CHECK-IN/CHECK-OUT: A SYSTEMATIC EVALUATION AND COMPONENT ANALYSIS

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Tier 2 interventions are implemented similarly across students and thus serve as an efficient and cost-effective method of behavior support in school settings. Check-in/check-out is a Tier 2 intervention with documented effectiveness (e.g., Hawken & Horner, 2003; Todd, Campbell, Meyer, & Horner, 2008). Key features of the intervention include brief morning and afternoon meetings with the intervention coordinator, use of a point card on which the teacher monitors student behavior, and teacher feedback at predetermined times. The present study sought to add to the literature by examining the relative contributions of the teacher-feedback components of check-in/check-out via the use of a component analysis. Working with 4 children in a general education setting, we first evaluated the effectiveness of the procedure using reversal designs. Next, we systematically removed teacher-feedback components to assess effects on problem behavior and academic engagement. For 3 of 4 participants, we were able to remove all teacher-feedback sessions and the point card; for the 4th participant, we removed only 2 of 3 teacher-feedback sessions due to time constraints.

Key words: classrooms, conditioned reinforcement, feedback, schools, token economy

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Schools in the United States are increasingly implementing three-tiered prevention-oriented models to guide social behavior interventions (Greenwood, Kratochwill, & Clements, 2008; Gresham, 2004). Tier 1 supports are implemented with all students to prevent the development of social behavior problems. Interventions at this level consist of explicit instruction in prosocial behavior and often include consequences for appropriate and inappropriate behavior. Tier 2 interventions are implemented with students who do not respond to the Tier 1 support and supplement the primary intervention. Tier 2 interventions are implemented similarly across students who receive the intervention. Finally, Tier 3 supports are for students with severe problem behavior that has not responded to Tier 1 or 2 interventions. Tier 3 interventions involve a preintervention functional assessment to guide development of an individualized multicomponent intervention. Although a substantive literature base supports Tier 1 (e.g., Barrett, Bradshaw, & Lewis-Palmer, 2008; Horner, Sugai, & Anderson, 2010; Horner et al., 2009; Putnam, Luiselli, & Sunderland, 2002) and Tier 3 (e.g., Carr et al., 1999; Ervin et al., 2001; March & Horner, 2002; Sasso, Conroy, Peck-Stichter, & Fox, 2001), the literature base for Tier 2 interventions is small (Anderson & Borgmeier, 2010).

A promising Tier 2 intervention is check-in/check-out (CICO, also known as the behavior education plan; Crone, Horner, & Hawken, 2003). CICO is an extension of home–school notes (Davies & McLaughlin, 1989; Dougherty & Dougherty, 1977; Schumaker, Hovell, & Sherman, 1977) designed for implementation within a three-tiered framework. Thus, the intervention is implemented similarly across students (i.e., it is manualized). CICO is designed for students who exhibit nondangerous problem behavior during academic routines and is designed to supplement the Tier 1 intervention by (a) providing more frequent

instruction regarding expected behavior, (b) increasing structured contact between students and adults in the school, (c) providing a formal mechanism for students to receive feedback on their behavior, and (d) increasing opportunities for reinforcement contingent on expected behavior. Together, the various components of CICO result in increased interaction between students and adults. Research suggests that CICO is most effective for students whose behavior is maintained by adult attention rather than students whose behavior is maintained by peer attention or avoidance of academic tasks (Campbell & Anderson, 2008; Fairbanks, Sugai, Guardino, & Lathrop, 2007).

To date, CICO has been evaluated in eight experimental or quasiexperimental studies. Of these studies, the majority have focused on changes in office discipline referrals, an indirect measure of behavior change (Filter et al., 2007; Hawken, MacLeod, & Rawlings, 2007; March & Horner, 2002; McIntosh, Campbell, Carter, & Dickey, 2009). In the most rigorous examination to date, McIntosh et al. (2009) used a multivariate analysis of variance to examine effects of CICO on office discipline referrals and teacher reports on a norm-referenced rating scale. They found that, for students whose problem behavior was suggested by a teacher interview to be maintained by attention, CICO resulted in statistically significant differences in teacher ratings and office discipline referrals from baseline to treatment.

Studies using direct observation to assess effects of CICO have shown that the intervention reduces the frequency of problem behavior during academic routines (Fairbanks et al., 2007; Hawken & Horner, 2003; March & Horner, 2002; Todd, Campbell, Meyer, & Horner, 2008) and increases academic engagement (Hawken & Horner, 2003; March & Horner, 2002). Although these results are promising, more research is needed, because only four of the existing studies used adequate experimental designs (all used single subjects,

with the exception of McIntosh et al., 2009) and none included a reversal of the independent variable to assess functional control.

Another important research direction is to explore the relative effects of various components of CICO. The intervention consists of several components, including morning and afternoon meetings with the intervention coordinator, scheduled feedback from teachers, a point card, a token economy, and a home–school note. It is not clear whether all components of CICO are necessary for success. If CICO is effective with fewer components, the intervention could be simplified. The present study expands the literature on CICO by replicating findings of previous studies using a more rigorous experimental design and assessing the relative contribution of the teacher-feedback portion of CICO.

