

Using Functional Assessment to Develop Interventions for Challenging Behaviors in the Classroom: Three Case Studies

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Substantial evidence shows that many students with challenging behaviors also have a history of academic failure (Kauffman, 1997; Kerr & Nelson, 1998). As these students fall further behind academically, the level of intervention that they need to catch up dramatically increases (Adams, 1988; Juel, 1988). However, providing an intensive level of academic intervention is often hampered by continuing problem behaviors that interfere with academic instruction. In addition, these problem behaviors impose a tremendous demand on the teacher, often consuming more than 80% of instructional time (Sugai & Horner, 1994) and decreasing the amount of time spent on academics for all students. Although students with problem behaviors are evident across general and special education classrooms, teachers in all areas continue to report being ill-prepared to deal with these students (Furlong, Morrison, & Dear, 1994; Lloyd & Kauffman, 1995) and plead for behavioral assistance and consultation (Horner, Diemer, & Brazeau, 1992; Veenman, 1984).

When disruptive classroom behavior does occur, teachers historically have relied on disapproval (Shores, Gunter, & Jack, 1993), punishment (Walker, Colvin, & Ramsey, 1996), and exclusion (Center & McKittrick, 1987; Uchitelle, Bartz, & Hillman, 1989) as strategies to reduce or eliminate the problem behavior. Yet evidence suggests that these interventions are ineffectual (Strauss, 1994) and even counterproductive in addressing challenging behavior (Sulzer-Azaroff & Mayer, 1991). However, classroom teachers can apply validated procedures for intervening with students with challenging behaviors (Brady et al., 1984; Dunlap et al., 1993; Gunter, Fox, Brady, Shores, & Cavanaugh, 1988; Kerr & Nelson, 1998; Lewis & Sugai, 1996a; 1996b). These procedures, known as functional behavior assessment, involve identifying the purpose or function of student behavior followed by teaching and reinforcing more desirable replacement behaviors that are selected to serve the same function for the student. The process of functional assessment has been comprehensively detailed (O'Neill et al., 1997) and examples of its applied use, mainly with students with low-incidence disabilities, are replete in

the literature (e.g., Carr & Durand, 1985; Foster-Johnson & Dunlap, 1993; Repp, Felce, & Barton, 1988). Yet few examples of the functional assessment process with mildly disabled or nonidentified students have been published.

The functional behavior assessment process we applied consisted of a formatted narrative account of observable events that immediately surround a student's behavior. Those events include both the actions and/or events that are present immediately preceding a behavior (e.g., teacher directions, specific students, math

tion. Similarly, if those ABC chains indicate that a student engages in undesired behavior to escape an aversive event or activity, replacement behaviors will be selected that facilitate the student's ability to successfully complete activities and/or that allow the student to escape in an appropriate manner (e.g., hand raising, break signal, assistive devices). Again, the replacement behaviors are reinforced while the undesired behaviors are not allowed to function as a means of escaping. In both cases, interventions involve teaching and reinforcing desired func-

ABC form. It revealed examples indicating that Lou possessed the ability to work but received little positive reinforcement when he was working on his assignment. In contrast, Lou received much teacher prompting and attention when he was off task. The function of Lou's behavior was seen as accessing reinforcement from the teacher. Under such conditions, it was hypothesized that Lou might increase his level of task completion if provided with more incentive in the way of contingent reinforcement from adults in the classroom when he engaged in appropriate behaviors.

Objectives

Based on Lou's current and desired behaviors, the following objectives were developed in planning for intervention:

Acquisition. When given independent work, Lou will complete each assignment in writing, by the end of the school day, over 3 consecutive sessions.

Fluency. When given independent work, Lou will complete each assignment in writing, within 1 hour, over 3 consecutive sessions.

Maintenance. When given independent work, Lou will complete each assignment in writing, within 1 hour, over 5 consecutive days.

Generalization. When given independent work in the regular classroom setting, the student will complete each assignment in writing, by the end of the school day, over 3 consecutive sessions.

