

# FBA and BIP: Increasing the Behavior Adjustment of African American Boys in Schools

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*ABSTRACT: Overrepresentation of African American boys in disciplinary and special education referrals has been a national concern. This study used functional behavioral assessments (FBAs) and behavioral intervention plans (BIPs) as a means to prevent disproportionality of African American boys. Based on FBA results, interventions were developed for four elementary students to include skill training, differential reinforcement, and a self-monitoring program. The interventions not only meaningfully reduced the students' target problem behaviors to a level similar to that of their comparison peers, but also produced positive outcomes for their alternative replacement behavior. The across-setting generality effects, however, were limited. Implications are discussed regarding the efficacy of FBAs and BIPs for African American boys at risk for and with disabilities.*

■ African American boys have been reported to be one distinct group that is overrepresented for disciplinary actions and special education referrals (e.g., Mendez & Knoff, 2003; Skiba, Michael, Nardo, & Peterson, 2000). Mendez and Knoff (2003), for instance, found that African American males were 2–3 times as likely as White or Hispanic males to experience a suspension and 2–6 times as likely as all ethnic female groups to be suspended. A similarly striking figure is seen in the identification data. African American males evidence the greatest disproportionality across gender and ethnic groups; they are 1.5–5.5 times as likely as other subgroups to be identified with serious emotional disturbances (Coutinho, Oswald, & Forness, 2002).

The persistent phenomenon of racial and gender disparity in disciplinary and special education referrals, especially in terms of African American boys, has led to a call for comprehensive approaches to improve the educational quality for these students. Recommendations for comprehensive approaches have centered on high quality and culturally responsive curricula (e.g., Salend, Garrick Duhaney, & Montgomery, 2002), effective prereferral services (e.g., National

Alliance of Black School Educators & IDEA Local Implementation by Local Administrators [ILIAD] Project, 2002), positive and empirically validated academic and behavioral interventions (e.g., Gardner & Miranda, 2001), sound multidisciplinary assessment and planning procedures (e.g., Salend et al., 2002), and culturally sensitive family and community involvement (e.g., Harry & Anderson, 1994). Adopting these strategies is recommended as an effective practice for preventing disciplinary problems (Skiba, 2002) and providing the academic and social supports necessary to maintain African American students in the least restrictive environments (Cartledge, 1999).

Among the recommended strategies, functional behavioral assessment (FBA) and behavioral intervention planning are procedures that have shown their effectiveness in reducing problem behaviors and increasing appropriate skills of various student populations (see Reid & Nelson, 2002; and Ervin, et al., 2001 for reviews). The importance of FBAs and behavior intervention plans (BIPs) has increased since the amendments of the Individuals with Disabilities Education Act (IDEA) of 1997. The requirement to implement FBAs and BIPs is intended for school administrators and teachers

to appropriately personalize interventions with individual programming (Skiba, 2002) and to avoid extensive use of exclusionary practices for students with disabilities (Yell & Shriner, 1997). To produce effective FBAs and BIPs, researchers suggest that procedures be (a) applicable to all students with and without disabilities (Sugai & Horner, 1999–2000) and (b) implemented prior to a student's suspension (Scott & Nelson, 1999), or whenever an intervention plan is needed to either decrease problem behavior or increase appropriate behavior (Sugai, Lewis-Palmer, & Hagan-Burke, 1999–2000). This designates FBAs and BIPs as preventive strategies useful in promoting students' success before behavioral difficulties impede learning. Furthermore, there is a consensus that a well-designed BIP should result from FBA results to produce optimal outcomes (Vollmer & Northup, 1996). These points are particularly relevant to African American boys, who are disproportionately exposed to exclusionary practices in schools, both prior to and following special education placement (Skiba et al., 2000). Exclusionary actions often are used inadequately as contra-functional interventions, either serving to negatively reinforce undesired behaviors or failing to provide effective reinforcement and skill training for appropriate behaviors. The adoption of effective FBAs and BIPs, therefore, becomes crucial to providing African American boys proactive and positive interventions that teach and reward desirable behavior, make undesired behavior less functional, and avoid the use of aversive interventions (Wilcox, Turnbull, & Turnbull, 1999–2000).

Although extensive research has shown that FBA and BIP procedures can be employed effectively across a wide variety of student populations with and without disabilities, few studies have addressed the use of FBAs and BIPs as a preventive approach to increase the behavioral adjustment of African American boys. The need to adopt FBAs and BIPs is emphasized with African American boys because they are disproportionately impacted by disciplinary actions and special education referrals. However, it is important to stress that the purpose of this study was not to validate the effectiveness of these procedures with a particular ethnic group, but to use these well-established techniques to prevent disproportionality of African American boys, which often results from ineffective assessments or interventions. Additionally, although the issue of disproportionality has

been widely discussed, no research-based study has been conducted to address this issue. Therefore, the current study was designed to use FBA procedures as a means to develop a potentially effective BIP that focused on skill training, consequence-based interventions, and self-monitoring for four elementary African American boys at risk for and with mild disabilities. These approaches were intended to serve as prevention strategies to increase the success of target students in their current and future educational settings.

## Method

### Participants

*Target students.* Four elementary African American boys were selected for this study. Ted, 7 years old, attended a second-grade general education classroom. His problem behaviors had been a concern since kindergarten and escalated as he progressed through the grades. His problem behaviors included frequent classroom disruptions, inappropriate touching, making negative comments about peers or their families, frequent talk outs, tantrums, and noncompliance. Ted received 30 min of one-on-one tutoring 3 days a week from the reading specialist throughout the study. Six weeks after the intervention was implemented with Ted (i.e., session 28), Ted also participated in sight-word peer tutoring 3 days a week for 2 months.

Adam, an 8-year-old retained second grader, attended a second/third-grade general education classroom. Adam's behavior records documented frequent classroom disruptions, conflicts with peers, noncompliance, and off-task behavior. His behavioral history also included expulsion from his previous school at kindergarten due to assaulting a teacher and a 6-week suspension at second grade for possessing a dangerous object.

Chad, who was diagnosed with attention-deficit/hyperactivity disorder (ADHD) at first grade, was a 9-year-old fourth grader placed in a resource room for language arts and math with 11 other students with mild mental retardation and/or learning disabilities (MR/LD). Chad's primary problem behaviors included being off task, failing to start his work after directions were given, pounding objects against desks, and engaging in non-task-related conversations with peers. At the 4th week of baseline (i.e., session 15), Chad started to receive morning

medication at home. However, the classroom teacher reported that Chad took the medication inconsistently.

