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## FUNCTIONAL BEHAVIORAL ASSESSMENT OF PROBLEM BEHAVIOR

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### DESCRIPTION OF THE STRATEGY

One of the major concerns of parents, teachers, and other caregivers in applied settings such as classrooms is the occurrence of problem behaviors. These can range from mildly disruptive behaviors, such as students' talking out or getting out of their seats, to severe behaviors, such as self-injury, aggression toward others, and destruction of materials and property. Students who engage in problem behaviors, regardless of their labels or diagnoses, are much more likely to be placed in more restrictive educational placements (e.g., self-contained classrooms or schools) and to be suspended or expelled. Beyond the school setting, such behavior patterns place tremendous stress on parents and families, jeopardize opportunities for participation in residential and vocational programs and settings, and tax limited resources. As an example of financial impact, a study conducted over 10 years ago by the National Institutes of Health found that the annual cost of services for people with mental retardation in the United States who exhibit self-injury, aggression, or property destruction exceeded \$3.5 billion per year. A final major concern is that such behaviors place persons at greater risk for abusive treatment by teachers and other support staff.

In the early development of the field of behavior analysis, B. F. Skinner and others identified functional relations among behavior and antecedent and consequent stimuli as the main focus for research efforts. In more recent years, functional behavioral assessment (FBA) has taken on a narrower meaning in applied

areas such as education. It now refers most often to the process of identifying those variables that reliably predict and maintain the occurrence of problem behavior in applied settings (classrooms, residential and vocational settings, homes). It is important to understand FBA within the context of comprehensive behavior support. An FBA provides critical information that serves as a guide and foundation for developing a comprehensive plan to teach and promote appropriate behaviors and reduce or eliminate problem behaviors. It is only one step in an ongoing iterative process, which includes gathering assessment information, developing behavioral hypotheses, developing and implementing a comprehensive behavior support plan, and monitoring the effects of the plan and making modifications as needed.

*A Brief Note About Terminology.* To describe these kinds of assessment activities, the literature and practitioners use several terms relatively interchangeably, including *functional assessment*, *functional analysis*, and *functional behavioral assessment*. However, a consensus has developed regarding their different meanings. *Functional assessment* and *functional behavioral assessment* are broader "umbrella" terms that refer to the full range of possible strategies for collecting assessment information, including interviews, observations, and experimental procedures (the term *functional behavioral assessment* became more widely used after its inclusion in the reauthorization of the Individuals with Disabilities Education Act [IDEA] of 1997). *Functional analysis* is now used to describe only a subset of assessment procedures that involve manipulating environmental conditions within an experimental design to identify the antecedents or consequences that influence problem behaviors. This entry will use *functional behavioral assessment* as the broader term and the more specific *functional analysis* when appropriate throughout.

### Main Outcomes of the FBA Process

The following five primary outcomes of the FBA process have been identified by the field:

1. *Operational Definition of the Full Range of Problem Behaviors of Concern.* It is critical that teachers and other caregivers be able to clearly define all of the various behaviors of concern a student may be performing. Operational definitions include how

the behaviors look or are performed (their topography) and their frequency, duration, and severity, with regard to how much disruption or damage they produce. Of additional importance is how the behaviors may be related to one another and whether the behaviors seem to occur together in some type of group or sequence. For example, a student may begin a problem behavior sequence by putting her head down on her desk and muttering curses under her breath. This may then escalate to throwing books and materials on the floor and, ultimately, attempting to injure a teacher or another student. If all these behaviors are related to similar triggering events and reinforcing consequences, it is possible that the behaviors need to be dealt with in a similar manner and should not be treated differently just because they have different topographies (i.e., are performed in different ways). In the field of behavior analysis, behaviors that are related in such a manner are often referred to as *response classes*. This term, *response class*, usually refers to a group of behaviors that may be topographically different but produce a similar effect on the environment or are maintained by similar consequences, such as producing social attention or interaction or escape from undesired situations.

*2. Identification of the Stimuli and Events That Occasion or Trigger Problem Behaviors.* Two major categories of precursor events affect behavior. One category is the antecedent events or stimuli that typically are present immediately prior to the occurrence of problem behaviors; for example, who is present, what social interactions are or are not occurring, what activities or requests or demands are taking place, and any other relevant environmental stimuli (e.g., loud noises). These immediate environmental characteristics typically are easier to identify than the second category of precursor events, which presents a greater challenge. These are events or interactions that typically occur over longer time periods prior to the occurrence of problem behaviors. For example, a student may experience negative social interactions with parents or siblings at home that could put him or her in a more negative and reactive state than if such interactions had not occurred. This experience may serve to increase the value of consequence events or stimuli (such as being left alone) for the student and decrease the value of other consequence events or stimuli (such as interactions with or praise from the teacher). This situation may then contribute to an

increased likelihood of problem behaviors, if they lead to the more valued outcomes. For example, if problem behaviors typically result in the student being left alone, they may be more likely to occur in response to work requests delivered under the described conditions.