Intervention Procedures

In light of functional behavior assessment data, a structured system of self-monitoring and contingent reinforcement was implemented with Lou to facilitate access to reinforcement for appropriate behavior. First, he was provided with a personalized notebook that was divided into sections to organize his materials. On the front of the notebook was a picture of a walkman with headphones (one of Lou's selected reinforcing activities). Also included in the notebook was a monitoring sheet that listed each daily assignment and provided a space for Lou to mark when he had completed each task. As each task was completed, Lou marked

A functional behavior assessment conducted in the resource room consisted of three written narratives of behavior via an ABC form.

time) and the consequences or events that take place immediately after a behavior (e.g., peers ignore, teacher gives attention, teacher removes student from situation). The narrative is composed on an antecedent-behavior-consequence (ABC) form, a three-column form with one column each representing antecedent, behavior, and consequence. As the narrative is written, events are recorded on the ABC form as they occur temporally. This process results in a formatted narrative of behaviors and the events that may predict and maintain those behaviors. This format then leads to the identification of recurring antecedent-behavior-consequence chains that may predict both the circumstances under which behaviors are likely to occur and to not occur and the consequences that maintain those behaviors. This information is used to select appropriate replacement behaviors and intervention strategies.

If a functional assessment reveals that a student's undesired behavior repeatedly results in teacher attention, replacement behaviors will be selected that allow the student to access teacher attention in an appropriate manner (e.g., completing assignments, attending to task, remaining seated). The replacement behaviors are then differentially reinforced, making certain that the undesired behavior no longer functions to access teacher atten-

tional behaviors rather than simply applying an arbitrary intervention.

In this article, we discuss three case studies involving children whose behaviors interfered with the quantity and quality of their classroom instruction. In each case, interventions involve teaching and reinforcing specific replacement behaviors that were identified through functional behavior assessment. In each of the case studies presented, a student teacher was responsible for all assessment, intervention, and monitoring for the target student as well as all other students in the classroom during that time.

Case Study 1: Lou

Student Characteristics

Lou was a 4th-grade student who was identified as having a specific learning disability in written language. He attended the resource room daily for language arts and was monitored for writing in his regular classroom. During independent work times, Lou avoided work on writing assignments, preferring instead to play with his papers—folding, tearing, drawing on, and often losing assignments. When pushed, Lou would rush through an assignment, forgetting his name, writing sloppily, and producing poor work.

A functional behavior assessment conducted in the resource room consisted of three written narratives of behavior via an

his chart and signaled for permission to deliver the assignment to an assignment folder. This step was included to allow the student teacher to monitor the accuracy of Lou's self-monitoring and to set the occasion for increased verbal reinforcement.

At the end of each day, Lou brought his notebook to the student teacher and, if his monitoring sheet indicated that all assignments had been completed and had been turned in, he was reinforced from a menu of privileges (music time, computer, etc.). In addition, Lou earned bonus reinforcers at the end of each week in which he completed all assignments.

Results

Lou's permanent product work sheets served as data for this investigation. During three days of baseline, Lou continued the historical pattern of variability, ranging 25–100% of work completed. Intervention was begun because historically variable data indicated that occasional 100% completion rates were not unusual. With the onset of intervention, Lou's level of assignment completion became much more stable, varying slightly at a consistently high rate. As the criteria were changed with each successive objective, Lou's assignment completion maintained a stable high rate, even when implemented in his regular classroom (generalization phase). Figure 1 presents Lou's performance across time.

Discussion

The combination of Lou's self-monitoring and contingent reinforcement generally was associated with an increase in his level and stability of assignment completion. Although some variability remained during the fluency phase of intervention, maintenance and generalization objectives were met in consecutive days. To be seen as educationally significant, this intervention needs to continue to produce maintenance and generalization of behavior while fading away from external reinforcement. In addition, due to the package nature of this intervention (i.e., reinforcement and structured work routine), it is not possible to make statements regarding the individual impact of either component. However, the student teacher could easily implement and manage both components of

