

EFFECTS OF TRAINING IN FUNCTIONAL BEHAVIOR ASSESSMENT

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The purpose of this study was to investigate the effectiveness of training special education teachers in the process of functional behavioral assessment (FBA) and subsequent development of recommendations to promote behavior change. An original evaluation instrument was developed that included measures of special education teachers' knowledge of function of problem behavior and their ability to generate recommendations to promote behavior change. The instrument was distributed to elementary, middle, and high school special education teachers in a large urban school district. Teachers trained by the school district in the FBA process were compared to untrained teachers. The study incorporated a post-test only design, with data analyzed using a factorial ANOVA. Those teachers who were trained in the district FBA program answered multiple-choice questions related to the function of problem behavior more accurately than those who did not receive training. There was no significant difference between trained and untrained teachers on their ability to make recommendations to promote behavior change. The results of this study have implications for the development of initial and sustained training efforts for teachers in functional behavioral assessment methods.

Problem behavior can have an adverse effect on the learning and physical safety of students and teachers, therefore, the actions taken in response to problem behavior are critical. Whether these problem behaviors disrupt instructional routines (e.g., talking out, leaving class without permission) or pose threats to the safety of teachers and students (e.g., physical altercation, destroying property) educators are responsible for implementing efforts to reduce or completely extinguish these behaviors. At issue is the development and selection of behavioral interventions at the classroom level. Although the interventions teachers choose to change problem behavior are varied, they are not always effective. Ishii-Jordan (2000) found that teachers frequently select punitive interventions (e.g., punishment, threats) for students when they display behaviors that interfere with teacher routines, regardless of whether the interventions actually change the problem behavior.

The wide scale use of punishment procedures highlights the continual emphasis on a narrow range of behavior change methods, in spite of the availability of many empirically validated methods. Fox, Conroy, and Heckman (1998) discussed three salient points in relation to the effectiveness of behavioral interventions. First, virtually every behavioral procedure has been shown to be effective in dealing with the challenging behaviors of *some* children, but are often less effective with others. Second, behavioral gains may be lost when the intervention is removed. Third, it is not always apparent which of several behavioral procedures should be applied simply from an examination of the behavior itself.

Two factors have had an overwhelming influence on behavior change methods. First, the reauthorization of the Individuals with Disabilities Education Act of 1997 (IDEA 1997) required the use of functional behavioral assessments and the use of positive behavioral supports to develop, review, and/or revise a behavior intervention plan [IDEA '97, 615 (k)(1)(B)] and the requirement continued under the 2004 reauthorization. The second change emerged from extensive research on pre-intervention methodology used to determine the function or purpose of problem behavior before implementing an intervention. By determining the function of problem behavior and then using this information to develop an intervention, function-based interventions are typically more effective than simply imposing interventions based on topography of problem behavior (see Carr, 1977; Iwata, 1982; Mace, 1994).

Each of these changes has influenced professional practice in education. All educators are bound by the requirements first delineated in the 1997 version of IDEA which were developed in direct relation to the research advancements made in applied behavior analysis and the advocacy efforts of families and educators. While Nelson, Roberts, Rutherford, Mathur, and Aaroe (1999) have argued that the policy (i.e., IDEA 1997) may have surpassed the current professional practice, and Gresham (2003) argues that a number of critical questions regarding the use of function-based versus non-function-based remain unanswered, educators are still faced with the task of fully utilizing the FBA process as directed in IDEA.

Functional behavioral assessment (FBA) is the process of identifying the events that reliably predict and maintain problem behaviors before an intervention is determined (Scott, Nelson, & Zabala, 2003). The purpose of functional assessment information is to improve the effectiveness and efficiency of behavior support (Horner, 2000). With IDEA 1997, Congress sought to help schools (a) respond appropriately to behavior problems of students with disabilities, (b) promote the use of appropriate behavioral interventions, and (c) increase the likelihood of success and school completion for some of our most at-risk students (Hartwig & Ruesch, 2000). Whether intended or not, one consequence of the IDEA 1997 legislation and subsequent reauthorization requires nothing short of a full scale training effort to enable educators to acquire the skills necessary to learn and use FBA technology.