In the field of behavior analysis, distal events that influence the value of reinforcers and alter the effects of antecedent stimuli are typically referred to as *setting events* or *establishing operations*. These types of influences also include medical and physical conditions such as fatigue, hunger, illness, and medication effects, as well as other environmental stimuli, such as aversive levels of noise, lighting, and cold or heat. Compared to more immediate antecedent stimuli, the functional relation of these distal events to the occurrence of problem behaviors is more challenging to assess.

*3. Identification of Events or Outcomes That Appear to Be Reinforcing and Maintaining Problem Behaviors.*

A major proportion of behavior analytic research has been concerned with functional relations between behavior and its consequence events that increase (reinforcers) or decrease (punishers) rates of behavior. In the FBA context, the main concern is identifying the range of consequences that appear to be reinforcing and maintaining the problem behaviors. A variety of frameworks for delineating these processes has been proposed. One relatively straightforward approach is to classify potentially reinforcing consequences as involving either positive or negative reinforcement processes. Positive reinforcement refers to increases in problem behavior as a function of gaining access to a specific consequence contingent on performing the problem behavior. Such consequences might include social attention or interaction, tangible items (food, toys), particular activities, or specific sensory stimulation (visual, auditory). It is important to note that what is reinforcing to one individual might be aversive to others (e.g., social reprimands).

Negative reinforcement refers to increases in the problem behavior as a function of escape or avoidance of aversive events contingent on performing the problem behavior. Such consequences might include terminating undesired social attention or interaction or task and activity demands. Both positive and negative reinforcement can involve external socially mediated consequences and private or internal stimuli. For example, certain behaviors may produce desirable

internal stimulation (e.g., body rocking that produces a comforting calm) or may attenuate painful stimuli (e.g., head hitting that temporarily alleviates the pain from an inner ear infection).

A critical issue with the identification of behavioral functions is to isolate specific aspects of stimuli that are positively or negatively reinforcing in particular situations. For example, if it appears that a student is engaging in problem behaviors to escape from particular situations, the critical question is “What is it about the situation that makes the student want to escape?” Is it the person, the activity, or the setting? This level of detailed understanding is very important as a means by which to identify the most appropriate and relevant behavioral support strategies.

*4. Synthesizing Information Into Succinct Behavioral Hypotheses or Summary Statements.* At one or more points in the FBA process, the information gathered should be summarized into behavioral hypotheses or summary statements. Such statements should include four primary components: (a) setting events and establishing operations, (b) immediate antecedents, (c) a behavior or class of behaviors, and (d) the relevant behavioral consequences or functions. Examples of such hypotheses and statements include (a) “When Monique has not had much sleep [setting event] and is asked to do a nonpreferred activity in her work setting [antecedent], she will curse, tear up her work materials, and hit her job coach [behavior], and this behavior is maintained by escape from the task demands [escape function].” (b) “To maintain access to the cassette player, Jackie will spit at or hit the teacher when the teacher asks her to turn off the music [obtain tangible activity function].” and (c) “When Marco’s medication levels are low and he is asked to do independent seatwork, he is likely to begin screaming or hitting himself, and this behavior is maintained by getting teacher attention [social attention function].”

Note that there can be multiple statements for the same student, as certain behaviors may occur in one situation for one reason, but similar or other behaviors may occur in other situations for other reasons. It is critical to make sure that the full range of situations is identified so that they can all be taken into consideration in designing and implementing support strategies.

*5. Gathering Systematic Observational Data That Can Confirm or Disconfirm the Statements and Hypotheses.* Available methods of data collection vary

in potential validity and rigor. It has been recommended that, prior to development and implementation of interventions, the behavioral statements and hypotheses be assessed via collection of systematic behavioral observation data recording setting events, immediate antecedents, behaviors, and consequences.

### Data Collection Procedures in Conducting an FBA

The range of data collection activities conducted to assess the accuracy of a hypothesis statement might include interviews, rating scales, checklists, questionnaires, or conducting systematic observations in particular situations. In general, functional behavioral assessment data collection procedures fall into three main categories.