Sam was a 9-year-old fourth grader with a diagnosis of ADHD and serious emotional disturbances (SED). His diagnosis was made 3 months prior to attending the current school and 3.5 months prior to the study. Sam frequently interrupted ongoing instruction by talking out, making noises, striking objects, and leaving his assigned work area. As part of his special education services, Sam received 20 min of small group counseling on conflict resolution each week throughout the study.

*Comparison peers.* Two or three comparison peers from each target student's classroom were selected as behavioral models. Comparison peers were selected because they displayed high levels of appropriate behavior and low levels of problem behavior. *Table 1* provides the demographic information for target students and comparison peers.

*Participating teachers.* Four White female teachers participated in the FBA and BIP procedures. Ted's and Adam's teachers were both certified in elementary education, with 4 or 5 years of teaching experience at the intermediate grade level. Neither of them was familiar with FBAs and BIPs prior to the study. Chad's teacher had previously taught students with LD and SED for 7 years, and Sam's teacher had taught students with severe

disabilities for 21 years. Both teachers had a basic understanding of FBA; however, neither had prior experience conducting one.

## Settings

This study was conducted in a Midwestern, urban public elementary school (P-5) with an enrollment of 193 students, of whom 82% were African American, 13% White, and 5% Hispanic or Asian. All students received free or reduced lunch. Data were collected in the target students' respective classrooms across both intervention and generalization settings. The intervention settings for Ted, Adam, Chad, and Sam were morning independent seatwork, writing, language arts (resource room), and math (resource room), respectively. The generalization setting was center time for Ted and Adam, math (resource room) for Chad, and reading (general education classroom) for Sam. Training sessions occurred either in the hallway, library, or counseling room, depending on availability.

## Experimenter and Observers

The first author was the primary experimenter, trainer, and observer. Two undergraduate students, majoring in special education and early childhood education, were trained as secondary observers and interobservers

**TABLE 1**  
**Demographic Information for Target Students and Comparison Peers**

<i>Target Student</i>	<i>Ted</i>	<i>Adam</i>	<i>Chad</i>	<i>Sam</i>
Age	7–7	8–4	9–9	9–8
Grade	2	2	4	4
Disability	None	None	ADHD	ADHD & SED
Instructional settings (LRE)	100% general education classroom	100% general education classroom	21–50% of the time in MR/LD resource room	51–60% of the time in SED resource room
<b>Comparison Peers</b>				
Number of peers	3	3	2	3 (2)
Mean age	8–2	8–0	10–2	9–9 (9–11)
Grade	2	2	4	4 (4)
Race/gender	1 W/F, 1 W/M, 1 AA/F	3 AA/F	1 AA/F, 1 AA/M	1 AA/F, 1 W/M, 1 AA/M (2 AA/M)
Disability	None	None	MR or LD	ADHD, SED, or ODD (None)

*Notes:* The qualities in parentheses represent the demographic information for Sam's comparison peers in his general education classroom. AA = African American; ADHD = attention-deficit/hyperactivity disorder; F = female; LD = learning disability; LRE = least restrictive environment; M = male; MR = mental retardation; ODD = oppositional defiant disorder; SED = serious emotional disturbance; W = White.

until they reached 95% agreement for three consecutive onsite observational sessions.

## FBA Procedures

Each target student was exposed to a series of descriptive assessments conducted by the first author in collaboration with the classroom teachers.

*Structured teacher interview.* The experimenter conducted an interview with each teacher using the Functional Assessment Interview Form (McConnell, 2001). Information was obtained to include teacher perspectives about each student's problem behavior (e.g., topography, frequency, duration, and intensity) and related environmental factors (e.g., antecedents and consequences).

*Review of school records.* School records, including office referrals, student report cards, academic test results, individualized education programs (IEPs) (for Chad and Sam), and other archival records, were reviewed for each student.

*Behavioral rating scale and questionnaire.* Each teacher completed the Motivation Assessment Scale (Durand, 1990) and the Problem Behavior Questionnaire (Lewis, Scott, & Sugai, 1994) to obtain preliminary information about behavioral function. The behavioral function, identified according to the highest score on a scale of six, was determined upon completing each instrument.

*Structured student interview.* Each target student was interviewed using a modified version of the Student Interview Form (McConnell, 2001) and the Student-Assisted Functional-Assessment Interview (Kern, Dunlap, Clarke, & Childs, 1994) to identify students' perspectives on their problem behavior, reactions to other students and the school environment, and preferences and dislikes.

*Reinforcement preference assessment.* A forced-choice reinforcement preference assessment was conducted for each target student using procedures described by Cartwright and Cartwright (1970). Twenty reward items (i.e., four items for each reward category) were identified by the classroom teacher and supplemented by students' interview responses. Each student was presented with two items at a time and instructed to choose the preferred one. The category (adult, peer, or tangible) receiving the highest score was selected as the reinforcement category to assist in hypothesis development.

*Scatter plot.* Each classroom teacher was instructed to observe the target student for 5 days and to record his level of problem behavior (i.e., none, seldom, or severe) on a scatter plot recording form (Touchette, MacDonald, & Langer, 1985) daily during twelve 30-min periods.

*A-B-C recordings.* A-B-C (antecedent-behavior-consequence) observations (Cooper, Heron, & Heward, 1987) were conducted for each target student by the first author. Each observation lasted 15–45 min in length during instructional time that the teachers identified as the most and least difficult for the target students. Observations were repeated for four to eight sessions, until predictable behavior patterns were discernible.

## FBA Results

Upon completing the FBA, the first author reviewed the data to identify target problem behaviors, hypothesize behavioral functions, and develop summary statements about the relationships between environmental variables and target problem behaviors. Collectively, FBA results indicated that adult attention was the primary function for all target students, despite the fact that a few assessment methods showed otherwise. Adult attention was especially evident in that (a) students (Adam, Chad, and Sam) frequently received reprimands or reminders from the teacher whenever a behavioral problem was observed, (b) all students received little or no attention from either the teacher or their peers when they demonstrated on-task behavior, (c) problem behaviors were more likely to occur when teacher attention was not readily available (Ted, Adam, and Chad), and (d) students tended to yell out the adult's name or proposed a question whenever an adult was present in the classroom (Ted and Adam). These results were used to develop interventions for each target student. The relationships between FBA results and interventions, as well as rationales for the chosen interventions, are delineated in *Figure 1*.