The key to effective implementation of FBA and intervention models depends, in part, on effective staff development. This includes trainers' ability to create a comprehensive and interactive training program, encourage school-wide implementation, and facilitate successful outcomes via ongoing support (Crone, Hawken, Bergstrom, 2007; Scott & Nelson, 1999). To build competence in the use of FBA, schools should (a) establish a philosophical foundation that all students should remain in school, (b) create support within school systems for implementing FBA, and (c) educate professionals within the school in the competencies necessary to conduct FBAs (Conroy, Clark, Gable, & Fox, 1999). In response to the complexity of FBA methods, a comprehensive in-service training component is one method to develop competence among school personnel who may have varying levels of knowledge and skills (Crone et al., 2007; Conroy & Davis, 2000). School-based personnel should have access to comprehensive frequent training sessions to assist those individuals with varying levels of skills. According to Quinn (2000), individuals charged with conducting a FBA should have intensive training in direct and indirect data collection procedures, and choosing and implementing appropriate interventions. The ability of school-based personnel to actively deliver training will largely dictate the success of FBA. To date questions remain about the feasibility of school-based personnel to acquire knowledge in the FBA process and subsequently use the process to develop behavioral interventions (Scott, McIntyre, Liaupsin, Nelson, Conroy, & Payne, 2005).

The purpose of this study was to evaluate the efficacy of a short-term, intensive training effort on special education teachers' knowledge and skills about FBA. Special education teachers in a large school district in the southeastern section of the United States were evaluated on their knowledge about function of problem behavior and their ability to recommend a procedure to promote behavior change procedures that would result in a relatively quick but long-lasting change. Previous studies in the area of functional analysis have been conducted and resulted in demonstrating that undergraduate students can demonstrate competence in functional analysis (Iwata et al., 2000). In regard to schools, Ervin and colleagues concluded from a review of studies that researchers or other professionals, rather than school-based personnel, typically conducted the FBA process (Ervin et al., 2001). In contrast, this study targeted special education teachers' abilities to (a) identify the function of problem behavior, and (b) make recommendations to promote change in problem behavior. Specifically the study set out to answer the following research questions: (a) is there a

difference in the ability of untrained and trained teachers to identify the function of students' problem behavior as a result of a brief training program conducted by a large urban district and (b) is there a difference in the ability of untrained and trained teachers to make recommendations to change problem behavior as a result of a brief training program conducted by a large urban district?

Method

This research was conducted in a large urban school district in the southeastern United States. For a number of years, the district has made an effort to train the vast majority of teachers working with students with disabilities. In response to a concern about appropriate interventions for problem behavior and federal legislation, the district initiated this large-scale training program in functional behavioral assessment.

Participants

The Survey of Intervention Practices Used for Students Exhibiting Challenging Behavior, was distributed to all special education teachers in 16 district schools. Each school was chosen based on a professional affiliation with the first and third authors. The district training initiative focused on training special education teachers working in schools with large numbers of special education teachers (i.e., a minimum of 12). A total of 250 instruments were distributed. Every special education teacher in each of the 16 schools was given a copy of the instrument for completion. A total of 125 instruments were returned and suitable for analysis. All special education teachers employed in the 16 district schools were encouraged to participate in the study to offer the district information about the efficacy and efficiency of the training process. Of the 125 participants, 73 were trained or took part in the district training sessions, while 52 were untrained or did not take part in the district training session.

This study highlights the initial efforts of the school district to investigate the effectiveness and efficacy of training special education teachers in the FBA process. Many of the school sites were chosen because the special education staff members employed at these sites would need to conduct FBAs.

Table 1

Functional Behavioral Assessment District Training

Term	Definition
Challenging Behavior	Challenging behavior can be problematic if: (a) it occurs in <i>excess</i> (e.g., long duration or high frequency), (b) it is a <i>deficit</i> (e.g., does not occur at all or lower frequency than expected), or (c) it is <i>exhibited out of context</i> (e.g., behaviors that are appropriate to specific settings).
Function	Participants were informed that all human behavior serves <i>some purpose</i> and when conducting a functional behavioral assessment, the <i>function is synonymous with purpose</i> .
Behavioral Functions	Positive Reinforcement Functions include: (a) attention, (b) tangible reinforcement, (c) sensory consequences Escape and Avoidance Functions include: (a) academic and task demands, (b) other people, and (c) aversive physical sensations and personal states
Linking Interventions to the Functional Behavioral Assessment	When a behavioral intervention plan (BIP) is needed, the choice of intervention is influenced by whether the behavior is an excess, a deficit, or displayed out of context. The BIP involves using an instructional model (e.g., interventions that highlight skill instruction).

