ABSTRACT

THE RELATIONSHIP BETWEEN FBA KNOWLEDGE AND THE CONVERGENCE OF FBA MEASURES

by Tiffany Ann Hackney

A variety of studies have shown the need for further training in FBA methods and procedures for teachers and practitioners in schools as well as pre-service teachers. This paper presents the results of a study that examined pre-service teachers’ ability to identify antecedents and consequences of behavior based on their knowledge of FBA. The study included 29 participants from Miami University. Participants viewed a video clip of a child with problematic behavior and were asked to complete FBA forms based on the child’s behavior. Data were analyzed using a correlation and a t-test. Implications for practicing school psychologists include using caution to interpret the results of indirect assessment measures, as well as being aware that those asked to complete these forms may have limited knowledge of how to do so. The paper also discusses limitations of the study and implications for further research.
The Relationship Between FBA Knowledge and the Convergence of FBA Measures

A Thesis

Submitted to the
Faculty of Miami University
In partial fulfillment of
the requirements for the degree of
Educational Specialist
Department of Educational Psychology
by
Tiffany A. Hackney
Miami University
Oxford, Ohio
2011

Advisor: Thomas Watson
Reader: Michael Woodin
Reader: Jane Cole
Reader: Tonya Watson
# Table of Contents

- **Introduction** .................................................................................................................. 1
- **FBA in Schools** .................................................................................................................. 3
- **FBA Methods** ...................................................................................................................... 5
- **Psychometric Properties of Direct and Indirect Assessment** ........................................... 6
  - Indirect Assessment Procedures .......................................................................................... 6
  - Direct Assessment Procedures ............................................................................................. 7
  - Convergence of Direct and Indirect Assessment Methods .................................................. 8
- **Summary/ Rationale for Current Study** .............................................................................. 9
- **Research Question** ............................................................................................................. 9
- **Methodology** .................................................................................................................... 10
  - **Participants** .................................................................................................................... 10
  - **Setting: Materials** .......................................................................................................... 10
  - **Design and Procedures** .................................................................................................. 10
  - **Protection of Human Subjects** ...................................................................................... 11
  - **Confidentiality** .............................................................................................................. 11
- **Data Analysis** ................................................................................................................... 11
  - **Scoring** ......................................................................................................................... 11
- **Results** ............................................................................................................................. 12
- **Discussion** ....................................................................................................................... 18
  - **Limitations** ................................................................................................................... 18
  - **Implications for Research and Practice** ....................................................................... 19
- **References** ....................................................................................................................... 21
List of Tables

Table 1 ................................................................................................................................. 13
Table 2 ................................................................................................................................. 15
Table 3 ................................................................................................................................. 17
Introduction

Gresham, Watson & Skinner (2001) define functional behavior assessment (FBA) as, “a collection of materials, for gathering information about antecedents, behaviors, and consequences in order to determine the reason for behavior” (p.158). The goal of FBA is to develop an effective intervention and to promote habilitative behavior. Behavior can serve many functions and its consequences, events that follow a behavior, either increase or decrease the behavior. Consequences that follow and strengthen a behavior are called reinforcers, and the process by which a behavior is strengthened is called reinforcement. There are three types of reinforcement: 1) positive reinforcement (reinforcement increases), 2) negative reinforcement, and 3) automatic reinforcement.

Positive reinforcement is when a behavior increases in order to gain access to social attention or activities and tangibles. Because humans are social beings, attention from others is often a powerful reinforcer for behavior. An example of positive reinforcement is when a child makes wisecracks in class because he/she likes the attention they receive from the teacher and other students. Negative reinforcement is when a behavior is performed to avoid an aversive or unpleasant stimuli. For example, Billy severely dislikes writing so he throws tantrums in class when ever he has to write something, so that he can escape the writing. The third type of reinforcement, automatic, is when some type of physiological sensation is gained from performing the behavior. Two types of reinforcement are included in this category: automatic positive reinforcement, and automatic negative reinforcement. Automatic positive reinforcement is when a person performs a behavior that is positively reinforcing (feels good); for example, twirling your hair because it feels good on your scalp. Automatic negative reinforcement is when a person performs a behavior to lessen a painful or aversive stimuli; for example, scratching your arm to relieve an itch.