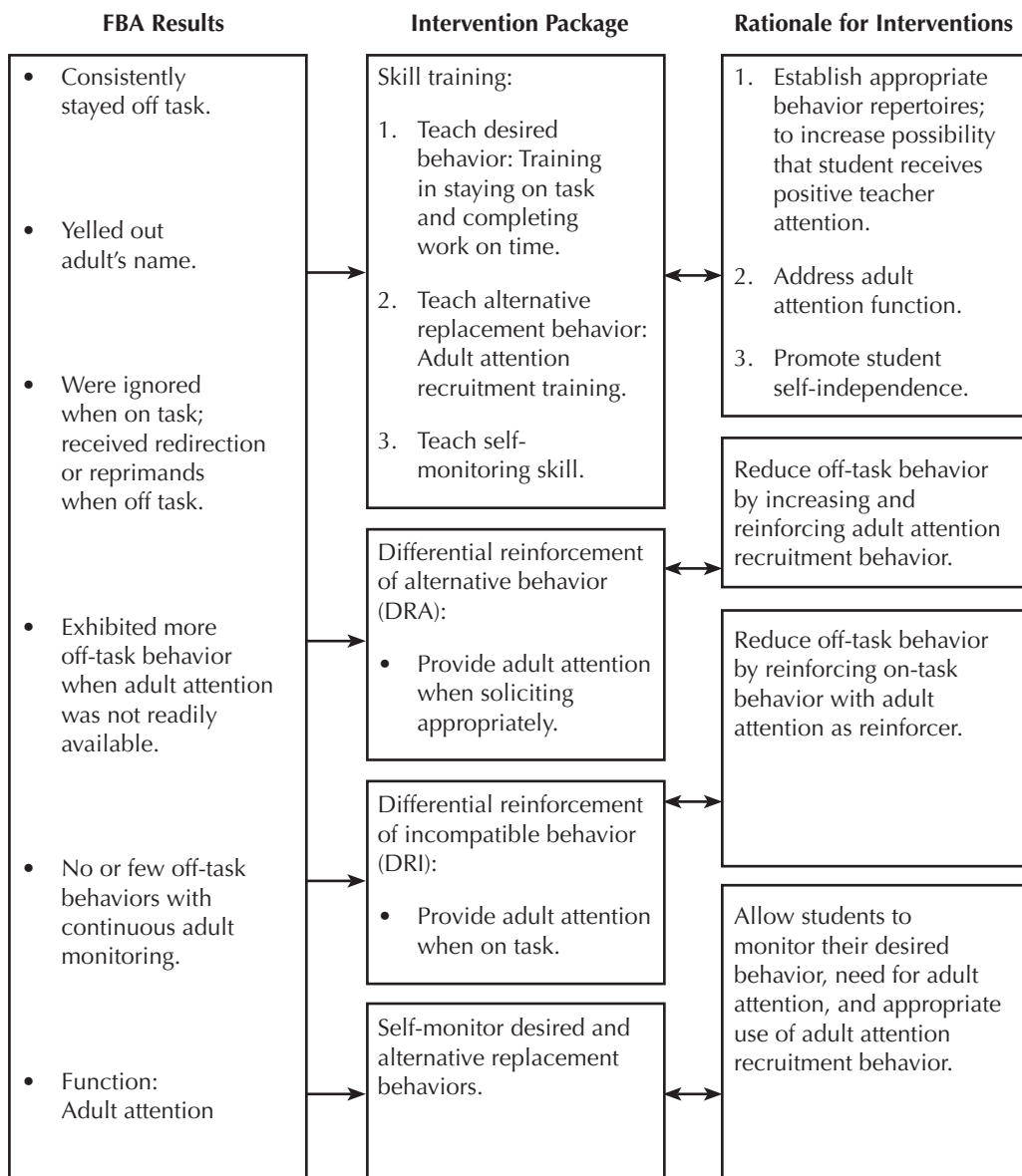
## Behavioral Definitions

*Off-task behavior (target problem behavior).* Off-task behavior was defined as one or more of the following: delaying to perform an assigned task for more than 5 s after request was given by teacher, turning or looking away from an assigned task for more than 5

s, touching or playing with noninstructional objects, talking to peers about task-unrelated subjects during academic instruction, leaving an assigned area without permission, and making any inappropriate sound by pounding a hand or an object against another object. Student engagement in appropriate attention or assistance requests and appropriate recording of their own behavior was not considered off task.

*Adult attention recruitment behavior (alternative replacement behavior).* An appropriate attention recruitment (AAR)

behavior was defined as appropriate, specific requests (verbalizations, gestures, or instructional signs) used by target students to solicit teacher attention. Examples of AAR behavior included handraising and appropriate use of the “check my work” instructional sign while in seat and waiting quietly to be acknowledged by the teacher. Inappropriate attention recruitment (IAR) behavior included making any verbalization addressed to the teacher that was not preceded by handraising and acknowledgment by the teacher, and walking to the teacher without permission.



**Figure 1. FBA Results, Intervention Development, and Intervention Rationales**

## Measurement

A 6 s observe and 4 s record partial interval recording system was used to measure the occurrence of off-task behavior. Audiotapes were used to signal the beginning of observation and recording. When one or more off-task behaviors were observed during an interval, the "Y" code was marked. For the attention recruitment behavior, observers determined whether the student performed an AAR behavior (+), an IAR behavior (-), or no recruitment behavior (N) during each 6 s interval. Each observation, lasting 20 min in length, began with the target student, and continued by alternating the target student and one comparison peer until each student was observed for 40 intervals. To ensure that the target student was observed intensively, only one preselected, prerotated comparison peer was observed during each observation.

## Interobserver Agreement and Procedural Integrity

Interobserver agreement (IOA) was assessed during 44% of data collection sessions, across experimental conditions and observational settings. IOA was calculated using an interval-by-interval agreement method (i.e., dividing number of agreements by number of agreements plus disagreements and multiplying by 100). Mean IOA was 95.5% (range 80–100%) for off-task behavior and 98.5% (range 88–100%) for adult attention recruitment behavior.

Using a 22-item checklist, the experimenter obtained a 100% procedural integrity on the FBA and BIP procedures for all students except Sam (91%), due to an incomplete reinforcement preference assessment and scatter plot recording. Procedural integrity for skill training was obtained during 25% of the training sessions for all students. The degree to which training steps were conducted correctly was 100%. The self-monitoring procedure was also evaluated by comparing the target student's recording to that of the experimenter. This was calculated using an item-by-item agreement. Data were collected during 94% of sessions with a mean accuracy of 97% (range 75–100%) across students.

