BRIEF REPORT

The Effects of a Class-wide Behavior Intervention for Students with Emotional and Behavioral Disorders

Marc Weeden
Full Spectrum Behavior Analysis

Howard P. Wills
Juniper Gardens Children's Project, University of Kansas

Esther Kottwitz
Kansas City (Kansas) Public Schools

Debra Kamps
Juniper Gardens Children's Project, University of Kansas

ABSTRACT: Class-wide interventions have strong empirical support for improving behavior in general education classes but are rarely tested in special education classes. The present study examined the effects of the Class-wide Function-related Intervention Team (CW-FIT) program, a group contingency intervention, on the on-task behavior of six elementary school children with emotional and behavioral disorders (EBD) in a self-contained, urban classroom. Using an ABAB design with brief withdrawals of the independent variable, the class-wide component of CW-FIT was implemented during a 20-min reading and spelling period 1–3 days per week. Procedures included teaching attending skills, setting a goal and awarding points for appropriate behavior, and providing differential reinforcement. Implementing the class-wide component of CW-FIT resulted in increased on-task behavior for students with EBD, with concomitant increases in teacher praise and reductions in teacher reprimands.

It has been estimated that between 3% and 6% of school children have emotional and behavioral disorders (EBD) (Kauffman & Landrum, 2012), with some of these students engaging in severe behavior that has led to their removal from general education and/or special education classrooms and subsequent placement into day-treatment or hospital settings. There are a number of distressing characteristics of individuals with EBD. Children with EBD engage in significantly elevated levels of externalizing (e.g., property destruction, aggression to others, talking out, cursing) and internalizing (e.g., complaining of being hurt or ill, avoiding social interactions) behaviors (King, Heyne, & Ollendick, 2005; Walker, 1997). As a consequence, students with EBD very often have fewer opportunities than typically developing children to participate in classroom activities, observe appropriate classroom behavior, and form friendships with peers. Challenging behavior exhibited by those with EBD often leads to children performing at one or more years below grade level (Cullinan, 2007). These students often fall further and further behind their peers academically and socially (Payne, Marks, & Bogan, 2007). This can lead to difficulties maintaining positive relationships with others and, at times, to juvenile delinquency. It is important to point out that students with EBD are 13.3 times more likely to be arrested while in school than those who do not have disabilities (Doren, Bullis, & Benz, 1996). These data suggest an acute need for effective, evidence-based interventions that remediate undesirable behavior

while simultaneously teaching appropriate classroom behavior.

Fortunately, there is a growing literature supporting the use of group contingencies to reduce problem behavior and teach appropriate behavior in elementary school classrooms for typically developing children, children with special needs, and those with EBD (e.g., Maggin, Johnson, Chafouleas, Ruberto, & Berggren, 2012; Popkin & Skinner, 2003; Stage & Quiroz, 1997; Theodore, Bray, & Kehle, 2004; Thorne & Kamps, 2008). A *group contingency* is defined as a consequence being delivered to a group dependent upon the behavior of one member of the group, the behavior of part of a group, or the behavior of all members of the group (Litow & Pumroy, 1975). In a review of research on group contingencies, Theodore, Bray, Kehle, and DioGuardi (2003) cited 122 studies, with a considerable number ($n = 55$) implemented to address disruptive behavior (e.g., Kelshaw-Levering, Sterling-Turner, Henry, & Skinner, 2000; Yarbrough, Skinner, Lee, & Lemmons, 2004). They concluded that group contingencies are generally effective for addressing disruptive behavior. Other studies in the review addressed a variety of variables such as increasing on-task behavior and compliance, prosocial behaviors, and academic performance of participants. In their review of 27 single case design studies, Maggin and colleagues (2012) reported that sufficient and rigorous research supports the effectiveness of group contingencies to consider them an evidence-based practice.