Because the same behavior could serve multiple functions for different children, it is imperative that school personnel (teachers, school psychologists, special educators) determine the function of a child’s behavior. There is not one solution to decrease specific behaviors because the solution depends on the function a particular behavior serves for a particular child. FBA rejects an understanding of behavior based on topography (form or structure) because behavioral topographies are descriptive and explain nothing about the controlling functions of the behavior (Skinner, 1953, 1974). In order to effectively and efficiently provide a successful solution for reducing a problem behavior, the behaviors’ function must be determined.

In 1968, Bijou, Peterson and Ault became the first applied researchers to conduct what would later become known as a descriptive functional assessment to determine function. They believed that applied psychology should focus on answering the question “why” instead of “how”. For them, focusing on the “why” meant focusing on the function of the behavior. They advocated for the use of an A-B-C (Antecedent, Behavior, Consequence) recording system for directly observing and recording behavior because this procedure would lead to determining the function of a child’s behavior.

In 1977, Carr determined that self-injurious behavior (SIB) occurred for different reasons and served different functions for different children. These functions included: a) positive reinforcement, b) negative reinforcement, c) sensory stimulation, or d) simply being due to a biological/genetic disorder. Carr discussed a step-by-step process for determining the motivation of a behavior. Step one was to screen for genetic and non-genetic abnormalities. If the screening is positive, then the motivation may be organic. Step two was to determine if the behavior increased under certain circumstances (when the behavior is attended to, when reinforcers are withdrawn for behaviors other than self-injurious behaviors, and when the child is with adults, rather than alone). If the answer was yes, then the motivation may be positive reinforcement. Step three is to determine if the behavior occurs when no activities are present and the environment is empty. If the answer is yes, then the motivation may be self-stimulation (Carr, 1977).
Following Carr’s lead, Iwata and colleagues (1982) published the first study using an experimental method for determining the function of the self-injurious behavior of 9 individuals. They used the same methodology that Carr (1977) had laid out. Iwata et. al, exposed participants to different experimental conditions. Each condition tested one of the hypotheses for SIB. The three conditions were social attention, negative reinforcement, and sensory stimulation. As predicted by Carr, the results varied across participants. For four participants, the function of SIB was sensory stimulation. For two participants, the function of SIB was escape from academic tasks. One participant’s SIB was maintained by social attention, and the last three participants had high levels of SIB across all conditions. Therefore, each participant’s SIB had a different function.

Kennedy (1982) studied autistic children and stereotypic behaviors. He performed FBAs on children who had behaviors termed “self stimulatory”; however, he found that there were many functions of the behavior, not just self-stimulatory. He determined that the function of the behavior can not be determined by the form of the behavior, meaning behaviors that look topographically similar may have different functions. Kennedy also showed that interventions addressing the function of the behavior, rather than the form, result in a more meaningful behavior change.

In 1997, the Individuals with Disabilities Education Act (IDEA) required the use of functional behavior assessment (FBA) and positive behavioral supports. Prior to this law, FBA was considered part of “best practices” but with the passing of this law certain guidelines were put into place (Gresham, Watson, Skinner, 2001, p. 156). An FBA is required to be conducted when a district intends to: a) remove a student for more than 10 days, b) remove the student from school or change their placement, c) place the student in an interim educational setting for bringing a weapon to school, or d) if the student’s problem behavior is determined to be a manifestation of their disability (Eckert, Martens & DiGennaro, 2005, p. 520). For each of the above instances, a team meeting must be held, an FBA must be conducted, and a behavioral intervention plan (BIP) must be put in to place (Drasgow & Yell, 2001).

