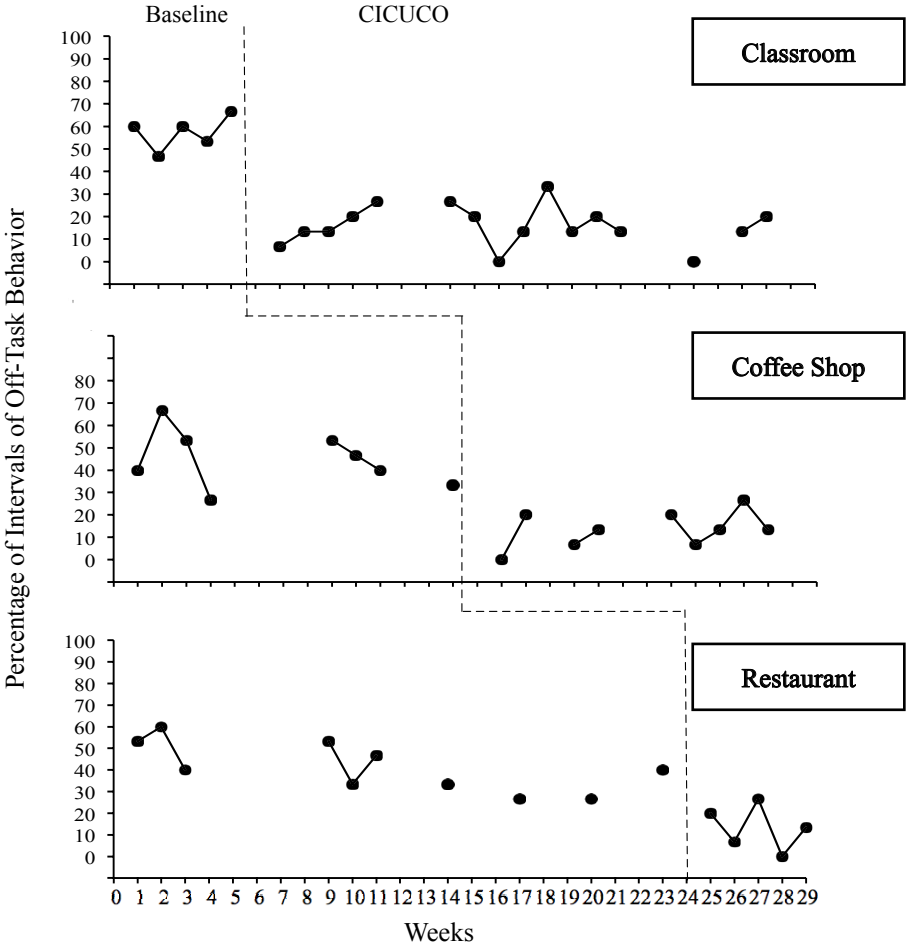
Figure 2. Micah's percentage of intervals with off-task behavior during vocational training.



Micah

Micah demonstrated an average occurrence of off-task behavior of 41.82% of intervals during baseline and 5.83% of intervals during CICUCO across all three settings with an immediate decrease in off-task behavior across all three settings following the implementation of CICUCO. Mean levels of off-task behavior during baseline were 53.93% (range, 33.33%-87.5%), 48.34% (range, 40%-60%), and 37.14% (range, 26.67%-53.33%) in the classroom, coffee shop, and restaurant, respectively. During CICUCO, Micah's mean levels of off-task behavior were 6.22% (range, 0%-33.33%), 7.78% (range, 0%-26.67%), and 1.33% (range, 0%-6.67%) in the classroom, coffee shop, and restaurant, respectively. Micah's overall percent change was 47.71% in

Figure 3. Brandon's percentage of intervals with off-task behavior during vocational training.