District Training

To institute the FBA requirements of IDEA 1997, district personnel worked collaboratively with personnel from a local university to develop a short-term in-service program (Brady, Vaccaro, Niles, Brookner, Murray, & Perez, 1998). The district training structure included three full days of training, case studies, and

role-play activities. The first two days were consecutive and the third day was separated by six weeks. During the six-week break in between the second and third training days, participants were given a homework assignment in which each participant responded to a series of short-answer questions about function of problem behavior (e.g., *What does function of behavior mean?*). The training sessions were conducted in large groups ranging from 45 to 100 participants. Each training day included seven hours of training and all participants were given a manual detailing all the information presented visually and orally on each of the three days (see Table 1 for details about the district curriculum).

The content of the district FBA training included two foci:

1. Background of FBA and the ability to identify function, and
2. Basic meaning and purpose of behavioral interventions. The interventions were taught through a series of *guiding questions*, (e.g., *Could the problem behavior be altered by teaching the student a more efficient way to communicate?*). The use of the guiding questions and the *classes* of interventions were intended to give participants a basic understanding of intervention type (e.g., communication training), how problem behavior can be reduced or eliminated, and how a new behavior can be taught (i.e., replacement behavior).

The district curriculum contained a section entitled: *Linking Interventions to the Functional Behavioral Assessment: The Behavior Intervention Plan*. In this section participants were specifically taught how to make clear connections between information garnered during the FBA process and the development of a behavior intervention plan that contained two key components: (a) interventions should match the function of problem behavior and (b) interventions should use an *instructional* model that highlights pro-social skill acquisition. Participants were introduced to a number of *classes* of interventions that can be tailored to match function of problem behavior. The classes of interventions include (a) communication training, (b) curricular revisions, (c) instructional delivery, (d) teaching prerequisite skills, (e) making reinforcement more explicit, (f) behavioral self control, and (g) choice making. These classes were further delineated into questions that participants were taught to use as a guide to develop an intervention that matched function and promoted the development of a skill (e.g., *Could the problem behavior be altered by teaching the student a more efficient way of communicating? or Do new prerequisite skills need to be taught so that the student can perform a task better?* (Brady et al., 1998).

Instrumentation

An evaluation instrument entitled, *Survey of Intervention Practices Used for Students Exhibiting Challenging Behavior*, was created for the purposes of this study. The instrument is divided into three sections. The first section asked participants to indicate whether or not they had participated in the district-sponsored training. This information was used to create the trained and untrained groups of participants. The respondents were also asked to provide demographic information. First, participants were asked to identify their teaching certification status (i.e., certified, not certified, or seeking certification). Second, participants were asked to identify their professional assignment (i.e., the presence of students of students with and without disabilities in their classrooms). Third, participants were asked to identify the grade level taught. Fourth, participants were asked to indicate their teaching experience as measured in three-year ranges (e.g., 0-3). Fifth, participants were asked to indicate any special behavioral training they may have received (e.g., university courses or training in Applied Behavior Analysis). Finally, participants were asked to indicate whether they held certification in behavior analysis (e.g., BCBA).

In section two of the instrument, five scenarios were presented. Participants were asked to perform two tasks:

- Read the scenarios
- Answer two questions (one multiple-choice and one open-ended).

The first question asked participants to identify the function of the problem behavior. Respondents were provided all six functions used in the district training, and were asked to choose the answer best reflecting the function of problem behavior. The second question asked participants to make a recommendation to promote behavior change. This question was open ended, with no further prompts to use the *guiding questions* that were the focus of the district training, or other interventions preferred by the teachers. The question was designed to act as a starting point for making intervention recommendations and did not

constitute a complete behavior intervention plan as described by scholars in the field (see Horner, 1999-2000). The *recommendation for behavior change* was not a behavior intervention plan, but rather a brief statement (e.g., two to four sentences) including but not limited to one or more of seven *guiding questions* for behavior interventions included in the district training. An example of a scenario, a multiple-choice question and the open-ended question about the behavior change recommendation are presented in Table 2.