METHOD

Setting and Participants

The study took place in a suburban elementary school (K–5) located in the Pacific Northwest. During the 2006–2007 school year, 72% of the students qualified for free or reduced-price lunch services. The school had been implementing schoolwide positive behavior support (SWPBS) for approximately 5 years. In this school, the Tier 1 component of SWPBS was fully in place (as measured by the School-wide Evaluation Tool; Sugai, Lewis-Palmer, Todd, & Horner, 2001) and consisted of (a) behavioral expectations (be safe, be respectful, be responsible) that had been operationally defined for specific settings and explicitly taught to all students, (b) a schoolwide token economy for prosocial behavior, and (c) a continuum of consequences for rule violations (e.g., reteaching, office referral). The school had been implementing CICO as a Tier 2 intervention for 2 years. Students exposed to CICO (including participants in this study) continued to participate in all aspects of the Tier 1 intervention. Students were selected to partic-

ipate in the study if (a) they had from two to five office discipline referrals and the school's SWPBS team believed that CICO would be a good fit, or (b) they were nominated for CICO by a teacher.

Kyle was a second-grade Caucasian student who qualified for special education services under the category of specific learning disability in reading. In addition, he had been diagnosed with attention deficit hyperactivity disorder (combined type) and was taking methylphenidate (levels remained constant throughout the study). He received 50% of his reading instruction in a general education setting, with the remaining time spent in small-group instruction in a resource room setting. He had been referred to the study by his classroom teacher due to disruptive behavior (talking to peers during large-group instruction, making noises, being out of seat).

Mike was a fifth-grade Caucasian student who received all instruction in a general education setting. Although he did not qualify for special education, he received additional small-group reading instruction from an assistant (in his large-group reading class). He had been referred by his teacher due to disruptive behavior (talking to peers during instruction, being out of seat) and failure to complete assignments.

Nick was a fifth-grade Latino student who qualified for special education services under the category of speech and language impairment. He had been diagnosed with attention deficit hyperactivity disorder (combined type) and was taking amphetamine and dextroamphetamine (dosages remained constant throughout the study). He received all academic instruction in the general education setting. He had been referred to the study by his classroom teacher due to disruptive and off-task classroom behavior, including being out of seat and talking to peers when independent work was expected.

Paul was a fifth-grade Caucasian student. He qualified for special education under the category of specific learning disability in reading. He received small-group reading instruction from the special education teacher, but all other instruction was delivered in the general education setting. He had been referred to the study by his teacher because of disruption and noncompliance, including talking to peers when the expectation was to be quiet, making inappropriate noises (tapping pencil on desk, humming), and refusing to complete independent work assignments.

Design and Procedure

A functional assessment was conducted first. Next, a reversal design was used to assess effects of CICO on problem behavior and academic engagement. The component analysis of CICO began when a participant had earned 80% or more of possible points for 15 consecutive days and, for at least 5 days, an 80% or greater reduction was observed in problem behavior relative to the last three baseline points.

Functional Assessment

The functional assessment consisted of a teacher interview and observations. The interview was conducted using a revised version of the Functional Assessment Checklist for Teachers and Staff (Anderson & Borgmeier, 2007). After the interview, three 10-min observations were conducted in the context (e.g., oral reading) in which problem behavior was reported to occur most frequently. During observations, data were collected using 5-s partial-interval recording. Data were collected on problem behavior, adult attention (verbal or physical interaction), task avoidance (removal of task or lack of engagement), and peer attention (verbal or physical interaction).

Baseline and Training in CICO

During baseline, teachers were instructed to conduct their class and manage student behavior as they usually did. Because the Tier 1 schoolwide intervention was in place throughout the study, participants may have received

formal acknowledgment for meeting school expectations and office referrals for violations of school rules.

Prior to starting the CICO program, each participant attended two 30-min training sessions with the CICO coordinator and the first author. These sessions focused on (a) teaching the child the routines of the CICO program, (b) providing examples and non-examples of desired behaviors, and (c) practice checking in and checking out in a specific location. Students were also told how they could earn their weekly points and how their goals were set.

Check-in/Check-out

Check-in/check-out consisted of a morning meeting with the CICO coordinator, periodic feedback meetings with the participant's teacher, an afternoon meeting with the coordinator, and home feedback. The CICO coordinator, who was a special education teacher employed by the school, was responsible for introducing students to CICO, reviewing the process with teachers when a student started the intervention, entering data into the schoolwide data system, and meeting with the school's SWPBS team on alternate weeks to review CICO data and to monitor progress of all participants. In addition, the coordinator conducted brief morning check-in and afternoon check-out with all participants.

