

## Functional Behavioral Assessment and Intervention with Emotional/Behaviorally Disordered Students: In Pursuit of State of the Art

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### Abstract

The application of functional behavioral assessment (FBA) procedures for the purposes of developing interventions for students with emotional and behavioral disorders (E/BD) has received considerable attention since the 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA). The purpose of this paper is to review the literature addressing the use of FBA with E/BD students in school settings and to discuss implications for a “state of the art” model that integrates empirically supported procedures with promising practices to be implemented within the ecology of current educational systems.

KeyWords: Functional behavioral assessment, functional assessment, functional analysis, indirect assessment, direct assessment, emotional disorders, behavioral disorders, descriptive analysis

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Since the 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA), schools have been required to conduct functional behavioral assessments (FBAs) and develop positive behavioral support plans for students with disabilities who were exhibiting challenging behaviors that interfered with their learning or the learning of others. Additionally, cumulative suspensions equaling or exceeding ten days within a school year were considered a change in placement and required the IEP team to conduct the FBA within ten days of the change in placement for those students if a behavior support plan was not in place at the time of the infraction. The 2004 revision of IDEA, The Individuals with Disabilities Education Improvement Act, softened the FBA requirements to include only those students whose disciplinary infractions are manifestations of their handicapping condition.

While the 1997 legislation did require the use of FBA for students exhibiting significant behavioral difficulties, it did not specify procedures or techniques to assess behavior for the purpose of determining function, thus no gold standard that details how to implement the mandate existed in 1997 and still does not exist. Some authors argue that the legislation was passed prior to the field having adequate empirical literature to demonstrate the use of these procedures with this population. In a review of 97 studies including 458 participants, Nelson, Roberts, Mathur, & Rutherford (1999) concluded that the research base on FBA with all populations was just emerging at the time of the mandate.

To comply with the legislation, school districts throughout the country were forced to establish FBA procedures and identify or prepare personnel who could conduct FBAs and prescribe behavioral support plans based on those assessments. School districts essentially had two choices: develop professional expertise in functional assessment for their school personnel, or secure the services of behavior analysts. Much of the initial efforts aimed at conducting school based FBA modeled the type of applied behavior analysis typically reported in studies in the *Journal of Applied Behavior Analysis* with subjects with developmental disabilities (DD) (Gresham, 2003).

Implemented practices in the schools relied less on research than on the “cottage industry” of FBA that grew out of legal necessity (Sasso, Conroy, Sticher and Fox, 2001). Increasingly then, developing forms of FBA and function guided behavioral intervention were proposed and evaluated in the research with greater rigor. At the same time, legal analysis of case law emerging since IDEA 1997

provided support for many aspects of what experts in the area would consider “best practices.” Etscheidt (2006) reviewed all cases from 1997 to present in which the development of a behavior intervention plan was the subject of the appeal. Several themes emerged from this review including the notion that, in students with IDEA eligibilities, behavior plans that include positive behavioral supports must be developed when behavioral needs are evident and the child’s learning (or the learning of others) is impacted. Secondly, behavior intervention plans must be individualized and based on a recent FBA that answers the question of “why” the behavior is occurring. Finally, treatment integrity must be assessed and a formative evaluation process implemented to inform the need for modifications.

In the first few years of IDEA 1997 implementation, the research on the application of FBA to intervention with students having E/BD or at risk for E/BD was mixed. There appeared to be no consistent trends that described a common or complete model of FBA that lead to function-based interventions. Much variability existed in the research findings relative to assessment measures, procedures, variables, procedural integrity, generalization of treatment effects and social validity (Heckaman, Conroy, Fox, & Chait, 2000). As practitioners and researchers gained experience applying FBA in the context of the 1997 requirements, function based interventions began to look less like the contingency based interventions of applied behavior analysis and more like behavioral instruction. Horner, Sugai, Todd and Lewis-Palmer (2000) proposed the “Competing Behavior Model” that specified the use of teaching “replacement behaviors” as central to function based intervention or Positive Behavioral Support (PBS).