Table 2
Sample Scenario and Questions

Scenario	Survey Item
<p><i>Scenario:</i> Mary is an eighth grade student with mental retardation who attends four special education courses with one special education teacher and an instructional aide. On a typical day the special education teacher requires Mary to engage in two to three guided tasks and two to three independent tasks. Mary is actively involved in most of her non-academic tasks (e.g., vocational preparation). Mary does not show the same enthusiasm for the academic tasks.</p> <p><i>Problem Behavior:</i> The IEP team has determined that Mary is not attentive during academic task presentations. She pushes her papers off her desk and yells out to the teacher and/or aide that, "academics are stupid." Even after the papers are placed back on the desk, she continuously seeks assistance after the teacher or instructional aide has left her side. The assistance Mary seeks is not related to the task, but rather requests for the restroom or snacks. Mary does not complete any portion of her academic task.</p>	<p>What is the most likely function that Mary's behavior serves?</p> <ol style="list-style-type: none"> get attention get rewards/activities get sensory feedback escape peers/adults escape tasks escape personal states <p>Provide a recommendation to the teacher for an intervention most likely to result in effective (i.e., rapid and semi-permanent) control of Mary's problem behavior.</p>

In section three of the instrument, participants were asked to complete five multiple-choice questions (see Table 3 next page for a list of the questions). These questions were designed to evaluate the participants' knowledge of function of problem behavior. The district training materials included a focus on the function of problem behavior and interventions derived from a hypothesized function. In this section, participants were asked about the meaning of function of problem behavior and the various functions that problem behavior may serve. This included three positive reinforcement functions and three escape and avoidance functions.

Although the instrument designed for this study did not undergo a formal standardization process, several actions were taken to strengthen it. First, a panel of five individuals with extensive expertise in FBA contributed items and provided input on content structure and organization. Second, a pilot version of the instrument was administered to 31 students in a school psychology program at a local university. These individuals provided extensive feedback on the clarity of the items. Based on the input of the panel and the pilot administration, the instrument was revised. A total of 16 instruments were randomly chosen from the pilot administration for further review. The first and second author reviewed the responses to the open-ended questions for consistency when using the scoring rubric (see below for further details on the scoring rubric). All 16 instruments were independently scored using the rubric. Inter-observer reliability was collected on each of the recommendations provided by the pilot participants, yielding 80 total recommendations for review. Agreement was calculated by comparing agreements on the number of matched scores for recommendations based on the scoring rubric. Results of this additional review yielded an inter-rater reliability range of 66%-100% agreement. Interested readers may obtain a copy of the instrument and scoring rubric from the first author.

Research Design

This study employed a post-test only experimental design. A post-test only design is appropriate for group comparisons when pre-testing is not possible (Campbell & Stanley, 1963), such as when evaluating the effects of larger scale staff development and educational interventions, or when the logistics of the intervention (e.g., available time for teacher participation) precludes careful pre-testing. Knowledge gained from post-test designs is most robust when participants are randomly assigned to experimental conditions,

or when group membership is matched on participants' most salient characteristics (Gay, 2003). In this study, salient participant characteristics were identified during a post-hoc analysis to determine whether group differences would be explained by the demographic differences. The participant characteristics included: (a) teacher certification status, (b) type of educational assignment, (c) experience, and (d) other specialized training.

Table 3
Multiple Choice Questions

Area of	Item
Knowledge	
Function of behavior is synonymous with a "purpose" for behavior.	The underlining notion of a functional behavioral assessment is that all behaviors _____ ? a. serve a purpose. b. are symptoms of a disability. c. are based on medical factors. d. are controlled by the environment. e. cannot be changed.
"Positive" events that occur after a behavior influence the behavior to occur again in the future.	Many of the behaviors students engage in provide some sort of "payoff." This "payoff" is referred to as _____. a. negative reinforcement b. delayed reinforcement c. positive reinforcement d. intermittent reinforcement e. differential reinforcement
Terminating "negative" events can influence certain behavior to occur in the future.	In schools many children may "communicate" their dissatisfaction with people, places, or demands of an environment through problem behaviors. This "communication" is referred to as _____. a. negative reinforcement b. delayed reinforcement c. positive reinforcement d. intermittent reinforcement e. differential reinforcement
Successful behavioral interventions must use techniques that "match the function," or serve the same purpose as the problem behavior.	One of the critical features of a behavior intervention plan is that the chosen intervention _____. a. punish the student. b. match the function. c. remove the student from class. d. involve the parent. e. involve the school site administrator.
Pro-social behaviors have to be taught using an instructional model.	If a behavior intervention plan is designed to teach students a skill as opposed to implementing traditional management procedures, the plan is using a(n) _____. a. effective punishment procedure. b. number of techniques at one time. c. school approved behavior management plan. d. instructional model. e. district wide behavior management plan.