*Indirect or Informant Procedures.* These assessments involve gathering information from relevant persons (parents, teachers, the target student him- or herself) via interviews, rating scales, checklists, or questionnaires. While research has indicated that indirect FBA instruments and procedures can provide valid and important information, research results also have indicated examples where this information may not be trustworthy and helpful. Researchers are continuing to examine the variables that result in valid information from indirect FBA instruments. At this time, indirect FBA data gathering should rarely be the sole source of information in the assessment process. Outcomes from indirect FBA instruments should be validated via additional procedures (e.g., direct observation or functional analysis).

Depending on the focus student’s cognitive and maturity level, it is valuable for him or her to be part of the FBA process. If the student has the social and communicative skills to participate in an interview, his or her input would provide a valuable perspective. Student-guide FBA interviews have been used successfully with students who have diagnostic labels of emotional and behavior disorder, autism, and mental retardation.

*Systematic Direct Observation Strategies.* Systematic recording of data on the occurrence of behavior and related environmental events during routines and activities in typical settings such as classrooms includes antecedent-behavior-consequence (ABC) recording, interval recording, scatterplot recording,

and other formats, such as the Functional Assessment Observation Form. These data collection formats share common strategies in that they typically involve recording (i.e., marking on a data sheet) the occurrence of relevant antecedents to the problem behaviors, the behaviors themselves, and the maintaining consequences. These data can then be analyzed to identify consistent relationships among problem behaviors and categories of environmental events and to test the accuracy and validity of statements and hypotheses initially developed from indirect assessments.

*Experimental Functional Analyses.* In this procedure, environmental events are presented or withdrawn during relatively short sessions (10-15 minutes) to assess their influence on behavior. These might include obtaining desired items or activities, escaping from aversive situations (e.g., work requests), or obtaining social interaction. During these sessions, observational data are collected on the frequency of problem behaviors in the different conditions. For example, antecedent events may be manipulated, such as the presentation of particular tasks or activities such as listening to music or doing a math worksheet. Alternatively, different social responses (e.g., social attention) can also be provided when the student engages in a problem behavior to assess whether it increases the likelihood that the behavior will occur. Typically, these kinds of manipulations are systematically (experimentally) controlled to develop the best possible explanation of what variables are contributing to the occurrence of a problem behavior and why a student is engaging in it. Functional analyses have been used to both develop and validate hypotheses about the functions or purposes of problem behaviors.

*Is There a Best Approach?* There has been considerable debate about the most effective and efficient methods for conducting functional behavioral assessments. Some authors and researchers have contended that indirect assessments may not always provide valid information and that the experimental functional analysis approach provides the most precise and reliable data. Others have expressed concerns about functional analysis, such as safety problems and the need for trained personnel and resources to be able to carry them out effectively. Further research is needed on the comparative efficiency, utility, and validity of different assessment methods to help answer these kinds of questions. Until further research and practice produce

additional data-based guidance, the best approach to functional behavioral assessment is likely to be one that is individualized to particular situations, begins with less time- and resource-intensive strategies (e.g., indirect assessment instruments), and moves on to more demanding procedures (e.g., direct observation and functional analysis) as needed.

*Final Summary Statements and Hypotheses.* As described, the final outcome of the assessment process should be one or more statements or hypotheses that characterize the range of situations and functions concerning a student's behavior. It is critical to make sure that the full range of situations is identified so that they can all be taken into consideration in designing and implementing support strategies.

*Moving From Assessment to Intervention.* It is critical to keep in mind that the primary purpose of conducting an FBA is to provide logical guidance for the selection and implementation of intervention and support strategies. Validated summary statements and hypotheses serve as the basis for developing comprehensive, multi-component interventions that should address setting event, antecedent, skill acquisition, and consequence variables to promote positive behaviors and reduce or eliminate problem behaviors. Recent research documents that behavioral interventions consistent with functional behavioral assessment results are more likely to be effective. Several studies have compared interventions that were consistent with or not indicated (or contraindicated) by functional assessment results. In these cases, the nonindicated or contraindicated interventions were ineffective (or even resulted in a worsening of the problem behavior), while the interventions that were consistent with the functional behavioral assessment outcomes were effective at reducing problem behavior. These results emphasize that the core purpose of a functional behavioral assessment is to improve the effectiveness and efficiency of the behavioral intervention and that interventions conducted without a functional behavioral assessment may inadvertently result in deleterious effects. Implementation of individualized, intensive behavioral interventions without the guidance of functional behavioral assessment information is not recommended.