With the advent of the No Child Left Behind Act, a results oriented accountability has been thrust upon public education. The standard of providing evidence based practices, while intended to raise academic achievement for all students is particularly applicable to students with emotional or behavioral disorders (E/BD) (Gable, 2004). Greater scrutiny will be applied to the educational practices that are used with students with E/BD. There is a need to move beyond the single subject design that typifies FBA and PBS research to extend to well-controlled experimental validation of PBS and function based intervention, especially with E/BD. It is within this historical backdrop that we describe the process of FBA and look toward what a “state of the art” approach to FBA might look like for E/BD students.

### *Components of FBA*

FBA is a process rooted in applied behavior analysis whereby relevant and specific data are collected to determine *why* a particular behavior occurs within a given context so that appropriate interventions can be developed and implemented. It differs from traditional assessment approaches which consider problem behaviors as they relate to internal pathology or other behavioral approaches which focus on the topography of behavior in intervention development (Asmus, Vollmer, & Borrero, 2002). Stated simply, methods employed in FBA “seek to systematically collect information about behavior and the antecedents and consequences surrounding it” (Gresham, 2003, p.284).

While there are no “hard and fast rules” regarding what procedures constitute a “state of the art” model for conducting FBAs in schools (Drasgow & Yell, 2001), there is consensus regarding the phases for collecting information relevant to identifying functions of behavior. Terminology varies considerably; however, FBA procedures can be categorized into one of the following (a) information gathering, (b) hypothesis formulation, and (c) hypothesis testing (Cone, 1997). The term functional analysis has often been used interchangeably with FBA; however, it is more accurate to consider FBA an umbrella term that includes both indirect and direct assessments, which guide phases one and two, while functional analysis is typically included in phase three as a means of directly manipulating environmental variables to test or confirm hypotheses.

As in any sound assessment process, FBA should include multiple methods of information collected from multiple sources (Neilsen & Mcevoy, 2004). Sugai et al., (2000) maintain that the process should result in three distinct outcomes. Hypothesis statements which include operational definitions of the problem behavior, as well as descriptions of the antecedents and consequences that predict the occurrence or maintain the problem behavior should be generated. Second, there should be direct observation data that supports the hypotheses. Third, a behavior support plan should be generated which is clearly linked to the hypotheses verified in the assessment phase. Other researchers have questioned the need for direct observations or analog assessments as a matter of course in every case, particularly when considering students within general education settings (Scott, Bucalos, Liaupsin, Nelson, et al., 2004).

Consistent with the literature regarding key components of the FBA process, no consensus was found in the literature with regard to which assessment instruments/procedures must be included in an FBA in order to conclude that the procedures were valid, although review of the literature suggests that direct measures are almost always included in FBAs (Sasso et al., 2001). Further, within the categories of direct versus indirect measures, a plethora of options exist; however, many of these instruments were developed for use with developmentally disabled populations rather than E/BD and have not been extensively evaluated as to their reliability and validity with other populations (Quinn et al., 2001). Gresham (2003) extended this discussion of the measurement challenges inherent in applying FBA to at-risk students or students identified as having high incidence disabilities in school settings and concluded that much work is needed in terms of extending the FBA methodology to this population. Within this context, a review highlighting the strengths and weaknesses of the various types of assessment follows.

Indirect assessments typically consist of structured interviews, scales, checklists, or questionnaires designed to be completed by the child, him/herself, or by someone directly responsible for the child (such as the teacher or primary caregiver) in order to provide information regarding the target behavior and the antecedents and consequences surrounding it. Commonly used indirect instruments in the literature include the Motivation Assessment Scale (MAS; Durand & Crimmins, 1988), the Questions About Behavioral Function (QABF; Matson & Vollmer, 1995), the Functional Assessment Interview (O'Neill et al., 1997), the Student-Assisted Functional Assessment Interview (Kern, Dunlap, Clarke, & Childs, 1994), the Functional assessment checklist for teachers and students – Part A & B (FACTS-A&B; March et al., 2000) and the Functional Assessment and Interventions Program (FAIP; University of Utah, Utah State University, & Utah State Department of Education, 1999).