Data Collection and Analysis

The first author distributed the evaluation instruments to special education teachers at each school site by making contact with a designated teacher and/or administrator. The distribution of the evaluation instruments entailed: (a) an initial phone call to make contact with a teacher and/or administrator, (b) a designated time to deliver the evaluation instruments and give instructions for completion, (c) a designated time frame to complete the instruments and (d) a designated time for instruments to be collected for analysis. Special education teachers in 16 different schools were asked to participate in the study.

Each section of the evaluation instrument was analyzed separately. In section one; the demographic information was analyzed for the distributions of the various characteristics of the participants. This information was used to define the *trained* and *untrained* groups.

In section two, the open-ended questions requiring participants to make recommendations to promote behavior change were analyzed using an original rubric. The scoring rubric was specifically designed to assess the presence of *elements that promote behavior change*. Nine different measures were included in the rubric: (a) intervention matches function of problem behavior, (b) intervention is positive, (c) intervention includes acceleration target versus declaration target, (d) indication of instruction, (e) indication of team effort, (f) intervention does not involve punitive measures, (g) indication of monitoring, (h) intervention is applicable in school settings, and (i) intervention is based on one or more of the seven guiding questions. Participants could earn one point for the presence of each of the elements present in their answer. Each participant was asked to provide a total of five behavior change recommendations, making it possible for any one participant to earn as many as 45 points, if all five of their answers contained all nine elements in the scoring rubric. Participants were asked to write-in a response detailing a *relatively quick but long-lasting* recommendation to change the problem behavior described in the accompanying scenario. By employing the rubric in the data analysis the researchers were able to evaluate the ability of both groups (i.e., trained and untrained) to recommend a relatively quick, long-lasting intervention for the hypothetical student. The score generated from the rubric allowed for an analysis to determine if a significant difference existed between the two groups. Prior to the study, raters were trained to use the rubric by scoring practice scenarios until an inter-rater agreement level of at least 88% was achieved.

In section three, the five multiple-choice questions, data were analyzed using a factorial ANOVA to compare the mean scores based on answers to the multiple-choice questions given by trained teachers and untrained teachers. The multiple-choice questions were designed to assess the knowledge level of participants in relation to the meaning of function and the application of the functions problem behavior may serve. Each set of questions was simply scored for accuracy (e.g., number correct versus incorrect).

Results

A larger number of respondents confirmed participation in the district training ($n=73$). While a smaller number confirmed that they did not participate in the district training ($n=52$). A majority of the participants ($n = 70$) were teachers certified in Varying Exceptionalities (cross-categorical special education). A smaller group of participants identified Emotional Handicaps ($n = 27$) as their primary certification. Twenty-eight participants indicated that they were seeking initial certification. None of the participants responding to the demographic questions identified themselves as a certified behavior analyst.

Comparison of Trained and Untrained Participants

A factorial ANOVA was used to compare the trained and untrained participants on the *knowledge of function* (multiple-choice) items and their scores on items requiring a *recommendation* for behavior interventions. Additional comparisons were made in two major areas. The first comparison included the participants' certification (e.g., varying exceptionalities) and training status. The second comparison included the assigned grade level and training status (i.e., trained or untrained).

Knowledge items. There was a significant difference in the means of the trained ($M = 8.85$) and untrained ($M = 7.13$) groups, $F(1, 70) = 5.54, p < .05$ on knowledge about function. This finding indicates that special education teachers who received training were better able to answer knowledge-based questions about the functions of problem behavior. These results are summarized in top half of Table 4.

Recommendation items. There was not a significant difference in the means of the trained ($M = 13.92$) and untrained ($M = 14.15$) groups, $F(1, 70) = 2.23, p < .05$ on the recommendations for behavior change methods. This finding indicates that there was no significant difference in the quality of behavior change recommendations. These results are summarized in the bottom half of Table 4.