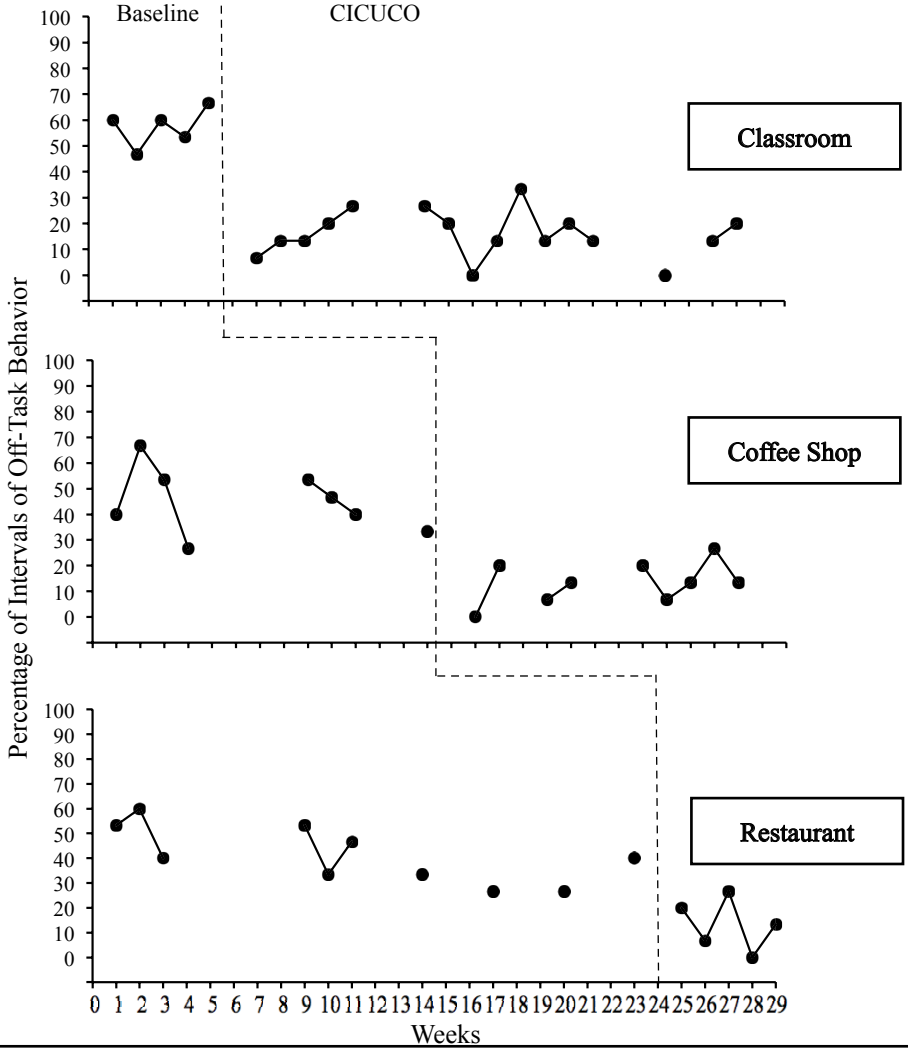
the classroom, 40.56% in the coffee shop, and 35.81% in the restaurant. There were 16 times in which data were not collected for Micah: (a) absent sessioh 17; (b) no vocational training session 23 in the classroom; (c) no vocational training in the coffee shop during sessions 5, 6, and 7; and (d) teacher schedule changes or cancelation of training sessions 1, 4, 5, 6, 7, 8, 10, 12, 15, 19, and 22.

Brandon

Brandon demonstrated an average occurrence of off-task behavior of 44.07% of intervals during baseline and 5.42% of intervals during CICUCO across all three settings. Mean levels of off-task behavior during baseline were 42.67% (range, 33.33%-53.33%), 53.33% (range, 40%-73.33%), and 34.45% (range, 20%-46.67%) in the classroom, coffee shop, and restaurant,

respectively. During CICUCO, Brandon's mean levels of off-task behavior were 5.33% (range, 0%-40%), 5.64% (range, 0%-13.33%), and 4% (range, 0%-6.67%) in the classroom, coffee shop, and restaurant, respectively. Per visual analysis of Brandon's data, an immediate decrease in off-task behavior across all three settings following the implementation of CICUCO was observation. Brandon's overall percent change was 37.34% in the classroom, 47.69% in the coffee shop, and 30.45% in the restaurant. There was only one overlapping data point from baseline to intervention. There were 17 times in which data were not collected for Brandon: (a) absent session 18; (b) no vocational training session 23 in the classroom; (c) no vocational training in