## Materials

*Self-monitoring recording card.* The recording card (2" x 8") for Ted, Adam, and

Chad listed six recording steps: "Am I working quietly?"; "Check my work"; "Do I need the teacher?"; "Raise my hand"; "How am I doing?"; and "Say 'thank you.'" Printed right next to each step were four sets of happy/sad faces for recording. The recording card (2" x 6") for Sam contained four steps of behavioral reminders at left ("Sit in seat and work quietly"; "Check my work"; "Need the teacher?"; and "Raise my hand or keep working") and two questions with 10 sets of happy/sad faces at right ("Am I in seat and working quietly?" and "Do I raise my hand before talking?"). All the recording cards were laminated for repeated use, and a pictorial presentation accompanied each step.

*MotivAider.* A MotivAider® (2002), an electronic vibrating signaling device, was used to signal each target student to record his own behavior at a fixed interval. The MotivAider was clipped on the student's belt or waistband.

*"Check my work" sign.* A "Check my work" sign was placed on Ted's desk and Adam's desk during each self-monitoring session. The sign, made of construction paper, was in the shape of a triangular pyramid (1.5" x 2" x 5"). Each side of the pyramid contained one of three statements ("I am working," "Keep working," and "Check my work"). Each statement was illustrated. The sign was used as an alternative to handraising for teacher attention so that students could continue working while waiting for the teacher.

## Experimental Design and Procedures

The BIPs were evaluated using a multiple baseline across subjects design (Cooper et al., 1987), with a delayed baseline for Sam due to his late school enrollment.

*Baseline.* All teachers were instructed to respond to the target students' off-task behavior the same way as they had handled them before. Neither antecedents nor consequences related to the problem behavior were modified. Movement from baseline into training was based on the stable or increasing level of off-task behavior.

*Training.* Each target student received four 20–30 min blocks of pullout skill training (staying on task, completing work on time, obtaining teacher attention appropriately, self-monitoring own behavior) from the experimenter. Each session followed six steps: (a) verbal identification of skill; (b) discussion of skill importance and consequences of not performing the skill; (c) definition, with experimenter generating examples and nonexamples and student generating examples

and nonexamples; (d) demonstration and role play; (e) student practice with experimenter's verbal feedback until the student reached 100% accuracy for three consecutive trials; and (f) skill review.

**Behavior intervention plans.** BIPs involved differential reinforcement of incompatible behavior and alternative behavior (DRI and DRA) as well as each student's self-monitoring of desired and alternative behavior. Each teacher was instructed to provide positive attention (e.g., eye contact, close approximation, verbal praise or approval, a light pat on the shoulder) to the student when he was on task and/or whenever appropriate attention recruitment behaviors were observed. Additionally, each target student was involved in recording and monitoring his own behavior during the daily 20-minute self-monitoring sessions. Each student was given a MotivAider and recording card. The recording interval, determined by the teachers and the experimenter, was set every 5 min for Ted, Adam, and Chad and every 2 min for Sam. Aside from teacher attention, each student could earn points to be counted toward the existing classroom token economy or contingency system if he met a predetermined criterion on the targeted skills (e.g., scored at least 20 out of 24 happy faces on the recording card).

**Maintenance.** The self-monitoring procedure previously implemented in the classroom was withdrawn. Each student was reminded to continue following all the steps he had learned with no further instruction. The provision of positive teacher attention remained in effect.

**Generality.** Using the same data collection procedures, generality effects on off-task and attention recruitment behaviors were measured for each target student in the generalization setting, where BIPs were not implemented.

## Social Validity

The behavior of each target student was compared to that of his comparison peers in both intervention and generalization settings. Behavioral changes were considered socially significant if the target student's off-task level fell within or below the range of the comparison peer's behavior. In addition, satisfaction was assessed through questionnaires or interviews at the end of the study regarding the acceptability and the effectiveness of the FBAs and BIPs. The participating teachers and parents were instructed to complete a questionnaire, which contained five-point Likert Scale items (strongly

agree to strongly disagree) and open-ended questions. The experimenter interviewed each target student after the study was terminated.

## Results

### Off-Task Behavior

*Figure 2a* and *Table 2* show that all target students reduced their levels of off-task behavior in intervention settings after BIPs were implemented. Data indicated a mean decrease of 12.0, 12.8, 7.9, and 12.7 intervals over baseline for Ted, Adam, Chad, and Sam, respectively. The low levels of off-task behavior remained during maintenance. In generalization settings, even though visual displays (*Figure 2b*) failed to show consistent behavior changes, mean off-task behavior (reported in the last three columns of *Table 2*) revealed moderate reductions during generalization over baseline for all students.

### Attention Recruitment Behavior

*Figure 3a* and *Table 2* show that in intervention settings, Ted and Adam engaged more frequently in IAR behavior than in AAR behavior during baseline and training; and the results were reversed during BIPs and maintenance. This indicates increases in AAR behavior and decreases in IAR behavior. Although no consistent change was observed for Chad's AAR behavior, his IAR behavior declined to a very low and stable level during training, BIPs, and maintenance. Sam's data show that his IAR behavior was inconsistent across the conditions but his AAR behavior increased slightly during the BIP phase. In generalization settings (*Figure 3b*), low levels of responding across conditions make it difficult to visually discern changes in either AAR or IAR behavior, but mean data reflect very slight reductions in IAR behavior for all students (see *Table 2*).