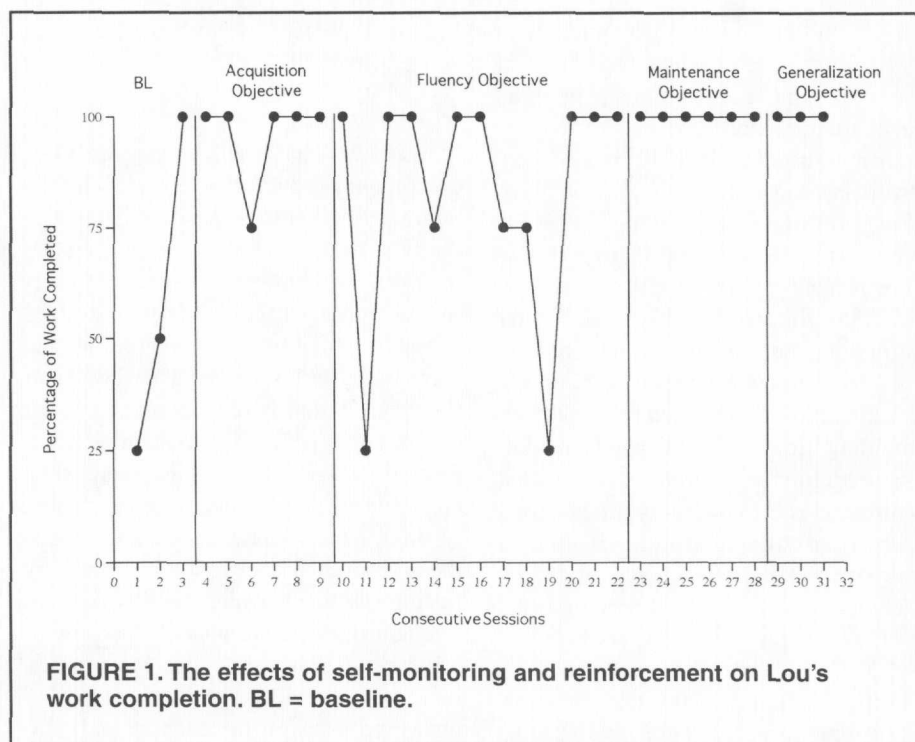


FIGURE 1. The effects of self-monitoring and reinforcement on Lou's work completion. BL = baseline.

this intervention while still managing instruction for other students.

Case Study 2: Andy

Student Characteristics

Andy was a 6th-grade student identified as learning disabled in several areas who also received services for speech and was noted to have slow motor skills and awkward movements. With a full-scale IQ of 83, Andy attended a special education resource room for math, science, social studies, reading, and language arts while attending mainstreamed elective classes. Andy's problem behaviors were labeled as "off task"; they included behaviors such as being out of seat, talking to peers, and otherwise not following the teacher's directions.

A functional behavior assessment of Andy in the classroom consisted of three written narratives of behavior via an ABC form. It revealed that he was particularly likely to be off task when the teacher was addressing the class or when he was supposed to be independently working on an assignment. While expected under these circumstances, Andy's behaviors predictably resulted in escape from those activities. It appeared that Andy's off-task behaviors functioned to allow him to escape from activities in which he did not

wish to participate. It was hypothesized that an intervention involving access to increased reinforcement for on-task behavior and that teaching Andy to request assistance might provide him with a functional alternative to escape behaviors.

Objectives

As part of planning for intervention, the student teacher wrote the following objectives for Andy:

Acquisition. While in class in the resource room, Andy will work on his assigned tasks or attend to the teacher during 90% of intervals observed for 3 consecutive sessions.

Fluency. While in class in the resource room, Andy will work on his assigned tasks or attend to the teacher during 90% of intervals observed for 5 consecutive days.

Maintenance. During biweekly observations in the resource room, Andy, after meeting the fluency objective, will work on his assigned tasks or attend to the expected teacher during 90% of intervals over 3 consecutive observations.

Intervention Procedures

In light of functional behavior assessment data, a teaching and contingency

contract system was implemented with Andy. First, via teacher modeling of examples and nonexamples, he was taught to raise his hand and to ask for teacher assistance when he was unsure how to proceed with an assignment. Next, he was informed that asking for assistance was acceptable and that he should raise his hand whenever he was confused, lost, or uncertain of how to proceed. After instruction, the student teacher initially prompted Andy when he was not working by asking him if he needed help and then reminding him to raise his hand. In addition, a contract was written that detailed contingencies for how Andy might earn a candy treat (the reinforcer of Andy's choice) at the end of each school day by reaching criterion levels of time on task.

Results

Using a 1-min partial interval recording system for on-task behavior, baseline data for Andy were highly variable, ranging 52–85% on task. With the initiation of the intervention with one reinforcement per day, there was an initial increase, followed by a sharp decrease in performance. It was hypothesized at this point that reinforcement would need to be delivered more frequently and a twice-a-day contingency was implemented. After some absences, Andy met his acquisition and fluency objectives for 3 straight days and his maintenance objective for 3 consecutive biweekly probes.

Figure 2 presents Andy's performance across time.

Discussion

It appears that a single reinforcement contingency per day was not sufficient to maintain a consistent positive change in Andy's performance. However, when provided with more frequent reinforcement opportunities, Andy's desired behavior immediately increased to and stayed at criterion levels. The success of this intervention is seen as related to the accessibility of both the tangible reinforcers and the assistance available when engaging in desired behavior (i.e., hand raising). Thus, Andy was able to escape the aversives associated with work by raising his hand, which became a more efficient response because it also provided access to reinforcers. This intervention represents a simple method of precluding undesired behavior by teaching and reinforcing a more desirable yet equally functional response.