Figure 4. Hameed's percentage of intervals with off-task behavior during vocational training.



the coffee shop during sessions 5, 6, and 7; (d) behavioral concerns sessions 1-7 in the restaurant; and (e) teacher schedule changes or cancelation of training sessions 9, 11, 14 15, and 19.

Hameed

Hameed demonstrated an average occurrence of off-task behavior of 46.09% of intervals during baseline and 14.67% of intervals during CICUCO across all three settings. Mean levels of off-task behavior during baseline were 57.33% (range, 46.67%-66.67%), 45% (range, 26.67%-66.67%), and 41.33% (range, 26.67%-60%) in the classroom, coffee shop, and restaurant, respectively. During CICUCO, Hameed's mean levels of off-task behavior were 15.83% (range, 0%-33.33%), 13.33% (range, 0%-26.67%), and 13.33% (range, 0%-26.67%) in the classroom, coffee shop, and restaurant, respectively. Hameed demonstrated variability in responding; however, data analysis indicates a decrease in off-task behavior across all three settings. Hameed's overall percent change was 41.50% in the classroom, 31.67% in the coffee shop, and 28% in the restaurant.

There was only one overlapping data point from baseline to intervention. There were 30 times in which data were not collected for Hameed: (a) absent sessions 6, 12, 13, 22, and 25 in the classroom; sessions 8, 12, 13, 15, 18, 21, and 22 in the coffee shop; 8, 12, 13, 15, 18, 21, and 22 in the restaurant; (b) no vocational training session 23 in the classroom; (c) no vocational training in the coffee shop sessions 5, 6, and 7; and (d) teacher schedule changes or cancelation of training sessions 4, 5, 6, 7, 16, 19, and 24. the coffee shop, and 28% in the restaurant. There was only one overlapping data point from baseline to intervention. There were 30 times in which data were not collected for Hameed: (a) absent sessions 6, 12, 13, 22, and 25 in the classroom; sessions 8, 12, 13, 15, 18, 21, and 22 in the coffee shop; 8, 12, 13, 15, 18, 21, and 22 in the restaurant; (b) no vocational training session 23 in the classroom; (c) no vocational training in the coffee shop sessions 5, 6, and 7; and (d) teacher schedule changes or cancelation of training sessions 4, 5, 6, 7, 16, 19, and 24.

Social Validity

The classroom teacher and two paraeducators indicated that CICUCO was a favorable intervention based on their responses on the IRP-15. IRP-15 scores from the classroom teacher and paraeducators were 90, 81, and 68 out of a possible 90. One paraeducator rated the following items as slightly agree: the intervention is suitable for the behavior problem, the intervention is consistent with those I have used in the classroom, the intervention is fair, the intervention was a good way to handle to behavior. All other items were rated as agree or strongly agree. Responses from all three student participants indicated positive perception of the intervention. The only negative response was given by Micah in that he answered “no, not really” when asked if he enjoyed working with his mentor.

Discussion

With the implementation of an adapted version of CICUCO used within vocational settings for students with MoID, a functional relation was observed for all students; the first empirical investigation of adapted CICUCO with students with MoID, demonstrating that they too can be just as successful when a secondary-tier intervention within the PBIS framework is implemented (Boden et al., 2012; Hawken & O'Neil, 2006). In addition, CICUCO was perceived to be socially valid by all participants and was implemented with high levels of fidelity. These findings are consistent with typical and adapted CICO conducted with other students with disabilities (Ennis et al., 2012; Fairbanks et al., 2007; Hawken et al., 2007; Hawken & Horner, 2003; Lane et al., 2012; Swozowski et al., 2012; Swozowski et al., in 2013; Todd et al., 2008).