*Functional Behavioral Assessment as an Ongoing Process.* It is important to keep in mind that functional behavioral assessment is not something that occurs

once and never has to be repeated. Students are likely to experience changes over time with regard to their situations, preferences, and behavior. Therefore, various aspects of the assessment process may need to be periodically revisited to ensure that assessment outcomes and support strategies continue to be relevant and up to date. It is becoming more common for behavioral interventions to include evaluation data collection that allows ongoing functional behavioral assessment.

## RESEARCH BASIS

Identification of functional relations among behaviors and relevant influential variables has been a centerpiece of behavior analysis since its inception. The resurgence of interest in FBA with regard to problem behaviors can be attributed to (a) early demonstrations by Sidney Bijou in the 1960s of how functional behavioral assessment information could successfully guide clinical intervention, (b) the articulation by Edward Carr in 1977 of a conceptual model for organizing functional behavioral assessment information to address severe problem behaviors, and (c) the rigorous documentation by Brian Iwata and his colleagues in the late 1970s and early 1980s of formal functional analysis procedures.

Over the past 25 years, conceptual and technological development of FBA strategies has been the focus of hundreds of journal articles, books, manuals, workshops, CD-ROMs, and other materials. A critical component of this development is the large body of research studies that has demonstrated the efficacy and importance of FBA in developing and implementing comprehensive behavioral support strategies that reduce or eliminate problem behaviors and increase positive adaptive behaviors. These studies have shown that interventions based on FBA outcomes are associated with increasing positive and decreasing problem behaviors. This research has been especially important in demonstrating that intervention strategies based on FBA are more effective than strategies based on traditional criteria (e.g., diagnostic label or type of problem behavior).

Functional behavioral assessment has become an expected professional standard for behavior analysis, a core feature of positive behavior support (PBS), and, in some cases, a legal requirement (e.g., IDEA, 1997). There remain, however, significant questions requiring ongoing research. As mentioned, studies are

needed that compare the validity and utility of different assessment methods. This would allow identification of the most effective and efficient strategies for teachers and other support providers. A critical need exists for additional studies addressing strategies for implementation of FBA procedures in typical applied settings with the resources available. It is relatively easy to implement complex assessment and intervention procedures with the help of multiple highly trained research personnel, but it can be difficult to try to do so with limited personnel and skill resources. In addition, the effectiveness of FBA and related interventions has primarily been demonstrated with students with severe disabilities (autism, mental retardation). Further research will be critical for illustrating and guiding the application of FBA to other populations, such as students with emotional or behavioral disorders.

## RELEVANT TARGET POPULATIONS

The majority of the research on and application of FBA has involved students with severe developmental disabilities, such as mental retardation and autism, who were engaging in severe problem behaviors, such as self-injury, aggression, and material destruction. This has led to concerns about the generalizability of results to students with greater intellectual, cognitive, and adaptive capacity. For example, students with more severe developmental disabilities often engage in a variety of problematic repetitive behaviors (rocking, finger or hand flapping, head hitting or banging), either because of the self-stimulation that such behaviors provide or because they result in more socially mediated consequences (attention from others, escape from nonpreferred tasks or activities). Such behavior topographies may rarely be seen in students with other labels or diagnoses, such as emotional or behavioral disorders (EBD) or learning disabilities (LD). Instead, students with EBD or LD may be more likely to engage in verbal aggression toward others or a wide variety of other disruptive or destructive behaviors (talking out in class, tearing up materials).

However, although particular topographies of behavior may differ across populations, the general framework for understanding functions or motivations is applicable across such groups. Students with EBD or LD may be just as motivated by social attention, escape, or tangible items or activities, but they may engage in different types of behaviors to obtain them.

Also, the relevant consequences may take different and more subtle forms (a glance from a teacher, a sign of exasperation from a peer, a brief respite from task demands). These issues may make assessment and understanding of such behavior patterns more challenging but not impossible. While much more work is needed, research in recent years has increasingly demonstrated the applicability and effectiveness of FBA principles and procedures with a broad range of students, including students with milder disabilities (e.g., LD) and without any labels or diagnoses at all. Some of this work has taken place in regular education settings, further demonstrating the broad potential application of these approaches across different types of educational settings.

In summary, while a greater proportion of FBA research has demonstrated effectiveness with students with severe disabilities, a broad perspective on the literature supports the recommendation that FBA should be an integral part of intervention design for significant problem behavior in any student.