Case Study 3: Jake

Student Characteristics

Jake was a 3rd-grade student identified as learning disabled who attended the resource room 2 hr per day. His challenging behaviors included stomping feet, tapping hands on desk, making popping noises in mouth, and talking without permission. These behaviors were problematic because they prevented Jake from

completing his assigned tasks and disturbed other students in the classroom.

A functional behavior assessment of Jake consisted of three written narratives of behavior via an ABC form. This process identified behavior chains that suggested that his undesired behaviors served to access attention from the student or classroom teacher. The behaviors rarely occurred when adults spoke directly to Jake but were predictable when the teacher was involved with other children. The function of Jake's behavior was seen as providing access to teacher attention. It was hypothesized that appropriate behavior and attention to task would increase if provided with higher levels of reinforcement, including teacher attention.

Objectives

As part of planning for intervention, the student teacher wrote the following objective for Jake: During classroom instructional time, Jake will make positive noises (i.e., speak when called on) or no noises during 80% of intervals observed over 3 consecutive days.

Intervention Procedures

The student teacher gave Jake a set of price guidelines and had him brainstorm a list of items for which he would be interested in working. Next, a differential reinforcement of other behavior (DRO) system was created, wherein Jake's behavior was monitored during regular 30-sec intervals. It was explained to Jake that he would receive points for each interval of 30-sec in which he refrained from talking without permission or making inappropriate noises. The student teacher monitored his behavior using a small timer and monitoring sheet and, at the end of each 30-sec interval, noted whether Jake appropriately refrained from undesired behavior (30-sec whole interval recording). His initial criterion for success was set by the student teacher at 80% of intervals, and regular verbal reinforcers were available from the teacher, contingent on desired behavior. When undesired behaviors did occur they were typically ignored.

Results

During baseline, Jake refrained from undesired behavior only 50–55% of the

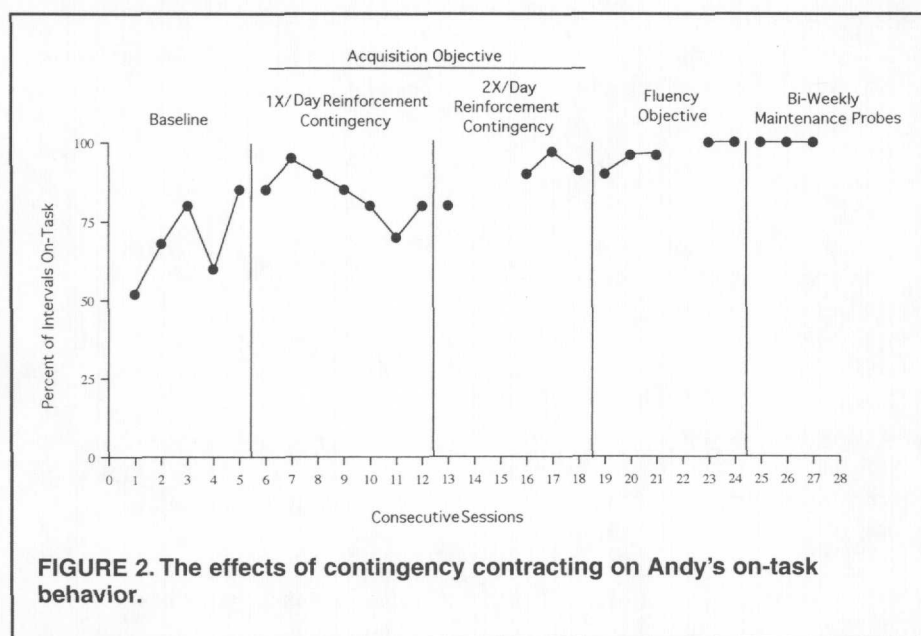


FIGURE 2. The effects of contingency contracting on Andy's on-task behavior.

intervals observed. On the initiation of intervention, Jake's percentage initially dropped for 2 days before increasing to criterion levels across 3 consecutive days. The objective was met just before the Thanksgiving break but the intervention was continued immediately thereafter to assess maintenance. There was a brief regression immediately following the 4-day weekend (session 11), after which an increase in desired behavior was again observed. Figure 3 presents Jake's performance across time.

Discussion

The DRO procedure appears to have successfully decreased Jake's inappropriate noises and talk outs. We believe that the success of this intervention is directly related to its focus on the function of the behavior. By providing attention and tangible items contingent on desired behavior, and withholding those reinforcers contingent on undesired behavior, desired behaviors became a more efficient response for Jake in accessing desired outcomes. Thus, Jake's undesired behavior ceased to function as a means of accessing attention; instead, Jake was able to maintain the attention he desired by engaging in desired behavior.