Prior to intervention, all three students were unable to consistently participate in vocational training at community-based sights due to negative behavioral patterns. When participating in vocational training, students required frequent reminders to stay on-task and often needed one-on-one support to complete a task jeopardizing their future placements there. Following the intervention, all three students participated more frequently and more independently as they continued to exhibit decreased levels of off-task behavior. All three students continued to use their CICUCO DPR after the conclusion of the intervention as all indicated it helped their performance during vocational training and enjoyed the intervention.

Momentary-time sampling was employed to measure behavior change across the study. While an appropriate metric in this applied context as it did not interfere with the tasks of the student or paraeducator, other systems could be used in the future. Permanent products linked to work skills such as number of completed tasks also may be an appropriate way to measure effectiveness of CICUCO.

Limitations and Future Directions

All three students benefitted from the CICUCO intervention; however, it is unclear what portions of the intervention package are necessary for maximum student benefit. The CICUCO intervention used explicit instructional links to behavioral expectations, emphasized behavior specific praise, and introduced a more formalized DPR by incorporating visual representation of the behavioral expectations. Future research should examine individual components of the CICUCO intervention with students with MoID to determine which aspects of the intervention package have the greatest impact on student performance.

Several limitations should be taken into consideration when interpreting the results of this study. First, SWPBIS was not currently being implemented; however, these three students were considered non-responsive to the rules

and expectations in their classroom and other vocational environments. Future researchers should examine whether results of CICO if students with MoID are exposed to SWPBIS as compared with those who are not. Second, opportunities to participate in vocational training in the restaurant were not as prevalent as opportunities in the other two environments. Because the restaurant was a community-based worksite, the students did not train at the site every week. In addition, vocational training was canceled during several weeks for a variety of reasons (e.g., cancelation of community skills and special school functions). Attendance of Hameed was of particular concern as he missed several intervention sessions due to excessive school absences. Third, functional behavior assessments were not conducted prior to intervention to determine the function of the student's off-task behavior. As such, CICUCO was not specifically selected to meet a functional need: however, CICO and CICUCO with adaptations have been hypothesized to be most effective for those whose behavior is maintained by attention (Swoszowski et al., 2013; Ennis et al., 2012). Finally, IOA data was not collected on treatment fidelity.

There are several avenues that should be further explored by researchers in the future. First, more research is warranted on the adaptation of traditional CICO and CICUCO for specific populations of students. Students with MoID present many unique characteristics and needs as compared to others and special consideration adaptations may be needed. Second, researchers should explore ways to control confounding variables such as missing sessions due to logistics. The possible effects of consistent versus inconsistent exposure to both the intervention and community-based vocational settings and its effect on behavior should be investigated. Third, further examination should be given to the language component of CICUCO. In the current investigation, the DPR was adapted with minimal text and pictures. Further research should be conducted to examine CICUCO for students with varying language abilities. Fourth, future investigations should conduct functional behavioral assessments to determine function of problem behavior prior to the implementation of CICUCO. During an informal interview with the classroom teacher after the conclusion of the study, she indicated Hameed's problem behavior may have been maintained by escape from task demand which also may have impacted his responsiveness to the intervention. Fifth, social validity measures should be further investigated for students with MoID. Finally, CICUCO provides structure in applied community settings. CICUCO is not intrusive or stigmatizing and could possibly be implemented by an on-site supervisor, providing a more natural vocational experience.

Conclusion

Students with MoID must learn appropriate work behavior to be successfully integrated into the community as adults. Without these skills, many will be denied opportunities for post-school employment (Alberto et

al., 1999; Hughes et al., 2006; Kemp & Carr, 1995). CICUCO was taken from a residential setting and applied within the classroom and translated to the community as an extension of school-based learning. CICUCO encouraged appropriate work-place behavior by supporting work compliance for all students. The findings from this study indicate that students with MoID can benefit from secondary-tier interventions within the PBIS framework. Future researchers are encouraged to continue this line of research. ■

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