Indirect assessments are less time consuming and require less experience to administer and score, thereby being the most feasible way to measure the behavior for a specific child (Floyd, Phaneuf, & Wilczynski, 2005). However, indirect assessments are criticized because those completing the reports may have trouble recollecting events and/or personal judgments may confound the results causing evaluators to come to incorrect conclusions or hypotheses. While there have been no set guidelines for the use of indirect measures and studies demonstrating their validity are difficult to find (Floyd et al.), researchers are addressing the validity of these types of assessments with regard to their convergence with more direct forms of assessment in an effort to inform practice (Floyd, et al.; Newcomer & Lewis, 2004; Hartwig, Heathfield, & Jenson, 2004).

Direct assessments consist of direct observations of student behavior either in a natural setting or in a setting where the behavior is likely to naturally occur (Quinn, Gable, Rutherford, Nelson, & Howell, 1998). Behavior records are usually done on scatter plots, (Touchette, MacDonald, & Langer, 1985) through descriptive analysis, (A-B-C; Bijou, Peterson, & Ault, 1968; Lalli, Browder, Mace, & Brown, 1993) or analyzed using conditional probabilities (Lalli et al.). Direct assessments are beneficial because the student is observed in the natural setting and confirmation of data obtained from assessments remote in time and place are possible.

There are disadvantages associated with direct assessments that may reduce the feasibility or preclude their use in school settings with E/BD students. The FBA procedures used with DD populations frequently focused on easily observable, recurrent, high frequency behaviors; however, with many students who require FBAs because of out-of-school suspensions, the behaviors tend to be of low frequency and high magnitude. Examples of such behaviors include the possession of weapons and drugs, and serious acts of aggression, which do not lend themselves to direct observations. Further, it may be intrusive to the environment for a researcher to enter it, there may not be trained assessors available for observation, or reactivity effects may occur due to a researcher's presence (Asmus et al., 2002). For these reasons, many authors suggest that indirect assessments are a necessary component of FBAs and need to be included in the process. More research is needed concerning the usefulness, applicability, and reliability and validity of both indirect and direct methods in assessing function with E/BD children.

The third phase of data collection reported in the literature is experimental or functional analysis which is employed in order to confirm or test hypotheses generated in previous phases. Students are observed directly under control conditions, as well as experimental conditions of high and low attention and high and low task difficulty or demand. Rates of problem behavior are compared between conditions (e.g. attention and escape) to establish function probability. In the DD literature, the use of analog assessment to confirm the function of behavior is a standard approach (Ervin, Radford, Bertsch, Piper, Ehrhardt, & Poling, 2001); however, in school settings, administrators may be reluctant to allow personnel to create analog conditions to purposefully elicit high rates of problem behavior that may be disruptive or destructive (Heckaman et al., 2000). In contrast, when investigating the function of low frequency behaviors, direct observation may not be possible, making analog assessment particularly useful (Johnston & O'Neill, 2000). In studies with DD populations, applied behavior analysis experts are generally the individuals implementing FBA procedures, most often in clinic settings. The research is yet to provide clear focus regarding how these procedures can be implemented in the schools and when these more expert, time-consuming procedures are warranted.