Each morning before school started, students had a brief (approximately 2 min) check-in with the coordinator at the school. Students received their daily point card, turned in the previous day's parent report form, and engaged in a short, positive interaction with the CICO coordinator. The CICO daily point card was a piece of cardstock paper (4 in. by 5 in.) that showed five opportunities for the student to receive feedback and earn points for appropriate behavior: check-in, morning, noon, afternoon, and check-out. Points for morning check-in and afternoon check-out were awarded by the CICO coordinator. The teachers determined

the specific times for morning, noon, and afternoon feedback sessions based on natural transitions during the day (e.g., before reading started, after recess, before lunch, after math), and feedback was based on student behavior during the time period since the last feedback session. For example, the afternoon feedback session focused on behavior that had occurred since the noon feedback session rather than the entire day. During each feedback session, the teacher awarded participants up to three points for emitting behaviors congruent with each of the schoolwide expectations (i.e., be safe, be respectful, and be responsible). Points were assigned using a 3-point scale (1 = *student had a hard time*, 2 = *student did okay*, 3 = *student did great*). Therefore, students could earn up to 9 points per feedback session, for a total of 45 points each day. Each student's goal was to earn at least 80% of possible points each day (this was the standard goal for all students in the school). Study participants were told the minimum number of points they needed to earn each day (to reach 80% of points), because the total points possible varied across phases. In this school, students on CICO earned tangible and intangible rewards each week based on the number of points accumulated during prior weeks. The point value for items ranged from relatively small (e.g., 10 points for a pencil, 20 points for a notepad) to large (e.g., 100 points for 5-min additional recess, 300 points for lunch with a favorite adult such as the principal). Because the number of points possible for study participants varied, points toward rewards were based on the percentage of possible points earned each day (10 points for earning 100% of the possible points, 9 points for 90%, and 8 points for 80%).

Teachers were not given instructions on how to respond to problem behavior or to specific instances of prosocial behavior; the intervention focused entirely on use of the point card to provide feedback at set points and the awarding of points contingent on meeting school expec-

tations. All teachers attended a training session on implementation of CICO at the start of the school year, and the coordinator met individually with teachers and reviewed the intervention whenever a teacher's student began CICO.

At the end of the day (typically 5 to 10 min prior to dismissal) the student walked to the specified check-out location (e.g., the counselor's office) and gave the daily report card to the coordinator. The coordinator recorded the number of points earned, completed a parent report, and provided feedback to the student regarding the student's points. If the student earned 80% or more of the possible points, the coordinator provided praise. If the student earned less than 80% of points, the coordinator provided neutral feedback (e.g., ''What can you do to meet the goal tomorrow?'').

Feedback was provided to the parent via a daily home report that indicated whether or not the student earned 80% or more of points. Space was provided for comments from the coordinator, and parents were asked to sign the form. Parents were encouraged to provide incentives at home when their child had a good day and to refrain from delivering punitive consequences if their child did not earn 80% or more of points; however, no data were collected to determine whether this occurred.

Component Analysis

Participants continued to meet with the CICO coordinator at morning check-in and afternoon check-out. To assess the relative contribution of teacher feedback, we systematically removed feedback meetings. First, noon feedback was removed; students continued to receive feedback once in the morning and again in the afternoon. Next, morning feedback was removed; students now received feedback only in the afternoon. Finally, the afternoon feedback session was removed. This necessarily involved removal of the point card in the classroom setting because students no longer checked in with teachers to review the point card. Students continued to meet with the

coordinator at the beginning and end of each day, and points were earned only for checking in and out; point delivery was not contingent on behavior during the school day. In the final phase of the analysis, when the point card was removed, students earned 100% of points simply by attending the morning and afternoon meetings with the coordinator.

Response Measurement and Interobserver Agreement

Data were collected on problem behavior, academic engagement, and the percentage of points earned. Problem behavior included disruption, out of seat or location, noncompliance, and verbal or physical interaction. *Disruption* was defined as making inappropriate noises, talking out of turn, and using objects in a manner for which they were not designed (e.g., banging the desk, slamming a book). *Out of seat or location* was defined as the student's buttocks not in contact with the seat when the expectation was to be seated or not in the location he was supposed to be in. *Noncompliance* was defined as verbally refusing to follow an adult direction or simply not completing the request within 10 s, and *negative verbal or physical interactions* were defined as hitting, kicking, pinching, throwing objects at a person, or making a derogatory comment about or towards another individual. Data were collected on academic engagement, because all teachers stated that problem behaviors were interfering with the child's engagement during instruction; decisions about phase changes, however, were based on levels of problem behavior.

Academic engagement was defined as following teacher requests within 10 s, having eyes oriented toward teacher or relevant materials for the task, and working on in-class assignments. Data were collected using pen and paper across 15-min observations using a 5-s partial-interval system. Observations were conducted 3 to 5 days per week during academic activities that were suggested by the functional assessment to be when problem behavior most often occurred.

These activities were large-group reading for Kyle, independent math work for Mike and Nick, and any independent work for Paul.

The school's CICO coordinator tracked points earned by all students on the program. The coordinator calculated the percentage of possible points earned by a student each day by dividing the number of points earned by the number of points possible. In addition, the percentage of days in which the student met his goal was calculated by dividing the numbers of days the goal was met by the total number of days. It should be noted that we asked teachers to continue to complete the point card (but not to review it with students) during all phases of the component analysis so we could assess the percentage of points awarded throughout the study.