The class-wide function-related intervention team (CW-FIT) program is a specific example of a multilevel group-contingency intervention (Wills et al., 2010) combining use of a group contingency as well as self-management (Hansen, Wills, Kamps & Greenwood, 2014; Kamps, Conklin, & Wills, 2015) and functional assessment elements (Kamps, Wendland, & Culpepper, 2006). The CW-FIT is a classroom management system based on teaching classroom rules/skills, use of a group contingency plan with differential reinforcement of appropriate behaviors, and minimized social attention to inappropriate behavior. Nonresponders, identified through visual inspection of data, to the primary group contingency intervention are supported through the systematic use of secondary and, if necessary, tertiary interventions (self-management and functional behavior assessment, respectively; interested readers are directed to Wills et al., 2010, for an overview of these procedures). Multiple studies, including a randomized trial that showed improved behaviors in 86 general education classrooms using CW-FIT, have demonstrated that the CW-FIT group contingency program is beneficial for improving class-wide on-task behavior in general education classrooms (Caldarella, Williams, Hansen, & Wills, 2015; Kamps, Wills, et al., 2015; Kamps et al., 2011; Wills, Iwaszuk, Kamps, & Shumate, 2014). The CW-FIT intervention was also found to improve on-task behavior and reduce disruptive behaviors for students "at risk for EBD" in general education classrooms (Kamps et al., 2011; Wills, Kamps, Fleming, & Hansen, 2016).

Although CW-FIT has been implemented successfully with hundreds of children in more than 25 schools, no studies have experimentally investigated CW-FIT in special education classrooms serving children with EBD. The purpose of the study was to implement CW-FIT in a self-contained classroom serving this special population and test effects on students' on-task behaviors as well as teacher praise and reprimand behaviors.

Method

Participants and Setting

Participants were an entire six-member class of elementary school children (five boys, one girl) from an urban community between the ages of 6 and 9 years with the educational diagnosis of EBD. One of the boys had an additional diagnosis of autism. Students were culturally diverse, with three of the six participants coming from minority groups. Five of the students completed all daily academic coursework in the classroom with one male student leaving during specified class times to participate in mainstream coursework. This did not affect the participation of that student because the intervention was implemented while he was in the classroom. School staff consisted of a female lead teacher and female paraprofessional. The lead teacher volunteered her class for participation and chose the time of day when she felt the students required the most additional behavioral support (first-period reading and/or spelling). The teacher held a master's degree and had nearly 10 years prior teaching experience. Prior to the study and throughout baseline, participants exhibited a range of off-task behaviors including argumentative language; getting out of their seats; and making off-topic, disruptive comments while the teacher was providing instruction. Throughout the duration of

the investigation, the lead teacher and paraprofessional were present. Lessons conducted during this time were brief introductions of the assignments followed by individualized workbook activities (students were in Grades 1–3 and performing at different levels).

Data Collection and Reliability

Group on-task data. Group on-task behavior was defined as all students appropriately working on the assigned/approved activity including (a) orienting to the material and the task; (b) making appropriate motor responses (writing, looking at the teacher, looking at another student who is addressing the teacher or class appropriately); (c) asking for assistance appropriately (e.g., raising hand); and (d) waiting appropriately for the teacher to begin or continue instruction (staying quiet and in seat). Group on-task data were collected using a 30-s momentary time sample procedure. Every 30 s for a 20-min observation period at the beginning of class, the observer recorded a plus for each team of students if all students were engaging in on-task behavior. If any one member of a team was off-task, the observer scored a minus. To allow for a meaningful comparison across sessions, on-task data were not collected if fewer than five children were present in the classroom. Teams were assigned each session by the teacher on the basis of their typical seating assignments and consisted of one to three students seated in a row facing the chalkboard during instruction. Team members varied due to attendance or if a student's seating assignment had been adjusted by the teacher.

Procedural fidelity. A 13-item procedural fidelity checklist (Kamps, Conklin, & Wills, 2015) was used to ascertain the extent to which CW-FIT procedures were implemented as intended. Items were related to the CW-FIT procedures (e.g., skills are prominently displayed on posters, precorrects on skills occur at beginning of session, point goal is determined, points are awarded to individuals/teams for use of the skills at set intervals, use of praise when awarding points). Each checklist item was scored as yes or no by the observers. The fidelity checklist probes were completed in conjunction with the group on-task data during 12 of 16 sessions (75%) where the independent variable was implemented with an average of 96% fidelity (range = 80%–100%).