### *Toward State of the Art in FBA*

A state of the art model for conducting FBAs in schools seems just as elusive now as it was in 1997. Just as behavior analysts would argue that individual student behavior must be investigated within the context in which it occurs and operants determined prior to developing intervention plans, it is the unique characteristics of systems, programs for E/BD students, and the students and stakeholders themselves that make it such that a "one size fits all" model has not been forthcoming. Within the context of implementing IDEA 1997 and now IDEA 2004, unique features of districts, schools, and students must be considered and FBA methods and intervention plans tailored to fit within the ecology of those systems (Sugai et al., 2000). In terms of the literature informing those working with E/BD students in school settings, significant gains have been made. Our empirical base for conducting FBAs has grown substantially in the past nine years and includes numerous studies demonstrating positive results in behavior change with E/BD students (Lewis, Hudson, Richter, & Johnson, 2004; Stage et al., 2006). Further, studies directly comparing function-based versus non-function-based interventions have been generally supportive of the assumption that individualized assessments geared toward determining function are necessary to obtain maximal results (Ingram, Lewis-Palmer, & Sugai, 2005; Newcomer & Lewis, 2004). Out of this literature emerged implications and promising practices that propel us toward a state of the art model of FBA that can be modified to fit within the context of established educational systems.

### *Increasing time and resources through prevention*

One very salient and critical aspect in utilizing FBA with E/BD students is the allocation and use of personnel resources in addressing students referred to administration for behavioral infractions. The

development of a state of the art model for applying the FBA literature to applied practice in the schools begins with those involved in the process “working smarter” to free school personnel to address more challenging behavioral problems in a more comprehensive manner.

The current state of the literature suggests promise in maximizing positive outcomes through prevention efforts that include tiered models of prevention/intervention. Positive Behavioral Support (PBS) is gaining a foothold in general education settings and the literature regarding the effectiveness of this approach is growing. In one study, Sugai and Horner (2006) described a three-tiered system of behavioral intervention called School-Wide Positive Behavioral Support (SWPBS). SWPBS uses behavioral data to identify students in need of intervention. Behavioral support and the complexity of the behavioral assessment utilized to prescribe that support changes as a function of student need and student response to intervention. At tier one, the emphasis is on the prevention of behavioral difficulties through proactive approaches. School environments are arranged to discourage problem behavior, adaptive skills are taught through the curriculum and positive reinforcement is systematically delivered throughout the school. Non-function-based group or individual interventions are applied at tier two for students who require more support than available at tier one. Finally, when students are not responsive to intervention at tier two, FBA prescribed, individualized interventions which are developed by school based professional teams are applied. These interventions are often implemented by special education personnel in E/BD programs and are estimated to be needed for one to seven percent of the population (Sugai, Sprague, Horner, & Walker, 2000).

Preliminary evidence regarding the effectiveness of PBS models suggests that discipline rates are reduced by incorporating tiered systems of intervention (see Oswald, Safran, & Johanson, 2005; Kern, Hilt, & Gresham, 2004, for a review of the literature on PBS past applications and results). For administrators, when discipline referrals are significantly reduced, more time and personnel can be spent on working with E/BD students who often demonstrate the most need. Without a system of reducing the total number of office and team referrals, we would argue that the ability of schools to effectively implement a true functional behavioral assessment process with E/BD students in the “spirit” of the law is limited.

While the literature would suggest that group, non-function based interventions are often applied effectively with a percentage of the school’s population (Scott & Eber, 2003), this is often not comprehensive enough to meet the needs of E/BD students. Often, group interventions are used to manage the E/BD student’s behavior in special education settings and interventions that are individualized and function-based are not considered until behavior reaches the level of severity necessitating or cumulating in a ten-day suspension. It is often then, and only then, that teams convene to consider why the problem behavior(s) occurs and the contextual variables surrounding it. It is our contention that this state of practice is mediated by the lack of time and personnel resources to do it all. Tiered intervention models provide promise in terms of schools being able to attend to the behavioral and social needs of all students by addressing a significant proportion of the population through prevention before these individuals warrant more intensive intervention.