Interobserver agreement was assessed by having two independent observers simultaneously collect data during 32% of observations across all four participants. Agreement was calculated by dividing the number of intervals in which both observers agreed a response did or did not occur by the number of total intervals and multiplying by 100%. For problem behavior, agreement coefficients were 97% (range, 91% to 100%) for Kyle, 95% (range, 89% to 100%) for Mike, 91% (range, 90% to 100%) for Nick, and 93% (range, 89% to 100%) for Paul. For academic engagement, agreement coefficients were 94% (range, 89% to 97%) for Kyle, 90% (range, 89% to 95%) for Mike, 95% (range, 90% to 100%) for Nick, and 90% (range, 89% to 93%) for Paul.

Fidelity of Implementation

Fidelity of implementation was measured on 27% of the days that the students participated in CICO. Experimenters observed the morning check-in and afternoon check-out and classroom feedback sessions. The observers completed a 12-item checklist that rated the presence of the following key features of CICO: (a) The student checked in with the adult, (b) the staff member provided the daily point card, (c) the staff member provided a prompt for the student to be successful that day, (d) the student turned in the home report, (e) the student approached the teacher to receive feedback, (f) the teacher assigned points to the student, (g) the teacher provided verbal feedback regarding the student's behavior, (h) the student checked out with the adult, (i) the student presented the completed card to the adult, (j) the staff member added up and recorded total points, (k) the staff member provided verbal feedback regarding the student's behavior, and (l) the staff member completed the parent report and handed it to the student.

Interobserver agreement was assessed for 25% of fidelity observations. Agreement was calculated by dividing the total number of items that were scored the same by the total number of total items and multiplying by 100%. Agreement averaged 97% (range, 91% to 100%). Across participants, fidelity was high, with an average of 97% (range, 83% to 100%).

Social Validity and Contextual Fit

Teachers' perceptions of student problem behavior and contextual fit were assessed once or twice per week throughout the study using a 2-item questionnaire. The first question asked teachers to rate the target student's problem behavior compared to other students in the class using a 5-point Likert scale (1 = *much better than other students*, 5 = *much worse than other students*). The second item asked teachers to rate the amount of effort put into managing student behavior compared to other students in the class (1 = *little or no effort*, 5 = *tremendous effort*).

Contextual fit was assessed during the initial CICO phase and at the completion of the study via the teacher-completed Contextual Fit Questionnaire (Horner, Salantine, & Albin, 2003) This questionnaire assessed the teachers' perceptions of the ease of implementation, amount of effort needed to implement the intervention, and whether the effects of the intervention were worth the effort.
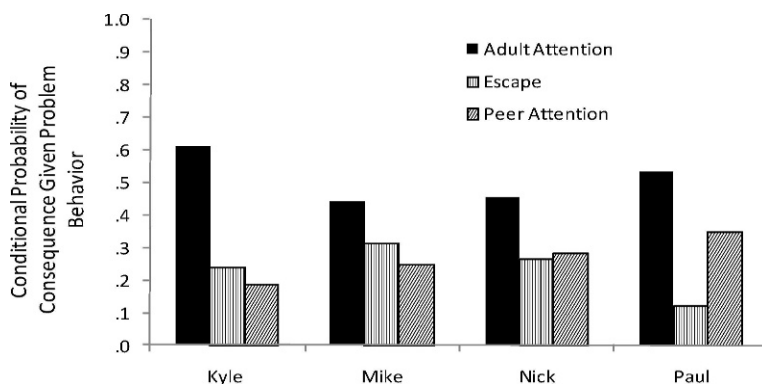
Figure 1. Conditional probability of a consequence given problem behavior in the functional assessment.

Results of the functional assessment observations are depicted in Figure 1. We calculated the conditional probability that a given consequence occurred during the same or subsequent 5-s interval of the problem behavior by dividing the number of intervals that problem behavior was followed by a given consequence in the same or next interval divided by the total number of intervals scored with problem behavior. For all participants, a greater proportion of problem behavior was followed by adult attention than by escape from task or peer attention. This suggested that the behavior was maintained, at least in part, by adult attention.

Intervals scored with problem behavior are depicted in Figure 2 for all participants. Intervals scored with academic engagement are shown in Figure 3. In all figures, phases of the component analysis are labeled by the number of feedback sessions students had with teachers. Kyle emitted problem behavior during an average of 37% of intervals during baseline. After implementation of CICO, an immediate reduction of problem behavior was observed, with problem behavior occurring in an average of 12% of intervals. After a brief return to baseline to assess functional control, CICO was reinstated, resulting in an immediate decrease in problem behavior. Both the noon and morning feedback sessions were removed successfully, such that Kyle received teacher feedback only in the afternoon. Unfortunately, we were not able

to assess whether CICO could be faded completely, because the academic year ended for summer vacation.