The lack of maintenance demonstrated over the Thanksgiving day weekend is cause for concern. After such a brief period of intervention and without the benefit of any planned fading procedures,

however, these results are not totally unexpected. The student teacher recommended to the classroom teacher that the intervals be gradually increased over time, expecting Jake to perform longer periods of desired behavior to meet his contingency and eventually enabling him to move to a self-monitoring system (Scott, 1998). As is, this procedure represents an effective but time-consuming and demanding intervention. The real significance of this intervention will depend on the teacher's ability to transition out of the monitoring role, allowing Jake to take responsibility for monitoring and reinforcing his own behavior.

General Discussion

Given the case-study nature of the presented interventions, it is not possible to make broad statements regarding the impact of functional assessment procedures. The brevity of baseline phases and of the studies in their entirety is necessary given the limited time available to student teachers, yet it creates limitations regarding the validity of the results. In addition, the short periods of time during which maintenance and generalization were assessed create further limitations in our ability to make strong statements about the applicability of these results to children who remain in classrooms throughout the school year. However, each of the interventions we have described was implemented by a student teacher, with-

out assistance from the regular classroom teacher, and was associated with successful outcomes.

The limitations we have identified could be avoided by replicating the functional assessment and intervention procedure with regularly employed teachers. Teachers who see students every day are better able to collect baseline data over longer periods of time and across a variety of settings as well as to follow up with maintenance and generalization probes throughout the year and across settings.

There are two points that bear special attention with regard to these case studies. First, each intervention was directly tied to functional behavior assessment outcomes. Rather than selecting interventions based on their convenience or familiarity, interventions were selected and tailored to teach and reinforce desired behaviors that served the same function (access reinforcement/avoid aversives) as the undesired behavior. Interventions involved simply teaching students a more efficient response. This point is significant because it implies that interventions need not focus on aversives and exclusion. A positive teaching approach focuses on facilitating student success as opposed to reacting to student failure. Success will be maximized when replacement behaviors serve a reinforcing function for the student.

Second, interventions were preplanned, based on assessment, and clearly tied to written learner goals and objectives. Again, this point is significant because it provides further implications of the importance of planned interventions. It should be clear that successful intervention requires planning. However, it may not be so clear as to the level of assessment and planning that are necessary to provide the maximum possibility for student success. Without that planning, intervention becomes a crap shoot, increasing the chances of further student failures. Functional behavior assessment and the identification of the function of the student behavior provide the teacher with a basis for intervention planning that maximizes the probability of success.

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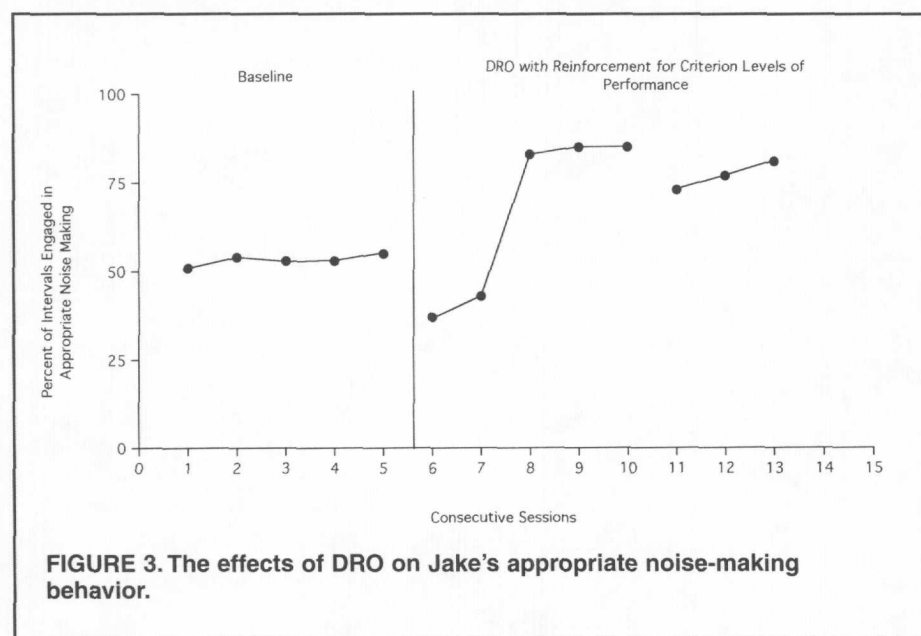


FIGURE 3. The effects of DRO on Jake's appropriate noise-making behavior.

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