Teacher behaviors. As a number of studies have suggested, praise is a useful tool for increasing appropriate classroom behavior (e.g., Kern & Clemens, 2007). As in other CW-FIT studies (e.g., Wills et al., 2010), frequency of teacher praise statements, points, and reprimands were recorded during the 20-min group on-task data session. *Praise/attention to appropriate behavior* was defined as a verbal statement (e.g., "Nice work following directions!" "Great job staying in your seats!"), physical gesture of intended reinforcement (thumbs up, pats), or tangible rewards (tokens, points) that indicate approval of behavior. Delivery of points on the CW-FIT game chart was also recorded in the praise frequencies. Reprimands were targeted for reduction in an effort to address behaviors potentially maintained by attention. *Reprimands* were defined as (a) verbal comments or negative statements about behavior with the intent to stop the student from misbehaving (e.g., "Everyone needs to get quiet!") and (b) gestures used with the same intent as verbal reprimands.

Consumer satisfaction. Consumer satisfaction questionnaires were completed by the teacher and five of the six students (one student was not in attendance the day the surveys were completed). The teacher survey included 11 questions regarding the acceptability of the goals, procedures, and outcomes of CW-FIT. The students were given a brief (five items), age-appropriate questionnaire by the teacher (in the absence of any of the investigators) and were instructed to leave their names off the document.

Reliability. A second observer collected reliability data for group on-task behavior during four of the 16 sessions (25%) during which the CW-FIT program was implemented and three of the eight sessions (37%) across baseline (two sessions) and withdrawal conditions (one session). Point-by-point reliability was calculated by dividing the number of agreements by the sum of agreements and disagreements and then multiplying by 100%. Reliability for on-task averaged 97% (range = 92%–100%). Reliability for praise averaged 76% (range = 0%–100%). Reliability for reprimands averaged 95% (range = 0%–100%). The low range of praise and reprimand reliability occurred when the behaviors occurred at a low rate, and thus a single missed data point resulted in a zero calculation (e.g., 0 divided by 1 = 0% reliability).

Experimental Design and Procedures

Experimental design. A single-subject withdrawal design was originally intended to

demonstrate experimental control (Kennedy, 2005). It is interesting that after the intervention was implemented the first time, the effect was so dramatic that the teacher requested that no withdrawals occur. The experimenters compromised with the teacher and changed the design to include brief (e.g., one session) withdrawals of the independent variable, so as to maintain desirable treatment effects. During the one-session withdrawals, classroom activities resumed their preintervention routine. If students asked about playing the game, they were informed they would play it at another time. After the initial investigation was completed, 4- and 8-week follow-up observations were conducted to examine the durability of the behavioral change in the teacher (who learned to implement the intervention) and students in the absence of the experimenters.

Baseline. Baseline measures were taken to observe the extent to which students were on task prior to the intervention. After obtaining parent consent and student assent, the first step in the process was determining the time of day when the teacher felt the students required the most behavioral support. As stated previously, the first period of the day was identified as the time when the intervention would most benefit the students. The period lasted for 30–60 min and consisted of a variety of activities (e.g., completing reading or spelling worksheets) conducted by the teacher in either small groups or in the form of one-on-one instruction. Classroom management consisted primarily of reprimands or time-out procedures based on the emission of challenging behaviors. There was a system of rewards observed during baseline. However, its use was inconsistent. Aside from that, there were no components similar to CW-FIT in place prior to its introduction.

Intervention. The CW-FIT is designed to teach students appropriate classroom behavior through the use of group contingencies in the form of a game. Following baseline data collection, the experimenter reviewed the components of the game with the teacher during a separate meeting without students. This review followed the training procedures implemented across other CW-FIT studies (e.g., Kamps, Wills et al., 2015; Wills et al., 2016) with the exceptions of the training (a) occurring in a one-on-one meeting and (b) being abbreviated (whereas training groups of teachers involved 90–120 min, the one-on-one training required just 60 min). Training consisted of an overview and rationale for the intervention, video models, review of the fidelity and components such as using the timer and delivering specific praise, and practice with feedback. During training, the teacher had the opportunity to practice using the timer, praising, setting goals, and giving corrective statements if a point was not earned. The teacher learned that when a point was not earned, a brief corrective statement could be made, such as "The direction right now is to be quietly completing your work. Please make sure you're following directions to get your point next time." Providing corrective statements when points were missed was the only training for teachers involving reprimands. No other aspect of training targeted a reduction or modification of reprimanding. Training concluded with discussion regarding how to involve students in determining reinforcers. Students were initially introduced to "the game" (as it came to be called by the students) by the experimenter and, using behavioral skills training (e.g., instruction, modeling, rehearsal, and feedback), were taught three primary skills: getting the teacher's attention, following instructions, and ignoring inappropriate behavior. After initial lessons, the teacher reviewed skills and students practiced them prior to the implementation of the game for each session (precorrection). The experimenter modeled and provided feedback and support as necessary until the teacher implemented the intervention with 90% fidelity.