Mike exhibited problem behavior during an average of 28% of intervals during baseline. Implementation of CICO resulted in an immediate decrease in problem behavior ($M = 11\%$). A brief return to baseline was implemented to assess functional control; however, due to the intensity of his behavior and teacher request, the reversal was limited to two data points. After the return to CICO, problem behavior again occurred in relatively few intervals. The noon and morning feedback sessions were removed successfully. Slight increases in problem behavior were observed when Mike no longer received teacher feedback. Thus, his teacher was concerned that Mike would "revert to his old ways" and requested that the point card and the afternoon feedback be reinstituted.

Problem behavior for Nick occurred during an average of 28% of intervals during baseline. Problem behavior decreased immediately after implementation of CICO ($M = 8\%$). Following a brief return to baseline (shortened due to teacher request), CICO was reinstated, and problem behavior immediately decreased and remained low as feedback sessions were removed sequentially. Nick's teacher requested that the point card and afternoon feedback session be reinstituted because she was con-
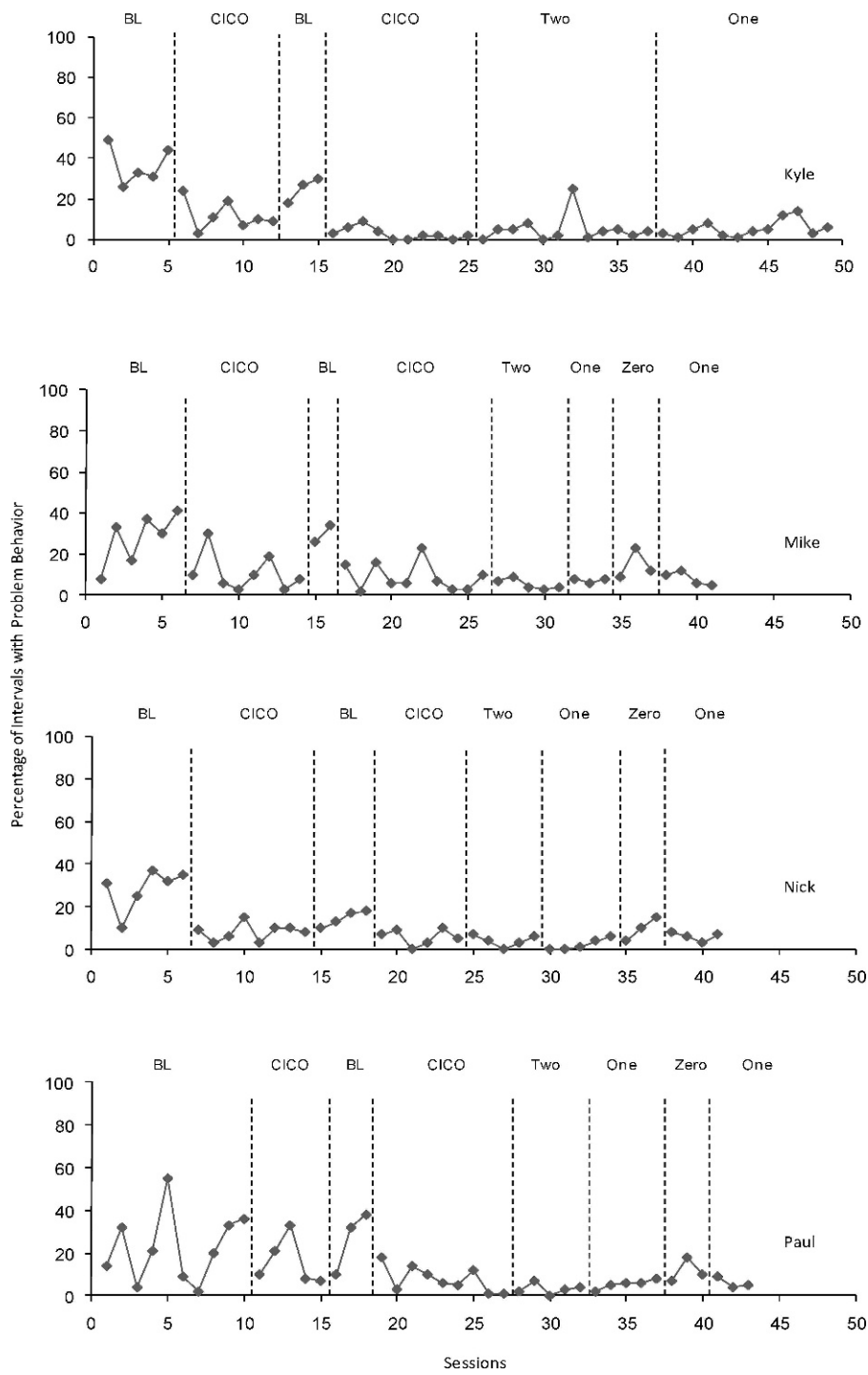
Figure 2.   Percentage of 5-s intervals scored with problem behavior across conditions for Kyle, Mike, Nick, and Paul. The numbers in the phase lines delineate the number of teacher-feedback sessions each participant attended.
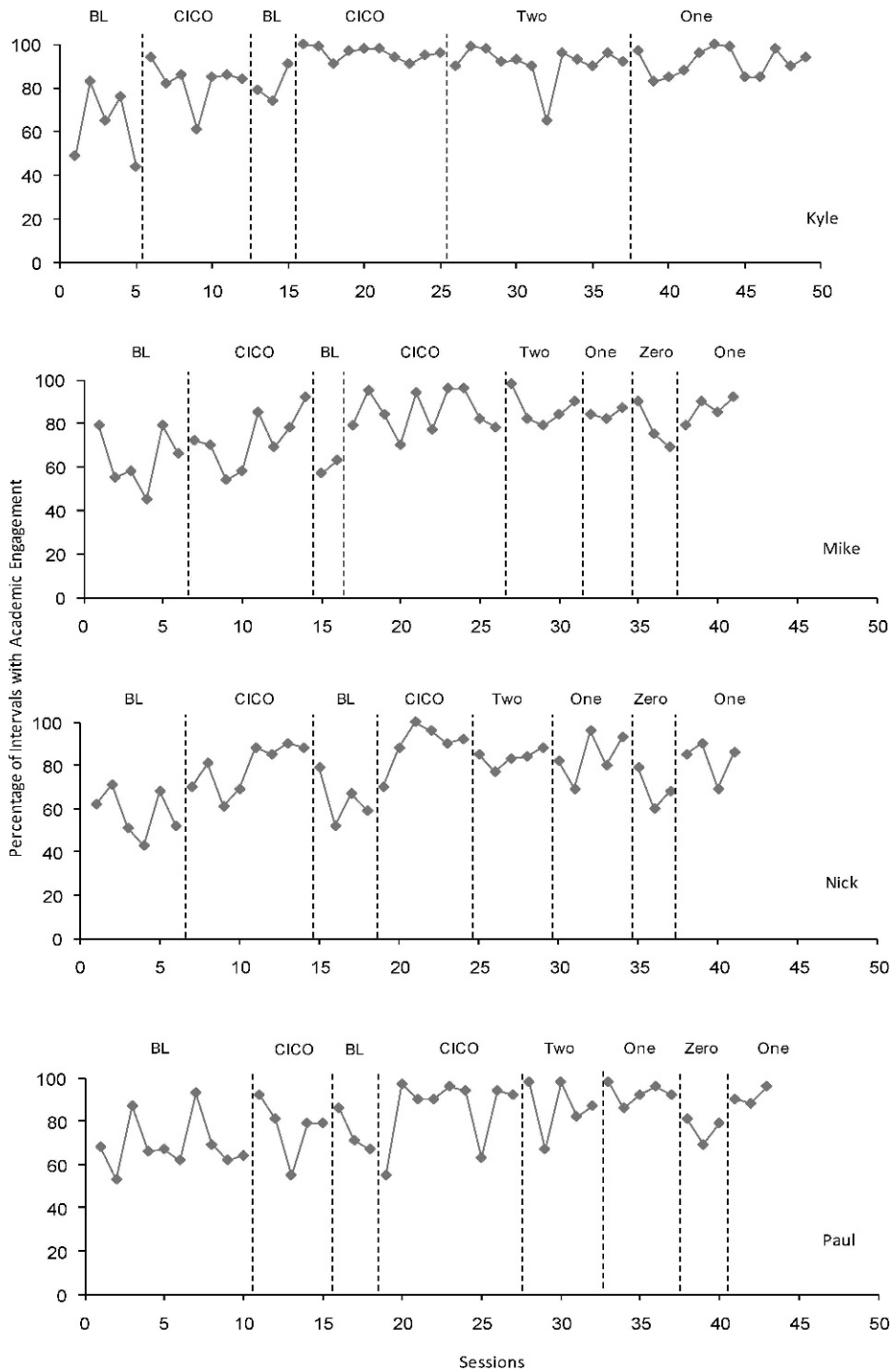
Figure 3. Percentage of 5-s intervals scored with academic engagement across conditions for Kyle, Mike, Nick, and Paul. The numbers in the phase lines delineate the number of teacher-feedback sessions each participant attended.