Table 4
Training Status Comparison

Source	<i>M</i>	(<i>SD</i>)	<i>F</i>	<i>p</i>
Knowledge about Function of Problem Behavior				
Trained Teachers	8.85	(3.40)	.42	<.05
Untrained Teachers	7.13	(2.65)	5.54	<.05
Recommendations for Behavior Change				
Trained Teachers	13.92	(11.53)	.34	<.05
Untrained Teachers	14.15	(10.84)	2.23	<.05

Analysis of Certification Status and Grade Level

There was a difference in mean scores special education teachers obtained according to certification status. Those teachers certified in Emotional Handicaps obtained the highest mean scores on the multiple-choice items ($M = 8.93$) as well as earning the highest scores for their behavior change recommendations ($M = 17.29$). Teachers with certification in Varying Exceptionalities scored the next highest ($M = 8.13$) on the knowledge and scoring ($M = 13.58$) on the recommendation items. Teachers with certification in another area or seeking Exceptional Student Education certification obtained the lowest scores of the three groups on the knowledge items ($M = 7.25$) and on the recommendation items ($M = 11.28$) (see Table 5).

Table 5
Mean Scores According to Certification Status

Certification Categories	n	Multiple Choice Items		Recommendation Items	
		<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Emotional Handicaps	27	8.93	(3.24)	17.29	(9.55)
Varying Exceptionalities	70	8.13	(3.17)	13.58	(11.18)
Other Areas	25	7.24	(2.98)	11.28	(11.23)

There was a difference in mean scores special education teachers obtained according to the grade level taught. Those teachers assigned to multiple level classrooms obtained the highest mean scores on the multiple-choice knowledge items ($M = 9.17$) but in contrast this group earned the least points for their behavior change recommendations ($M = 8.16$). Teachers who were assigned to Middle grade classrooms (i.e., 6-8) obtained the next highest score ($M = 8.35$) for the multiple-choice items and ($M = 14.10$) for the recommendation items. Pre-K teachers received the next highest score on the multiple-choice items with a ($M = 8.00$) and a ($M = 14.66$) on the recommendation items. High school teachers were next with a ($M = 7.75$) on the multiple-choice items and a ($M = 15.00$) on the recommendation items. The final group of teachers assigned to the Elementary grades (i.e., K-5) obtained the lowest score on the multiple-choice items ($M = 7.68$) and ($M = 13.63$) on the recommendation items (see Table 6).

Table 6
Mean Scores According to Grade Level

Grade Level	n	Multiple Choice Items		Recommendation Scores	
		<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Multiple Levels	6	9.17	(2.31)	8.16	(11.70)
Middle Grades (6-8)	57	8.35	(3.22)	14.10	(10.58)
Pre-K	3	8.00	(2.64)	14.66	(2.88)
High School (9-12)	36	7.75	(3.40)	15.00	(12.70)
Elementary (K-5)	22	7.68	(3.27)	13.63	(10.65)

In summary, the results of this study indicate that participants who took part in the district training demonstrated knowledge of behavioral function significantly better than those who were not trained. There

was no significant difference between trained and untrained participants on their recommendations for behavior change methods.

Discussion

The findings indicate that the special education teachers who were trained answered knowledge-based questions about function of problem behavior items more accurately than those educators who did not participate in the district training. An essential component of training educators in the FBA technology is general knowledge of function of problem behavior (Conroy & Davis, 2000). The district training was designed to help teachers understand the nature of function of problem behavior. It is critical to note that this goal was accomplished according to the results of this study.

The recommendations for behavior change methods were not significantly different. This indicates that the district training did not result in qualitatively different recommendations for promoting behavior change. Special education teachers who received training were expected to have the ability to make qualitatively different and better recommendations in comparison to those developed by participants who did not receive training. Although numerous opportunities existed for participants to generate recommendations and examples of function-based interventions were provided throughout the sessions. The original training session did not specifically emphasize the writing of recommendations to promote behavior change. The absence of repeated writing opportunities for behavior change recommendations during the in-service training might have been a critical missing element since the participants did not have frequent and immediate opportunities to rehearse their newly developed skills. In addition, the 3 - day format may not have given participants enough content and appropriate practice in behavior change methods.