## Social Validity

**Significance of behavioral changes.** In intervention settings, approximately 86%, 88%, 70%, and 82% of baseline data points fell above the range of comparison peers' off-task behavior for Ted, Adam, Chad, and Sam, respectively (see *Figure 2a*). The higher level of off-task behavior continued for all students except Chad during training. During BIPs, all data points for Ted were within the

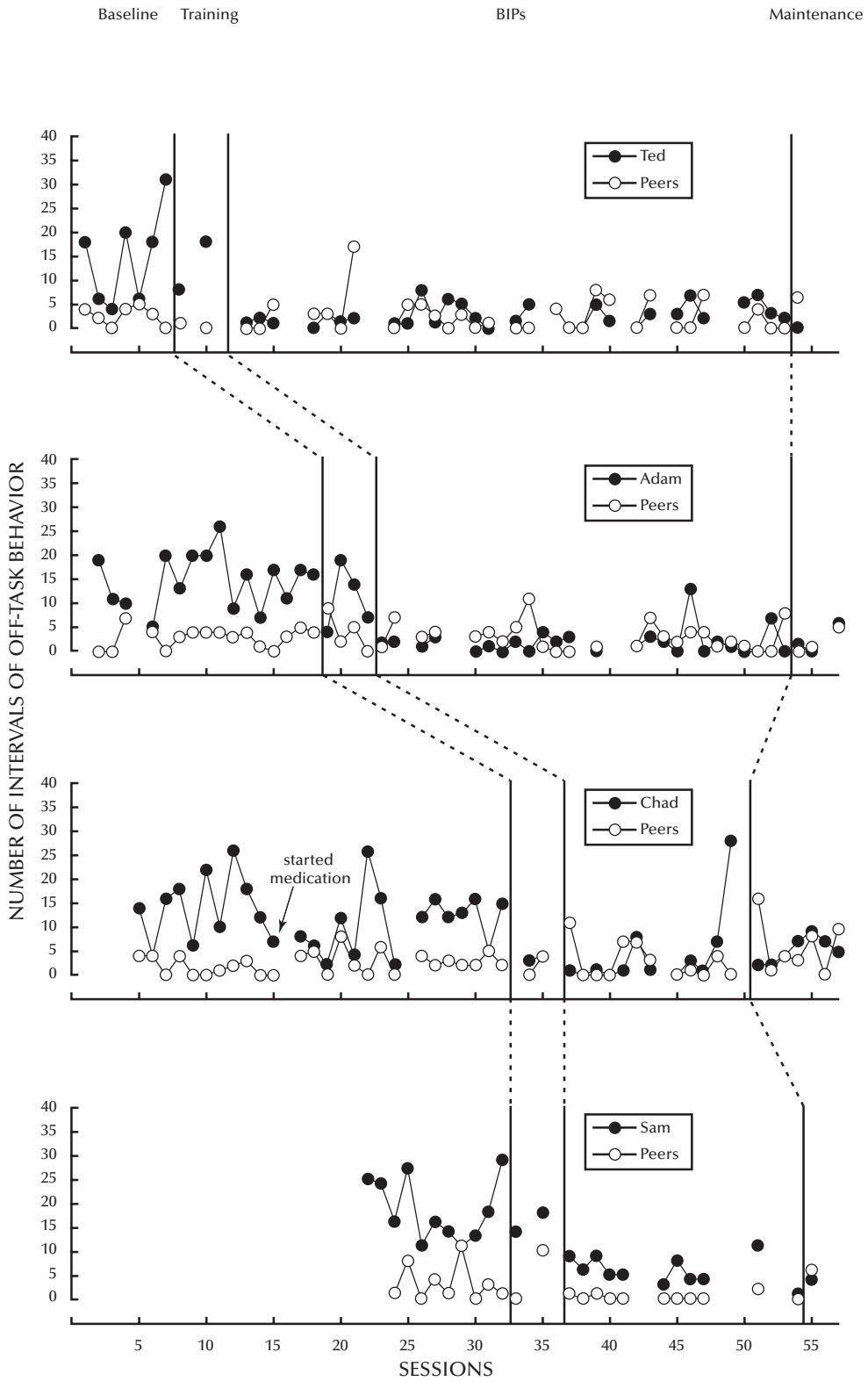
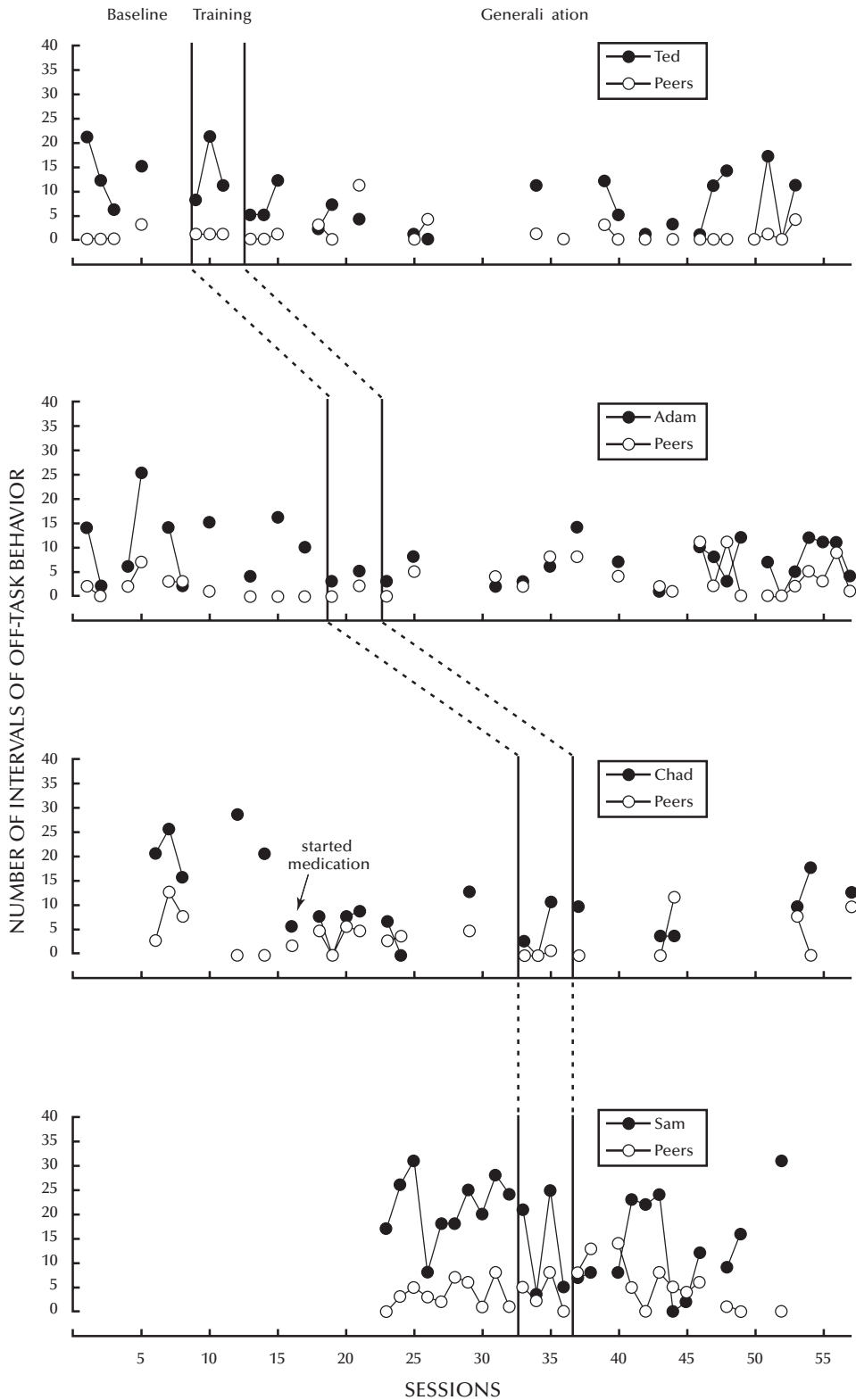