cerned that he "couldn't succeed" without it. Problem behavior continued to occur infrequently thereafter.

Problem behavior for Paul was variable during baseline, occurring in 23% of intervals on average. Although some variability remained after introduction of CICO, an overall reduction in problem behavior was observed ($M = 16\%$). Following a short return to baseline, CICO was again associated with a decrease in problem behavior ($M = 8\%$), and the noon, morning, and afternoon feedback sessions were removed successfully. As with the other participants, Paul's teacher worried that his problem behavior would increase if the feedback remained withdrawn; thus the afternoon feedback session plus point card were reinstituted.

For all participants, implementation of CICO resulted in increases in academic engagement (Figure 3), which was maintained as the teacher removed feedback sessions systematically. During CICO, the average percentage of points earned was 84% for Kyle, 82% for Mike, 90% for Nick, and 86% for Paul. When the noon and morning feedback sessions were removed, participants continued to earn a high percentage of points (above 84% for each participant). A slight reduction in points earned was observed when the final feedback session was removed ($Ms = 79\%$ for Mike, 83% for Nick, and 72% for Paul). Because participants continued to earn points for checking in and out, this degradation in points awarded occurred in the classroom, suggesting that teachers may have noted some deterioration in student behavior.

During baseline, the average teacher rating of participant problem behavior compared to other students in the class was 3.5 (1 = *much better than other students*, 5 = *much worse than other students*). When CICO was implemented, the rating decreased to an average of 2.1, indicating that the participants' behavior was perceived to be similar to or better than typical peers. The average rating continued to remain

low during the first and second fading phases. During the third fading phase, the average teacher rating increased a bit ($M = 2.7$) but still remained well below ratings provided during baseline. The teachers' perceived effort of managing student behavior also decreased when CICO was implemented. Teachers' mean rating of effort was 3.7 (1 = *little or no effort*, 5 = *tremendous effort*) during baseline, 2.1 during CICO, and 1.6 during the first two fading phases. However, mean ratings of effort returned to 3.7 during the third fading phase. Teachers rated the contextual fit of CICO as high during the initial implementation of CICO ($M = 98\%$) as well as at the completion of the study (100% for all participants).

DISCUSSION

The present study contributes to the literature supporting CICO as an effective secondary intervention in the context of a three-tier prevention system, SWPBS. As in previous studies, CICO was shown to result in significant reductions in problem behavior (e.g., Fairbanks et al., 2007; Hawken & Horner, 2003; March & Horner, 2002; Todd et al., 2008). Further, gains in academic engagement were observed when CICO was implemented. In this and other studies, CICO was implemented by school staff over a 2-year period, suggesting that teachers and staff viewed the intervention to be feasible and useful, a finding supported by the social validity data collected in this study.

One goal of this study was to assess the relative contribution of teacher feedback on the effect of CICO via a component analysis. During CICO, all participants received feedback from teachers three times per day and met briefly with the coordinator each morning and afternoon. All teacher feedback sessions were removed for three participants; for the remaining participant, only two of the three feedback sessions were removed due to time constraints. Unfortunately, the extent to which problem behavior would have remained low in the

absence of the teacher-feedback session and point card is unknown because teachers requested that they be permitted to reinstate the afternoon feedback session and point card. These findings, although preliminary, suggest several directions for future research, including a replication of the current study to determine whether the effects of the intervention will be maintained over time without teacher-feedback sessions. In addition, experimenters might assess whether full implementation of CICO is necessary prior to removal of feedback sessions.

An additional direction is a more explicit exploration of the relation between adult attention and CICO. Previous research (March & Horner, 2002; McIntosh et al., 2009) has shown differential outcomes for CICO based on the function of problem behavior. In these studies, CICO was effective for students whose behavior was maintained by adult attention but ineffective for students whose problem behavior was maintained by escape or avoidance of academic tasks. The results of the present study are consistent with previous findings, in that CICO was effective for three participants whose problem behavior was suggested to be maintained by adult attention. However, because an experimental functional analysis was not conducted, we cannot rule out the possibility that problem behavior was maintained by other consequences or that attention delivery was simply temporally correlated with problem behavior.

That CICO may be more effective for students whose behavior is sensitive to adult attention is interesting, because the precise mechanism for this effect is not clear. In CICO, teachers are simply instructed to complete the point card based on student behavior and to provide periodic feedback about performance. No explicit instructions are provided regarding how teachers should respond to problem behavior. It thus seems unlikely that teachers consistently withhold attention following problem behavior when CICO is in place. It is possible that the scheduled interactions with the teacher (giving the teacher the card when entering the class, receiving periodic feedback) or meetings with the coordinator act as abolishing operations, reducing the effectiveness of teacher attention as a reinforcer for problem behavior. Several studies have documented that presession delivery of attention reduces attention-maintained problem behavior (e.g., McComas, Thompson, & Johnson, 2003; McGinnis, Houchins-Juarez, McDaniel, & Kennedy, 2010). The findings of McComas et al. are especially relevant to the current study, because presession delivery of attention resulted in fewer instances of problem behavior for participants whose behavior was maintained by adult attention but not for participants whose problem behavior was escape maintained.

It also is possible that the most powerful component of CICO (and one not manipulated in this study) was the morning check-in and afternoon check-out with the intervention coordinator. Perhaps this positive adult contact in school set the occasion for more prosocial behavior. Future research that elucidates the mechanisms by which CICO is effective should allow educators to manipulate those features to increase its effectiveness for students who might not otherwise respond. In addition, it might be possible to simplify CICO by removing components that are shown to be unnecessary.

Another direction for exploration is the extent to which a schoolwide intervention such as CICO would be effective in schools that are not implementing a prevention-oriented intervention. The school in this study had been implementing SWPBS for some time. As a result, all teachers were familiar with the use of explicit instruction and feedback for social behavior, and the school administrator actively supported the use of CICO (e.g., by attending meetings in which CICO data were presented and meeting with teachers whose implementation of CICO was poor). The extent to which high-fidelity implementation would be achieved in a school without such a history is unknown.