Prior to the start of the game each session, students and the teacher together selected a reasonable point goal that was used for all teams. Teachers had been trained to set goals so that students had the potential to miss some points and would need to receive a point on approximately 80% of the opportunities. In a 60-min period, a goal was typically set for 16.

Students, with the aid of the teacher, were given the opportunity to identify potential reinforcers that would be delivered on the basis of meeting the goal. Rewards were tangible (e.g., selecting a small toy, sticker, or pencil from a "treasure box") or activities (e.g., looking at a preferred book, drawing time, free time). These rewards had previously been used in the class and the students confirmed interest in them. The teacher most often quickly confirmed class interest in the specific reward at the beginning of the period during which CW-FIT was implemented. All students worked for the same reward each day, although flexibility was given to the teacher to individualize if needed. The teacher then began the instructional lesson

and set a timer for 2- to 3-min intervals throughout the lesson. A point was awarded by the teacher at the beep dependent upon the emission of desired behaviors (i.e., being on task, gaining attention appropriately, ignoring inappropriate behavior) by the entire team throughout the interval. The teacher also delivered behavior-specific praise to both individuals and teams. There were no programmed consequences for inappropriate behavior during sessions other than the team not earning points for the interval. Furthermore, points were never deducted for engaging in inappropriate behavior, and if a team failed to earn points for an interval, they were instructed that they could try again during the next interval. In addition, if a team failed to meet the daily goal, they were advised that they could try again the next time the game was played. The teacher was instructed to play the game for 30–60 min daily with the observers collecting data for 20 consecutive minutes of that time period. Prior to follow-up probes, the teacher was offered additional strategies of self-management or help cards for any students unresponsive to the intervention and she declined (noting her satisfaction with responsiveness).

Follow-up probes. Follow-up probes were conducted at 4 and 8 weeks using procedures identical to those carried out during intervention phases of the experiment. As with previous sessions in which the independent variable was present, the teacher implemented CW-FIT while researchers observed and recorded data.

Results and Discussion

Findings indicated that the CW-FIT program improved on-task behavior for the students. *Figure 1, Panel 1,* depicts the percentage of intervals that participants were on task during baseline, intervention, brief withdrawals of the independent variable, and the 4- and 8-week follow-up probes. Data points represent the percentage of intervals that the entire class was on task. During the initial baseline phase the mean percentage of intervals on-task was 54% (range, 43% to 81%). Upon implementation of CW-FIT the percentage of intervals on-task increased to 87% (range = 81%–93%) prior to the first brief withdrawal. Overall, percentage of intervals on-task was 55% (range = 43%–81%) across all baseline phases, percentage of intervals on-task during intervention excluding follow-up was 90% (range = 81%–98%), and percentage of intervals on-task during follow-up was 93% (range = 90%–95%).

Teacher behaviors also improved with implementation of CW-FIT. Praise during baseline conditions averaged 3.6 (range = 0–9, *SD* = 2.7) and increased to an average of 40.1 during CW-FIT (range = 24–71, *SD* = 12.7). Reprimands decreased from an average in baseline of 9 (range = 1–21, *SD* = 6.5) to an average of 3.9 (range = 0–8, *SD* = 2.4) during CW-FIT. See *Figure 1, Panels 2* and *3*.

Use of the CW-FIT group contingency program improved overall on-task behaviors in a class serving students with EBD. Behaviors were improved quickly with the implementation of the intervention, and effects were demonstrated through use of brief withdrawal conditions and reinstatement of the program. Teacher attention to appropriate behaviors (praise and points) also increased with the CW-FIT implementation and reprimands decreased. Given the small class size and responsiveness of students, it was not necessary to implement the self-management and functional assessment components of CW-FIT. This varies from prior CW-FIT studies in general education classes with larger numbers of participants and some students with behavioral risks needing additional Tier 2 (self-management) or Tier 3 (functional assessment) components to improve behaviors (Kamps, Wills et al., 2015); and earlier studies implementing self-management as an intervention component in self-contained classes serving students with EBD (Kern, Dunlap, Childs, & Clarke, 1994).