#### *Focus on antecedent-based curricular interventions*

There has been an increased focus on antecedent-based interventions to inform teachers as to how to structure the classroom for success (Stichter, Conroy, & Boyd, 2004). Antecedent interventions focus on the events that precede or occur during the targeted problem behavior. Some examples of these events include physiological states, environmental factors, or social events. This focus moves away from the traditional view that focuses on the functions of the behavior by controlling the consequences. In essence, antecedent interventions reduce or eliminate the need (that the function serves) for the problem behavior by increasing the reinforcing nature of the situation or reducing its aversive tendencies.



Within the context of antecedent based intervention, a state of the art model would also give due consideration to the link between academics and behavioral difficulties for E/BD students. Much of the problem behavior that is exhibited in E/BD students is related to academic task avoidance or escape. Determining the instructional level and tailoring the curriculum to the skill level of each student is one of the most basic interventions likely to reduce problem behavior mediated by avoidance/escape. In our experience in E/BD classrooms, teacher focus is on the behavioral and/or social needs of the students, rather than on their academic needs. We would argue that, in the pursuit of creating a school environment that would allow FBA to be addressed in a state of the art manner, creating classroom settings that focus on and foster academic achievement of E/BD students is critical. Similarly, structuring the environment to prevent or reduce the likelihood of problem behaviors is also important.

### *Building Team Capacity*

The state of the art would suggest we consider the “spirit” of IDEA 1997 and 2004 to include a true team-based approach whereby personnel are included who have sufficient expertise to provide relevant information regarding the function of behaviors within specific settings. Some authors recommend training various school and district level personnel to different competence levels depending on the role required of them in the team process (Conroy, Clark... 1999). At the highest level of training, team members should be able to effectively use not only FBA procedures, but to select effective interventions linked to function, and to develop procedures for monitoring whether interventions are implemented with integrity, result in desired outcomes including long-term behavior change, and are socially valid.

In a promising study investigating the effectiveness of a training model to teach school-based teams FBA and behavior support planning, Chandler, Dahlquist, Repp, & Feltz (1999) concluded that teams can learn to effectively conduct FBAs and develop function-based interventions under certain conditions. In this study, highly trained consultants guided the FBA process in the classroom setting, modeled application of strategies and provided feedback and reinforcement to staff over a four-month period.

More recent studies also provide empirical support that school-based teams can conduct FBAs and develop interventions with researcher assistance (Kern, Gallagher, Starosta, Hickman, & George, 2006). Similarly, recent studies investigating teacher ability (with researcher support) to conduct various aspects of the process have reported positive outcomes in relation to conducting functional analysis conditions in the classroom setting (Kamps, Wendland, & Culpepper, 2006; Wright-Gallo, Higbee, Reagon, & Davey, 2006) and in producing summary statements to identify the probable function of behavior to focus interventions (Packeham, Shute, & Reid, 2004). While more rigorous empirical investigation is clearly needed, these studies provide some support that teachers can be trained to implement aspects of the FBA process and subsequently implement interventions and that school-based teams can be effective in independently conducting FBAs and developing function-based interventions.

Given the current literature, we propose that a combination of an expert consultant and team members trained to various levels of proficiency in the process is perhaps the most feasible and potentially effective means for school systems to implement a state of the art FBA process. Teams should also include parents as active participants in the process, as preliminary studies suggest that the input of parents with regard to unique information regarding child behavior may significantly improve the effectiveness of the process and lead to increased generalization and maintenance of desired behaviors (Peck-Peterson, Derby, Berg, & Horner, 2002). Further, for students functioning at the level necessitating FBA and a behavioral support plan, we can assume that partnering with the family (and perhaps, the community) would improve the likelihood of positive outcomes (Scott & Eber, 2003).