REFERENCES

Anderson, C. M., & Borgmeier, C. (2007). *Efficient functional behavior assessment: the functional assessment checklist for teachers and staff (FACTS)*. Eugene, OR: Educational and Community Supports. Available from http://www.pbis.org

Anderson, C. M., & Borgmeier, C. (2010). Tier II interventions within the framework of school wide positive behavior support: Essential features for design, implementation, and maintenance. *Behavior Analysis in Practice*, *3*, 33–45.

Barrett, S., Bradshaw, C., & Lewis-Palmer, T. (2008). Maryland state-wide PBIS initiative. *Journal of Positive Behavior Interventions*, *10*, 105–114.

Campbell, A., & Anderson, C. M. (2008). Enhancing effects of check-in/check-out with function-based support. *Behavioral Disorders*, *33*, 233–245.

Carr, E. G., Horner, R. H., Turnbull, A. P., Marquis, J. G., McLaughlin, D. M., McAtee, M. L., et al. (1999). *Positive behavior support for people with developmental disabilities: A research synthesis*. Washington DC: American Association on Mental Retardation.

Crone, D. A., Horner, R. H., & Hawken, L. S. (2003). *Responding to problem behavior in schools: The behavior education program*. New York: Guilford.

Davies, D. E., & McLaughlin, T. F. (1989). Effects of a daily report card on disruptive behavior in primary students. *B.C. Journal of Special Education*, *13*, 173–181.

Dougherty, E. H., & Dougherty, A. (1977). The daily report card: A simplified and flexible package for classroom behavior management. *Psychology in the Schools*, *14*, 191–195.

Ervin, R., Miller, P., Bertsch, K., Piper, A., Ehrhardt, K., & Poling, A. (2001). A descriptive analysis and critique of the empirical literature on school-based functional assessment. *School Psychology Review*, *30*, 193–210.

Fairbanks, S., Sugai, S., Guardino, D., & Lathrop, M. (2007). Response to intervention: An evaluation of a classroom system of behavior support for second grade students. *Exceptional Children*, *73*, 288–310.

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

Greenwood, C. R., Kratochwill, T. R., & Clements, M. (Eds.). (2008). *Schoolwide prevention models: Lessons learned in elementary schools*. New York: Guilford.

Gresham, F. M. (2004). Current status and future directions of school-based behavioral interventions. *School Psychology Review*, *33*, 326–343.

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

Hawken, L. S., MacLeod, S. K., & Rawlings, L. (2007). Effects of the behavior education program (BEP) on office discipline referrals of elementary school students. *Journal of Positive Behavior Interventions*, *9*, 94–101.

Horner, R., Salantine, S., & Albin, R. (2003). *Self assessment of contextual fit in schools*. Eugene, OR: Educational and Community Supports.

Horner, R. H., Sugai, G., & Anderson, C. M. (2010). Examining the evidence-base for school-wide positive behavior support. *Focus on Exceptional Children*, *42*, 1–14.

Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., et al. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions*, *11*, 133–144.

March, R. E., & Horner, R. H. (2002). Feasibility of contributions of functional behavioral assessment in schools. *Journal of Emotional and Behavioral Disorders*, *10*, 158–171.

McComas, J. J., Thompson, A., & Johnson, L. (2003). The effects of presession attention on problem behavior maintained by different reinforcers. *Journal of Applied Behavior Analysis*, *36*, 297–307.

McGinnis, M. A., Houchins-Juarez, N., McDaniel, J. L., & Kennedy, C. H. (2010). Abolishing and establishing operation analyses of social attention as positive reinforcement for problem behavior. *Journal of Applied Behavior Analysis*, *43*, 119–123.

McIntosh, K., Campbell, A., Carter, D., & Dickey, C. (2009). Differential effects of a tier two behavior intervention based on function of problem behavior. *Journal of Positive Behavior Interventions*, *11*, 82–93.

Putnam, R. F., Luiselli, J. K., & Sunderland, M. (2002). Longitudinal evaluation of behavior support intervention in a public middle school. *Journal of Positive Behavior Interventions*, *4*, 182–188.

Sasso, G., Conroy, M., Peck-Stichter, J., & Fox, J. (2001). Slowing down the bandwagon: The misapplication of functional assessment for students with emotional or behavioral disorders. *Behavioral Disorders*, *26*, 282–296.

Schumaker, J. B., Hovell, M. F., & Sherman, J. A. (1977). An analysis of daily report cards and parent-managed privileges in the improvement of adolescents' classroom performance. *Journal of Applied Behavior Analysis*, *10*, 449–464.

Sugai, G., Lewis-Palmer, T., Todd, A. W., & Horner, R. H. (2001). *School-wide evaluation tool*. Eugene, OR: Educational and Community Supports, University of Oregon.

Todd, A., Campbell, A., Meyer, G., & Horner, R. (2008). Evaluation of a targeted group intervention in elementary students: The check-in/check-out program. *Journal of Positive Behavior Interventions*, *10*, 46–55.