There are several factors associated with the study limiting the potential generalization of the results. First, there are questions about the use of short-term intensive training sessions for professional development (Ingvarson, Meiers, & Beavis, 2005). The literature detailing the knowledge and skills teachers acquire from professional development activities is surprisingly sparse, leaving a number of gaps in our current understanding (Garet, Porter, Desimone, Birman, & Yoon, 2001). Second, although the instrument used for data collection was distributed to 250 potential participants, only 125 returned the instrument. The return rate of 50%, and the uneven distribution of the trained (60%) and untrained (40%) groups may be attributed to any number of factors. One, the data collection process began several weeks after the actual training sessions. It is possible that more people would have participated if the evaluation had been conducted closer to the training sessions, while the topic was still in their minds. Two, the uneven groups may be explained by the level of familiarity with the topic. The untrained group of special educators in this study did not have any exposure to the training content and may have perceived the evaluation efforts as unrelated to their work duties. Simply stated they may have chosen not to participate because they did not see the relevance to their daily roles. These combined factors acted as mediating variables to suppress the number of participants. Third, the trained and untrained participants were not randomly selected. Rather, the entire populations of trained and untrained teachers in these schools were invited to participate. This may have implications for the type and quality of the answers given to the recommendation items. Finally, the trained and untrained groups were not matched on demographic variables (e.g., years of experience or prior behavioral training) *prior* to group assignment. This also may have influenced the way in which the two groups of participants approached and ultimately answered the recommendation items.

When educators design, implement, and evaluate various instructional procedures (e.g., FBA), initial training sessions may have to target the required tasks after training. When professional development includes new skills and knowledge, training activities should target both of these outcomes. Although content knowledge of FBA continues to develop there is still a need for skill acquisition associated with interventions based on FBAs. There seems to be an underlying assumption that district-sponsored in-service training is not only efficient for delivering adequate content knowledge, but that teachers will also use the newly acquired information when needed. In this study, this assumption may have led to a compromised training model that did not allow professionals to become fluent in a new skill (i.e., developing actual interventions) prior to using it in their work settings.

Conclusion

The reauthorization of IDEA was a catalyst for major changes in the behavior change procedures used for students with disabilities (Yell & Katsiyannis, 2000). Current standards require that educators use FBA as a pre-intervention procedure before developing an intervention. This change in policy calls for a change in practice to ensure that educators are not only aware of the change in legislation, but also aware and able to implement the practice (Scott et al., 2005; Conroy & Davis, 2000).

Many questions have been raised about the ability of teachers to implement new FBA practices (Crone et al., 2007; Conroy & Davis, 2000; Gable, 1999). The results of the study indicate that educators who participate in district in-service regarding FBA methods do gain a general knowledge of function of problem behavior. This lays a foundation for the use of the technology. This *first step* is beneficial for school districts to build upon this and further assist educators in their ability to apply the FBA technology. This study also points out that a *next step* is crucial if educators are to use their knowledge of behavioral function to design function-based recommendations for behavior change.

References

- Brady, M. P., Vaccaro, T., Niles, V., Brookner, J., Murray, S., & Perez, I. (1998). *Functional assessment of behavior: Linking interventions to assessment for students with challenging behavior*. Miami, FL: Miami-Dade County Public Schools.
- Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Rand McNally & Company: Chicago, IL.
- Carpenter, S. L., & McKee - Higgins, E. (1996). Behavior management in the inclusive classrooms. *Remedial and Special Education, 17*(4), 195 - 203.
- Carnine, D. (1997). Bridging the research - to - practice gap. *Exceptional Children, 63* (4), 513 - 521.
- Carr, E. G. (1994). Emerging themes in the functional analysis of problem behavior. *Journal of Applied Behavior Analysis, 27*(2), 393 - 399.
- Conroy, M. A. & Davis, C. A. (2000). Early elementary - aged children with challenging behaviors: Legal and educational issues related to IDEA and assessment. *Preventing School Failure, 44*(4), 163 - 168.
- Conroy, M. A., Clark, D., Gable, R. A., & Fox, J. J. (1999). Building competence in the use of functional behavioral assessment. *Preventing School Failure, 43*(4), 140 - 144.
- Crone, D. A., Hawken, L. S., & Bergstrom, M. K. (2007). A demonstration of training, implementing, and using functional behavioral assessment in 10 elementary and middle school settings. *Journal of Positive Behavioral Interventions, 9*(1), 15-29.
- Davis, C. A. (1998). Functional assessment: Issues in implementation and applied research. *Preventing School Failure, 43*(1), 34 - 36.
- Ervin, R. A., Radford, P. M., Piper, A. L., Ehrhardt, K. E., & Polling, A. (2001). A descriptive analysis and critique of the empirical literature in school-based functional assessment. *School Psychology Review, 30*(2), 193-210.
- Fox, J., Conroy, M., & Heckaman, K. (1998). Research issues in functional assessment of the challenging behaviors of students with emotional and behavioral disorders. *Behavioral Disorders, 24*(1), 26 - 33.
- Gable, R. A. (1999). Functional assessment in school settings. *Behavioral Disorders, 24* (3), 246 - 248.
- Gay, L. R. (2003). *Educational research: Competencies for analysis and application (7th ed.)*. Upper Saddle River, NJ: Merrill/Prentice Hall.
- Gresham, F. M. (2003). Establishing the technical adequacy of functional behavioral assessment: Conceptual and measurement challenges. *Behavioral Disorders, 28*(3), 282-298.
- Hartwig, E. P., & Ruesch, G. M. (2000). Disciplining students in special education. *The Journal of Special Education, 33*(4), 240 - 247.
- Horner, R. H., Sugai, G., Todd, A. W., & Lewis-Palmer, T. (1999-2000). Elements of behavior support plans: A technical brief. *Exceptionality, 8*(3), 205-215.
- Horner, R. H. (2000). Positive behavior supports. *Focus on Autism and Other Developmental Disabilities, 15*(2), 97 - 105.
- Ishii - Jordan, S. R. (2000). Behavioral interventions used with diverse student. *Behavioral Disorders, 25*(4), 299 - 309.
- Individual With Disabilities Education Act Amendments of 1997, Pub. L. No. 105-17. 20 U.S.C. 33, 1400 et seq. (West, 1997).