## COMPLICATIONS

The earlier sections address some issues that may complicate the assessment process, including the types of students, resources, and settings involved. One additional challenge concerns the use of FBA procedures in situations involving behaviors that occur infrequently but are of high intensity or severity when they do occur. Such behaviors, including vandalism, severe aggression, and drug and weapon offenses, typically result in student suspensions or expulsions. The low frequency and, often, covert nature of such behaviors make it very difficult to systematically observe and identify relevant setting event, antecedent, and consequent variables. This is a significant challenge, as such behaviors are of major concern in schools and result in serious negative outcomes for students and staff.

One way to meet this challenge is to try to understand how the low frequency–high intensity behaviors may be related to other problem behaviors that occur more often but are less severe. Being able to identify the factors that influence the higher frequency behaviors may aid in understanding the lower frequency and more problematic behaviors. For example, knowing that a student frequently engages in a variety of disruptive behaviors in the classroom and other school settings to obtain social attention from peers may help to explain the motivation or function of

infrequent but more serious school defacement and vandalism.

## CASE ILLUSTRATION

“Marisa” is a 10-year-old student who has been labeled as having autism and mild mental retardation. She is currently dividing her school time between a special education classroom and a regular fourth-grade classroom. Marisa is reading at about a second-grade level, and her math abilities are at about a first-grade level. She is able to readily communicate in most situations using three- or four-word phrases and is able to complete most self-care routines without much assistance or prompting. She struggles quite a bit socially, due to her communicative abilities and difficulty in understanding the “rules” governing many social situations. She consistently invades the personal space of others and insists that activities or games proceed according to her desires, which may or may not match the preferences of her peers. Marisa has a multiyear history of engaging in a variety of problem behaviors, including aggression toward peers, tearing up and throwing instructional and academic materials, and screaming and cursing directed at staff and students. These behaviors were of great concern to her parents, teachers, and peers and were putting her access to the regular classroom at risk.

The school psychologist spearheaded an FBA process for getting a better handle on Marisa’s behaviors. In this process, she worked with Marisa’s teachers, parents, siblings, and some of her school friends. The psychologist began by conducting assessment interviews with Marisa’s teachers and parents to identify her main classes of problem behavior and the setting event, antecedent, and consequent variables that were potentially related to them. These interviews were followed by a week of periodic classroom observations during activities reported as most problematic. Data were recorded on Marisa’s problem behaviors and related antecedent and consequent events. Analysis of the interview and observation data indicated that the peer aggression, screaming, and cursing were related to an absence of peer attention and interaction, as they were typically preceded by little such interaction and often resulted in peer reactions, mostly of a negative nature. There were also indications that poor sleeping patterns and fatigue increased the likelihood of such behaviors. The variables related to tearing up and throwing materials were somewhat less

clear, although task requests seemed to be involved. To try to clarify this situation, the psychologist guided the teachers in conducting a series of alternating 15-minute functional analysis sessions, during which either academic (e.g., completion of single-digit addition problems) or nonacademic (e.g., shoe tying) task requests were presented to Marisa. The data from these sessions indicated that Marisa was much more likely to respond negatively to the academically oriented task requests. The collaborative team therefore generated the following summary statements and hypotheses: (a) "When Marisa has slept poorly and has had little opportunity for peer attention and interaction, she will engage in hitting, screaming, or swearing at peers to obtain peer attention and interaction," and (b) "When Marisa is asked to complete non-preferred academic tasks, she will tear up or throw the task materials to escape having to complete the task."

The team used this information to develop a multi-component intervention and support plan for Marisa. Strategies included (a) developing a more consistent bedtime routine to facilitate increased sleep, (b) scheduling regular times and opportunities for peer interaction, (c) having peer tutors work with Marisa, (d) providing choices of academic activities during instructional time, (e) teaching more appropriate behaviors for initiating and maintaining social interactions with peers, (f) rewarding and reinforcing positive behaviors (e.g., providing peer attention contingent on appropriate social initiations), and (g) providing minimal or no response to problem behaviors, except as needed for safety reasons (e.g., continuing to present academic task requests even if tearing and throwing occurred). Data were collected on the occurrence of positive and problem behaviors. These data were reviewed weekly by school staff and every other week in conjunction with Marisa's parents. Jointly agreed-on changes were made in Marisa's support strategies as indicated during the remainder of the school year.

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*See also:* *Descriptive and Functional Analyses (Vol. I), Functional Analysis (Vols. II & III), Functional Relation (Vol. III), Function-Based Approach to Behavior Support (Vol. III), Functions of Behavior (Vol. III), Testable Hypothesis (Vol. III)*

### Suggested Readings

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