Figure 2a. Number of 6-s Observational Intervals in Which Off-Task Behavior Was Recorded in Intervention Settings





**Figure 2b.** Number of 6-s Observational Intervals in Which Off-Task Behavior Was Recorded in Generalization Settings

**TABLE 2**  
**Mean Intervals of Off-Task Behavior and Attention Recruitment Behavior for Target Students and Comparison Peers in Intervention and Generalization Settings**

<i>Student/Behavior</i>	<i>Intervention Setting</i>				<i>Generalization Setting</i>		
	<i>BL</i>	<i>Training</i>	<i>BIPs</i>	<i>MaT</i>	<i>BL</i>	<i>Training</i>	<i>Gen</i>
<b>Ted</b>							
Off Task	14.7	13.0	2.7	0.0	13.5	13.3	5.8
Peers' Off Task	2.6	0.5	2.6	6.4	0.8	1.0	1.3
AAR	2.4	2.5	4.3	0.0	0.5	1.3	0.5
IAR	3.4	3.5	0.3	0.0	2.0	1.7	0.4
<b>Adam</b>							
Off Task	14.8	11.0	2.0	2.5	10.8	4.0	6.4
Peers' Off Task	2.9	4.0	3.0	2.0	1.8	1.0	3.9
AAR	1.1	1.0	2.9	4.1	0.0	0.0	0.1
IAR	1.2	2.0	0.1	1.0	1.6	1.5	0.3
<b>Chad</b>							
Off Task	12.2	3.5	4.3	5.1	12.6	4.7	9.8
Peers' Off Task	2.4	2.0	2.8	5.9	4.2	0.3	5.0
AAR	1.7	1.5	1.8	1.7	2.8	3.0	1.0
IAR	1.2	0.5	0.3	0.0	1.2	0.0	0.0
<b>Sam</b>							
Off Task	18.6	16.0	5.9	4.0	21.5	13.6	13.5
Peers' Off Task	2.6	5.0	0.4	6.0	3.6	3.8	5.3
AAR	0.3	0.0	1.7	0.0	0.5	1.1	0.1
IAR	1.0	1.5	0.9	0.0	0.5	0.0	0.1

*Notes:* AAR = Appropriate attention recruitment; BL = Baseline; Gen = Generalization; IAR = Inappropriate attention recruitment; MaT = Maintenance.

behavior range of his peers and only one data point fell above the behavior range of peers for Adam (4%) and Chad (8%). Similar results were observed during maintenance. Although Sam's off-task behavior declined considerably during BIPs, he did not reach a level that was within the behavior range of his comparison peers.

In generalization settings, baseline results indicated that 100%, 60%, 38%, and 90% of data points fell above the levels of the peers' off-task behavior for Ted, Adam, Chad, and Sam, respectively (see *Figure 2b*). The higher level of off-task behavior continued during training. During BIPs, approximately 40% of the data points for Adam and slightly more than 50% of the data points for the remaining three students fell at a level higher than that of their peers when excluding the outlier data points, indicating that all students but Chad improved the acceptable levels of their off-task behavior when compared to the behavior of their peers.

*Satisfaction.* All four teachers responded positively to the importance of the behavioral goals, the acceptability and feasibility of the FBAs and BIPs, and the social significance of students' behavioral outcomes. The participating parents were glad that their children were involved in the BIP program. All target students, except Chad, responded that they had enjoyed the self-monitoring program.

## Discussion

This study investigated the effects of an FBA and BIP intervention package on the target problem behavior (being off task) and the alternative behavior (adult attention recruitment) of four African American boys. All students' off-task behavior declined to a level similar to that of their comparison peers. Moreover, target students also replaced their inappropriate attention recruitment behavior with a more appropriate one.

Data on off-task behavior reductions in instructional settings support previous research on the efficacy of BIPs within classrooms with students at risk for or with mild disabilities (e.g., Burke, Hagan-Burke, & Sugai, 2003). The success of the intervention package, including skill training, DRA/DRI procedures, and self-monitoring, also points to the value of functional communication training (e.g., Durand & Carr, 1991), consequence-based strategies (Asmus, Vollmer, & Borrero, 2002), and function-based self-monitoring programs (Kern, Ringdahl, Hilt, & Sterling-Turner, 2001) with at-risk African American boys.

The skill training component suggests several advantages that underscore the effectiveness of the intervention package. First, through systematic instruction, students had the