*Tailoring Procedures on Case-by-Case Basis*

Some evidence suggests that indirect or descriptive analyses may be sufficient for determining function with many students exhibiting problem behavior (Heckaman et al., 2000). Other studies report a lack of convergence of indirect and direct assessment procedures in hypothesizing function, suggesting the need, in some cases, for using analog assessments to confirm preliminary hypotheses. Given the state of the literature, we would again posit that it is the unique aspects of the student (problem severity, history of patterns of behavior), classroom (teacher skills and training), and school (expertise of team members in FBA) that dictate the rigorosity of the procedures needed and the ability of the team to conduct a meaningful FBA. Behavior analysts would likely recommend that even in applied settings with milder problem behaviors, functional analysis is required in order to maximize the likelihood that the true function(s) of behavior are determined. School personnel and practitioners would indicate that, unless procedures fit within the ecology of the school and district, they will not be implemented with integrity. Our position follows that of Yeaton and Sechrest (1981) when designing interventions: use the “weakest that works.” In this mode, we include a discussion of promising indirect assessment measures next.

When considering state of the art in selecting assessment methods, a review of the limited validity and reliability literature on a small number of the indirect instruments leads to narrow recommendations for state of the art in the area of assessment. We direct our focus to indirect measures, as they have the most promise in terms of consistent use by school-based teams. The FAI, an interview for parents, teachers, and caregivers has been extensively used in practice and research and several articles have analyzed its validity and reliability (see Floyd et al., 2005 for a review). The FAI gathers information about the individual child’s problem behaviors, the setting in which they occur, the antecedents and consequences that may be attributed to the maintenance of the behaviors, and possible ways that the behaviors gain reinforcement. The FAI allows the evaluator and teacher or caregiver to determine hypotheses about the functions of the identified problem behaviors. It is recommended because of the number of studies published on its validity, its thoroughness, popularity, and usefulness in generating hypotheses.

Another consideration in building a state of the art model of FBA would include procedures that are made easier because of technology. A new and promising assessment instrument is the FAIP. The FAIP is a computerized indirect assessment tool that allows the practitioner or teacher to answer questions in interview form that will subsequently create a profile of the child, his or her deficits, and the maintaining antecedent or consequential events. Unique to the FAIP is that it also will generate a list of empirically supported interventions fitted to the child’s problem areas. Hartwig, and colleagues (2004) found that the FAIP had good test-retest reliability and adequate interrater reliability and concurrent validity. Convergence with other indirect assessments was also adequate. Further, consumers using the FAIP found it to be the most useful when compared to two other common indirect instruments; it was clear in its instructions, provided useful interventions, had high convergence with each practitioners’ opinions, and provided new and useful knowledge about behaviors and their functions.

School teams that are responsible for conducting FBAs and developing behavioral interventions should be at liberty to select from a variety of assessment techniques that have been empirically validated for the purposes and populations for which they are being used. The literature is emerging with regard to selection of the measures that meet these criteria. A state of the art model would suggest that the rigorosity of the process be tailored as needed and the measures selected for use in each FBA be based on the unique aspects of the case.

### Conclusion

A state of the art model for conducting FBA with E/BD students in school settings is a work in progress. Since IDEA 1997, tremendous gains have been made with regard to informing practitioners about empirically based procedures applicable with this population. Despite the progress, there continues to be a need for further empirical studies, as well as a research to practice gap that must be addressed. Building a state of the art model of FBA and behavioral supports for students with E/BD requires educators and school personnel to balance the requirements of the law with what can be reasonably accomplished within the contexts in which they work. In order to bridge this gap, we suggest that the following areas need further empirical investigation: 1) increasing existing resources through prevention and tiered intervention efforts, 2) shifting the traditional focus on consequent-based interventions to include antecedent interventions, 3) providing training methods that are effective in preparing team members to different skill levels (many with basic skills, some with greater knowledge and a very few with expert level knowledge) to utilize a continuum of assessment options from indirect to direct to functional analysis as needed, 4) tailoring methodological rigor as needed to conduct FBAs that lead to informed decisions about function-based intervention, and 5) addressing the validity of various measures and expanding the use of technology to simplify data collection procedures. Establishing guidelines in using the FBA process and developing positive interventions within the context of individual schools and districts would help to close the research to practice gap and provide children and educators with information containing the most effective, evidence-based practices available.

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