- Ingvarson, L., Meiers, M., & Beavis, A. (2005, January 29). Factors affecting the impact of professional development programs on teachers' knowledge, practice, student outcome & efficacy. *Education Policy Analysis Archives*, 13(10). Retrieved July 3, 2006 from <http://epaa.asu.edu/epaa/v13n10/>.
- Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1982). Toward a functional analysis of self - injury. *Analysis and Intervention in Developmental Disabilities*, 2, 3 - 20.
- Iwata, B. A., Wallace, M. D., Kahng, S. W., Lindbeg, J. S., Roscoe, E. M., Conners, J., et al. (2000). Skill acquisition in the implementation of functional analysis methodology. *Journal of Applied Behavior Analysis*, 33, 181-194.
- Mace, F. C. (1994). The significance and future of functional analysis methodologies. *Journal of Applied Behavior Analysis*, 27(3), 285-392.
- Morgan – D' Atrio, C., Northup, J., LaFleur, L., & Spera, S. (1996). Toward perspective alternatives to suspensions: A preliminary evaluation. *Behavioral Disorders*, 21 (2), 190 – 200.
- Murdick, N. & Gartin, B. C. (1999). Complying with idea: Using functional assessment of behavior to plan programs for students with mental retardation. *Education and Training in Mental Retardation and Developmental Disabilities*, 34(4), 464 – 472.
- Nelson, C. M. (1997). Aggressive and violent behavior: A personal perspective. *Education and training of Children*, 20(3), 250 - 262.
- Nelson, J. R., Roberts, M. L., Rutherford, R. B., Mathur, S. R., & Aaroe, L. A. (1999). A statewide survey of special education administrators and school psychologist regarding functional behavioral assessment. *Education and Treatment of Children*, 22(3), 267 – 279.
- Quinn, M. M. (2000). Functional behavioral assessment: The letter and spirit of the law. *Preventing School Failure*, 44(4), 147 - 151.
- Scott, T. M., & Nelson, C. M. (1999). Functional assessment: Implications for training and staff development. *Behavioral Disorders*, 24(3), 249 – 252.
- Scott, T. M., Nelson, C. M., & Zabala, J. (2003). Functional behavior assessment training in public schools: Facilitating systematic change. *Journal of Positive Behavior Interventions*, 5(4), 216-224.
- Scott, T. M., McIntyre, J., Liaupsin, C., Nelson, C. M., Conroy, M., & Payne, L. D. (2005). An examination of the relation between functional behavior assessment and selected intervention strategies with school-based teams. *Journal of Positive Behavior Interventions*, 7(4), 205-215.
- Shellady, S. & Stichter, J. P. (1999). Training preservice and inservice educators to conduct functional assessments: Initial issues and implications. *Preventing School Failure*, 43(4), 154 – 159.
- Yell, M. L. & Katsiyannis, A. (2000). Functional behavioral assessment and idea 1997: Legal and practice considerations. *Preventing School Failure*, 44(4), 158 - 162.
- Yell, M. L., Rozalski, M. E., & Drasgow, E. (2001). Disciplining students with disabilities. *Focus on Exceptional Children*, 33(9), 1 - 20.