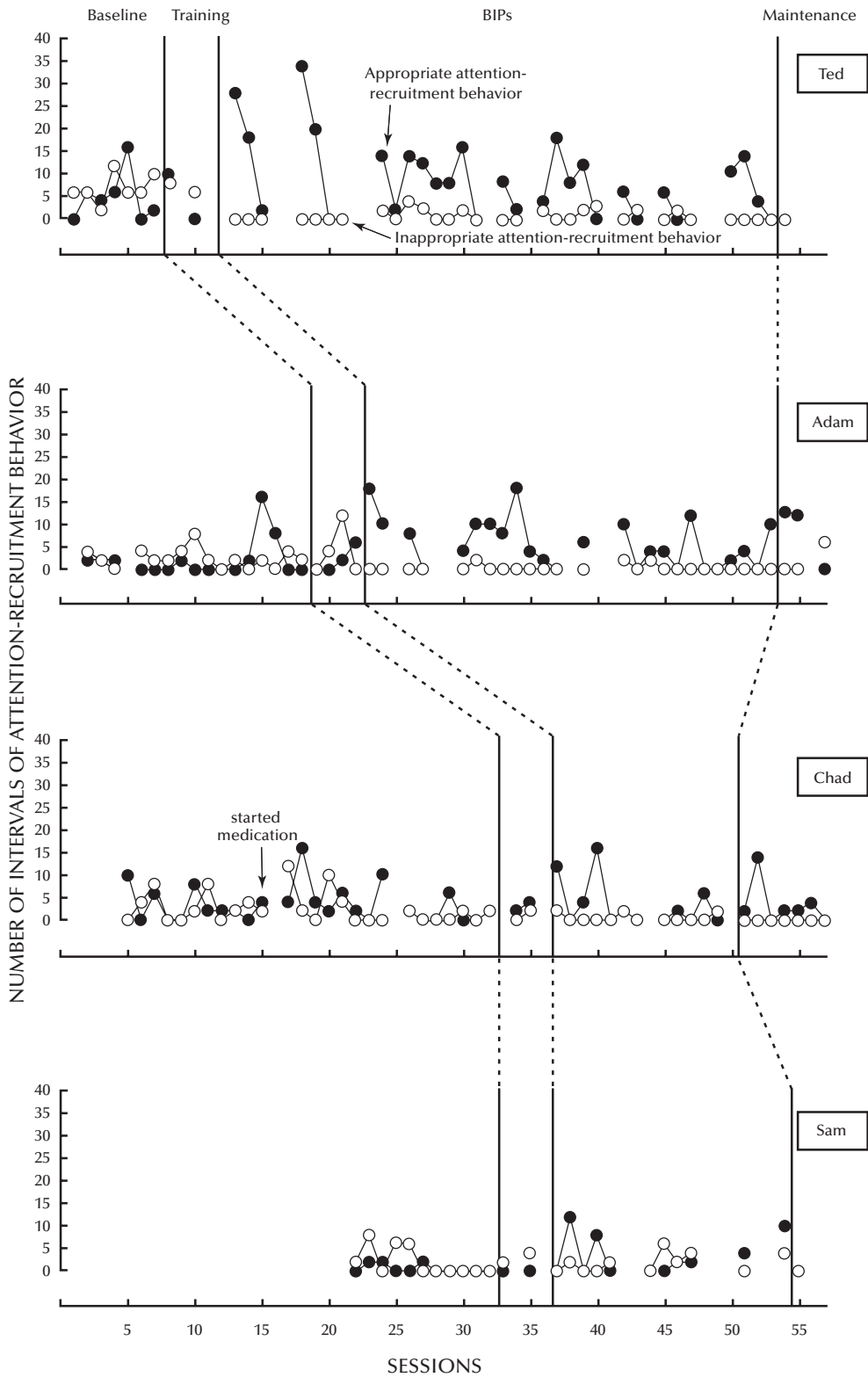
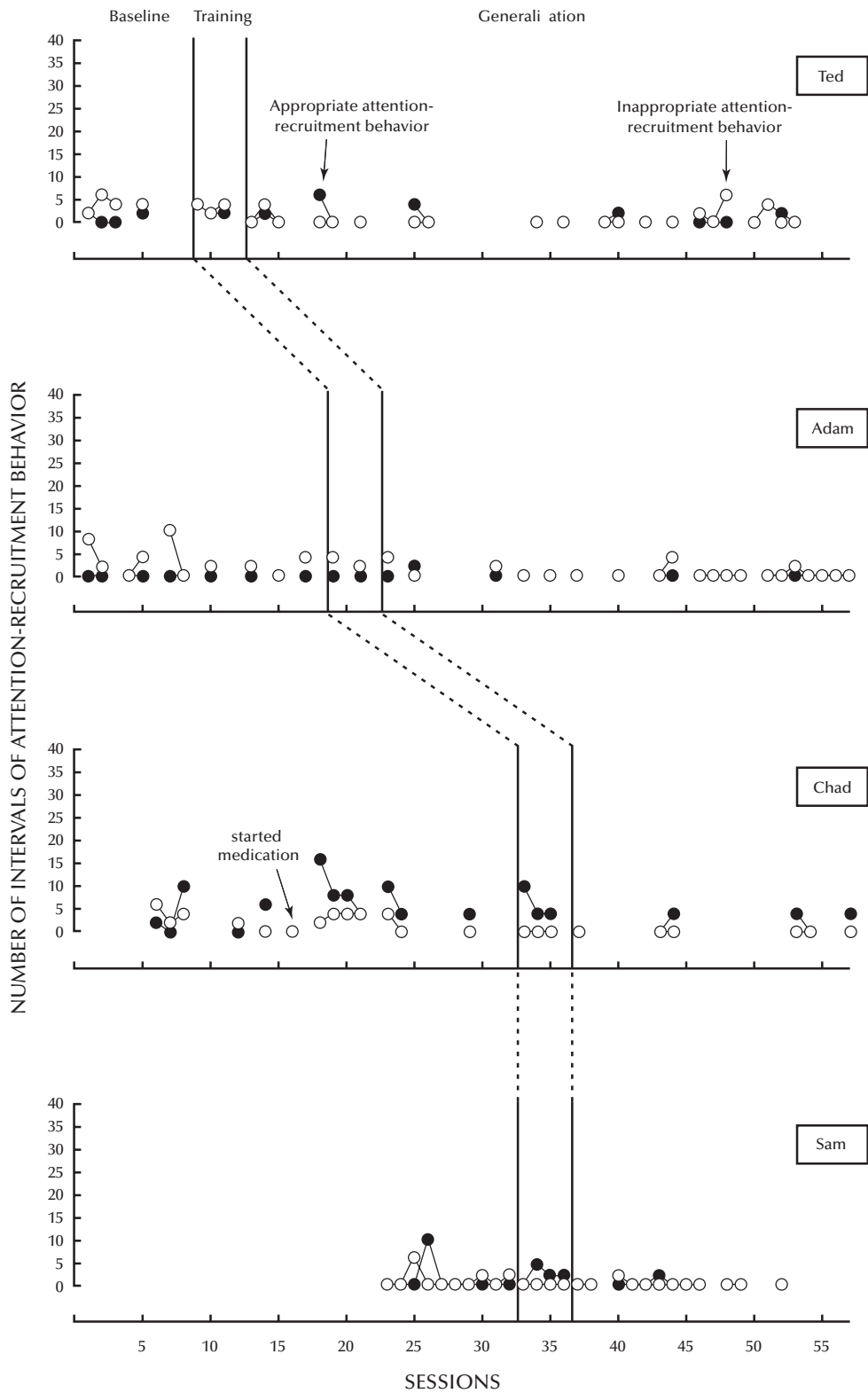