The findings of the current study add to the research literature illustrating the benefits of group contingencies in the classroom (Lea, Bray, Kehle, & DioGuardi, 2004; Maggin et al., 2012; Theodore et al., 2003; Thorne & Kamps, 2008; Tingstrom, Sterling-Turner, & Wilczynski, 2006) and, more specifically, the benefits of CW-FIT (Kamps et al., 2011; Wills et al., 2010). Although further replication is necessary, results from this study suggest that CW-FIT can be used to increase on-task behavior in students with the educational diagnosis of EBD in self-contained classrooms. This is especially important in light of the information presented earlier regarding the frequent social and academic difficulties often faced by those with EBD.

Also noteworthy are the high customer satisfaction scores. Overall, the teacher and the students all rated this intervention very highly. The teacher reported she was very satisfied with CW-FIT and that the on-task behavior of her students increased, appropriate behaviors

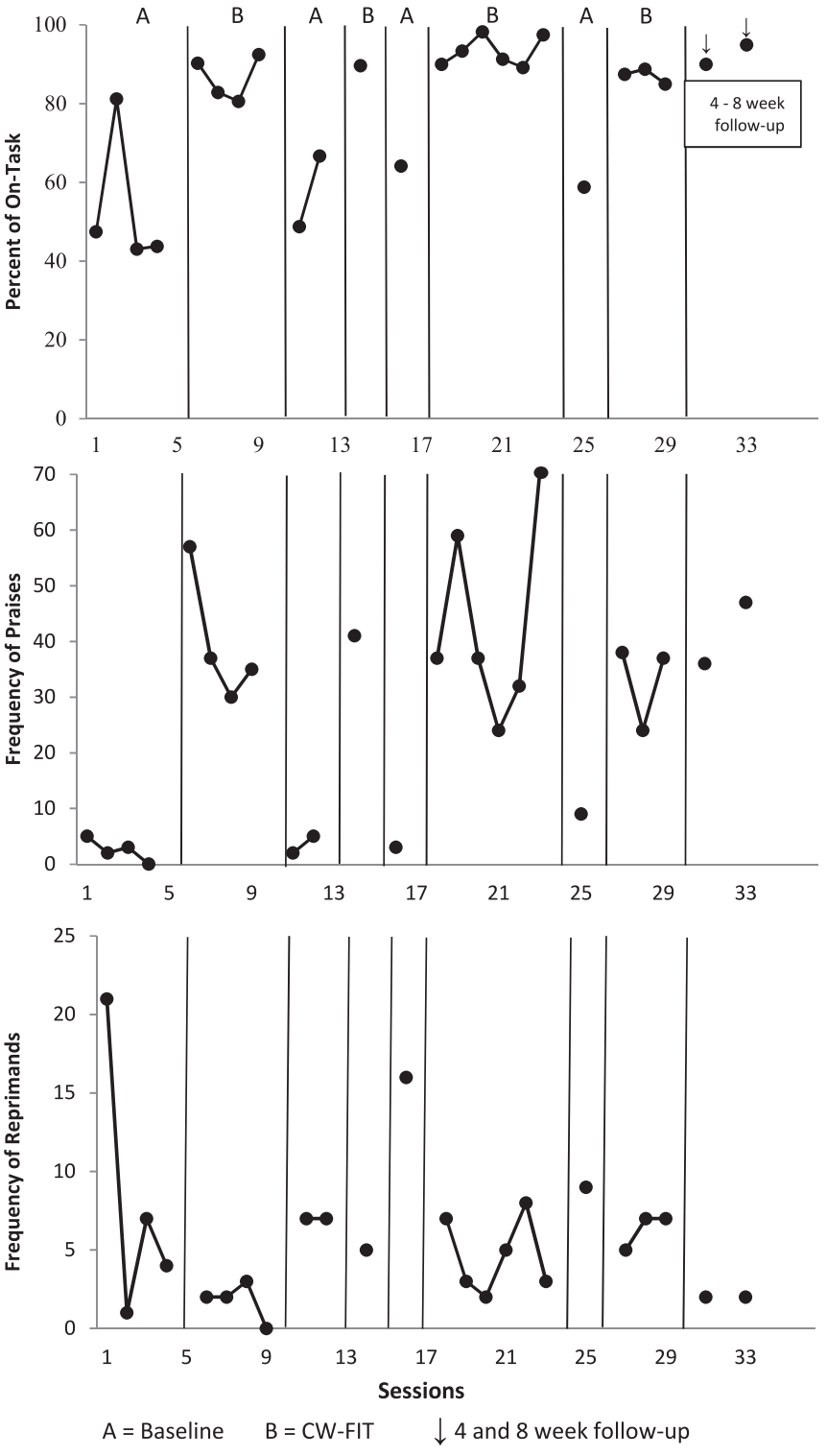

Figure 1. Percentage of time on task, frequency of teacher praise, and frequency of teacher reprimands across conditions.