Figure 3a. Number of 6-s Observational Intervals in Which Appropriate and Inappropriate Attention-Recruitment Behavior Was Recorded in Intervention Settings



**Figure 3b.** Number of 6-s Observational Intervals in Which Appropriate and Inappropriate Attention-Recruitment Behavior Was Recorded in Generalization Settings

opportunity to practice performing the targeted skills, which may have strengthened their appropriate behavioral repertoires. Second, teaching students to appropriately solicit teacher attention allowed them to take an active role in interacting with their environments rather than simply depending on external agents to alter the environment or provide contingencies. Third, successful use of FBAs to identify functionally equivalent behavior greatly improved the effects of traditional social skill instruction by teaching students "the most appropriate and needed" skills (Olympia, Heathfield, Jenson, & Clark, 2002). Finally, self-monitoring training not only promoted students' self-independence, but also provided them with a means to evaluate their own needs for requesting reinforcers.

In addition to skill training, the differential reinforcement procedures (i.e., DRA and DRI) and self-monitoring programs also contributed to the success of the BIPs. Using teacher attention as the reinforcer for each target student in the study underscores the power of the function in reducing off-task behavior and increasing on-task and alternative behaviors. As students received positive teacher attention for their on-task and attention recruitment behaviors during BIPs, they reduced the off-task behavior. The reduction of off-task behavior was further strengthened through self-monitoring when students monitored their own targeted skills and need for teacher attention. The greatest off-task reductions were observed for Ted and Adam, which may have been contributed to the addition of the "Check my work" sign that was included in their self-monitoring program. The availability of this visual cue may have served as an additional prompt for the teachers to provide positive teacher attention either when students were on-task ("I am working") or when students appropriately requested attention ("Check my work").

Data on adult attention recruitment behavior showed that most target students demonstrated slight increases in AAR behavior and decreases in IAR behavior during BIPs. In addition to supporting the efficacy of the BIPs, these findings also align with previous research which demonstrated that equipping students with functionally equivalent behavior results in lower levels of problem behavior while increasing appropriate alternative behavior (e.g., Durand & Carr, 1991). However, it should be noted that this study was designed to teach students to display AAR behavior as needed, but not to promote high levels of this behavior, which would have been artificial and ethically

questionable. This may explain the variability of AAR behavior data during BIPs. The reduction of IAR behavior represents more convincing evidence of BIP effectiveness and indicates a more practical behavioral goal for students to achieve in the current study.

The limited generality is observed in the variability of data across conditions. Because BIPs were developed based on students' behavioral functions identified in intervention settings, it is possible that these setting-specific interventions may inaccurately address the students' behavioral needs in generalization settings. This reflects researchers' criticism that "generality of behavior change would not be an automatic outcome of intervention" if the behavioral functions are different (Heckaman, Conroy, Fox, & Chait, 2000, p. 207). In addition, the current study did not systematically program for generalization; therefore, the limited generality effect may not be surprising.

Despite the limited generality effects, the current study demonstrated a proactive and preventive application of FBAs and BIPs with four African American boys by intervening with relatively minor misbehaviors such as off-task behavior with two at-risk students (primary intervention) and two students with mild disabilities (secondary intervention). The use of these procedures at the earliest signs of challenging behaviors honors the ideal application of FBAs and BIPs as recommended by researchers (Scott & Nelson, 1999). This is also consistent with the belief that early intervention and prevention strategies are the best means to address behavior problems and to circumvent educational concerns, such as overly intrusive practice, intractable behaviors, or highly restrictive settings (Kauffman, 1999). In the current study, the four target students not only experienced substantial reductions in their off-task behaviors, but also exhibited more acceptable overall behaviors in their respective classrooms during the course of the interventions. The success of the intervention package is particularly noted, beyond the reported data, by the fact that all four students were successfully maintained in their current placements without referrals for special education services (Ted and Adam) or more restrictive placements (Chad and Sam). In fact, Ted and Adam were retained successfully in their general education classrooms with continuous displays of appropriate on-task and adult attention-recruitment behaviors the following school year. Unfortunately, Chad and

Sam left the school, so continuous monitoring was not possible.

A few limitations deserve attention and point to areas of future research. First, the current study failed to precisely determine whether limited behavior changes in generalization settings were due to lack of generality effects or a result of inaccurate identification of the behavioral functions. While the hypothesized function could be tested by evaluating the effects of the DRA procedures in instructional settings, this procedure was not available in generalization settings. A functional analysis prior to evaluating generality effects would have addressed this issue. Second, Chad's medication intakes made it difficult for the experimenter to assert that off-task reductions were solely the function of the BIPs. This indicates the need to investigate the differential effects of BIPs and pharmacological interventions on the behavior of students who are subject to medical treatment. Additional limitations also included lack of academic behavior measurement and limited maintenance measures.

The results of this study offer several implications for practice. First, FBAs and BIPs are appropriate for African American boys with minor behavioral problems who are either at risk or have mild disabilities. Developing a functional-relative BIP including skill training, consequence-based strategies, and self-monitoring not only allows practitioners to address a student problem behavior more effectively, but also equips students with tools needed to appropriately interact with the environment. Second, FBAs and BIPs are potentially effective pre- and post-referral interventions for students at risk or already identified as having disabilities. As teachers are required to provide instruction to support all students in the least restrictive educational settings, FBAs and BIPs offer promise in that they allow teachers to develop and employ effective interventions to address each student's needs. This is particularly imperative for students of color who are in the greatest jeopardy for disciplinary and special education referrals due to ineffective practices. A final implication is related to teacher involvement in FBAs and BIPs. Although all participating teachers were involved in the FBA and BIP procedures in the current study, their involvement varied in degree, ranging from simply providing input regarding the frequency and types of reinforcers to arranging intervention materials, providing reinforcers to the participants, and monitoring their behavioral progress. Even though not

measured, informal observations indicated that more teacher involvement was associated with better student outcomes. This may point to the importance of involving teachers in FBA and BIP implementation to produce maximum effects.

## Summary

The current study showed that FBAs and BIPs were effective in improving task-related and teacher attention-recruitment behaviors of four African American boys. Applying these procedures prior to and during placements may be effective in eliminating unwarranted referrals and in reducing educational restrictiveness for these students. More extensive empirical study may produce a viable educational model to substantially address this most pressing problem.

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## AUTHOR NOTES

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