were reinforced, and replacement behaviors were taught. Another comment she made was that she thought it would be helpful to her to have a wider variety of rewards available for reinforcing her students' behaviors. The teacher also stated that after the investigation, she implemented the intervention at times other than the first period of the day. Although she did not record data, she reported anecdotally that the intervention was effective across class times. These findings add to the literature base indicating that teachers find group contingencies acceptable and effective (Elliott, Turko, & Gresham, 1987; Shapiro & Goldberg, 1990).

The feedback from the five student participants who filled out the survey was very positive. All five stated that they liked playing the game. When asked what they liked about CW-FIT, the participants reported the following: "You learn about being good," "I like that it helps me," "We get toys and free time," "I like to get a lot of things," and "to pick a toy." When asked if there was anything they did not like about CW-FIT, four of the five students responded no, whereas the fifth stated, "points, because I wish we could play first." Put differently, the fifth student indicated a preference for immediate access to the reward rather than playing the game to earn it. Finally, four of the five students responded that they thought other kids should get to play, whereas the fifth stated, "No, I don't."

Findings in the study also support the use of token systems in that points and meeting the stated goal were exchanged for rewards (Maggin, Chafouleas, Goddard, & Johnson, 2011). The tangible (e.g., stickers, pencils) and social rewards (free time, drawing) used in this study are very inexpensive from a monetary standpoint and in terms of response effort required on the part of the teacher to deliver, making them stimuli that could be delivered across a large number of self-contained classrooms. This is very important, especially when resources to purchase additional materials are often limited in schools.

Limitations and Conclusions

There were some limitations to this study. First, it should be pointed out that the students involved in this study were in first, second, or third grade. Investigations involving larger groups of students with EBD from other age groups will be necessary to test the external validity of CW-FIT. Another potential limitation of this investigation was the length of the withdrawal of the independent variable. As stated previously, brief withdrawals were used due to the almost immediate positive impact of the intervention. Longer withdrawals would have allowed for a more thorough examination of the behavior in the absence of the intervention. It should also be pointed out that a teacher implementing this intervention would likely require the assistance of another staff member (e.g., a paraprofessional) to collect on-task data using a 30-s momentary time sample procedure. This could limit the usability of the procedure, especially if a classroom was assigned only a single teacher. Also, due to the effectiveness of the first level of CW-FIT, the self-management and functional assessment elements of this intervention were not necessary to implement in this investigation. Part of what makes CW-FIT unique is that it is a multilevel intervention. From this perspective, it could be argued that the contribution to science of this experiment is limited to a replication of the effects of group contingency interventions for students with EBD. Finally, due to the unpredictable nature of student attendance, teams did not always consist of the same members.

In summary, CW-FIT was found to be an effective and easy-to-implement group contingency intervention for students with EBD in an elementary special education classroom. On-task behaviors and teacher praise improved with its use. Although important appropriate classroom behavior was strengthened in this study, classroom management and structure is only one component of effective teaching. In order to truly maximize student learning, evidence-based curricula and teaching strategies should be implemented in concert with CW-FIT to determine academic benefits. Measures of students' prosocial skills and specific occurrence of disruptive behaviors and discipline referrals are also warranted in future CW-FIT studies. Studies with larger numbers of students with disabilities including EBD are needed, particularly for those served in special education classrooms. Larger studies in general are needed to demonstrate the potential benefits of CW-FIT for assisting students in acquiring skills that will help them improve school behaviors, increase academic learning, and develop and maintain positive relationships and become happy, productive members of society.

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Address correspondence to Howard P. Wills, Juniper Gardens Children's Project, University of Kansas, 650 Minnesota Avenue, Kansas City, KS 66101; E-mail hpwills@ku.edu.

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