While not mandated, it is also suggested that an FBA should be conducted if a student is approaching 10 suspension days instead of waiting until they hit the tenth day (Martin, 1999), when a student’s problem behavior impedes their learning, or when a student’s behavior presents a danger to themselves or others (Drasgow & Yell, 2001).

Despite the fact that the law is very specific about when an FBA must be conducted, many problems related to carrying out correct and effective FBAs still remain. Specific requirements for which procedures constitute an FBA are not explicitly stated in IDEA (Gresham, Watson, Skinner, 2001, p. 156). Therefore, practitioners have no guidance on what criteria they must meet to conduct an FBA according to best practices. IDEA also lacks criteria regarding the training necessary for practitioners to obtain before conducting an FBA (Watson & Steege, 2009).

Adequate training in FBA procedures is necessary to conduct a correct and effective FBA that can be used to problem-solve for interventions. In a review of over 70 FBAs and their associated behavioral intervention plans (conducted by practitioners with all levels of FBA training), Van Acker and colleagues found that these FBAs appeared to be deficient in their procedural adequacy. The most common deficiencies observed included: missing or vague behavior definitions, over-reliance on indirect assessment, inability to identify the correct function of behavior, failure to link intervention with the assessed function of the behavior, and use of either aversive interventions or continuation of previously unsuccessful interventions (Fox & Davis, 2005).

In a separate but related study, Scott and colleagues conducted interviews with school FBA teams that had received prior training in functional behavior assessment. Like Van Acker, they also often found that the teams did not select interventions that were related to the determined function of the behavior. These teams were more likely to choose interventions that were previously used in the school or on intervention lists supplied by the school system. Scott also found that the teams did not conduct FBAs until the child’s behavior was so severe that it reached a crisis level (Fox & Davis, 2005).

Both of the above studies demonstrate the need for school personnel to receive further training in FBA procedures. Such training is necessary to avoid mistakes in the FBA process so that the finished
product is accurate and can be used to determine effective interventions. It is important for school personnel to receive training (professional development) in the areas they feel most ill-equipped.

Pindiprolu, Peterson, & Berglof (2007) surveyed special and general educators, administrators, and support personnel to determine what they believed their professional development needs were in a variety of areas related to special education. Of particular interest to the current study is the difference in responses from special and general education teachers about their perceived need for FBA training. A higher percentage of special education teachers indicated they had a need for professional development training in FBA procedures (21%) and in interventions for problem behaviors (38%). In contrast, when general education teachers were asked what they most needed professional development in, 38% identified interventions for problem behavior, and 25% identified effective teaching practices. The need for training in FBA procedures did not even make the top three areas in which general education teachers believed they needed professional development.

These results indicate that in the field, both general and special education teachers associate an FBA with the special education teacher’s job. This assumption may be incorrect because FBAs are just as helpful for the general education teachers’ students. However, because both general and special education teachers are under the assumption that the role of helping to complete an FBA lies in the special education teachers’ domain, it seems imperative that special education teachers and pre-service special education teachers receive training in FBA procedures and methods.

Pindiprolu et al. (2007) state that along with in-service teachers (those currently teaching), increased emphasis on behavior management and functional behavioral assessment is warranted for pre-service personnel (those in college learning to be teachers) as well, considering the fact that these individuals will soon become in-service personnel. Teachers have minimal training in behavior modification processes (Gum, 2002) and often lack adequate training to participate in the assessment and development of interventions for problem behaviors. When they are trained, it is more common for teachers to receive didactic training (written instructions) rather than direct training (modeling or rehearsal/feedback) which has been shown to be more effective (Sterling-Turner, 2001). More training in FBA methods would be beneficial to all teachers and practitioners working in the schools and would help to ensure the accuracy of functional behavior assessment procedures which have become a cornerstone for the intervention process in many circumstances.

FBA in Schools

Functional behavior assessments have become an integral part of the intervention process in schools, and have been found to be very helpful in determining the interventions that would most benefit students of various ages and with a range of issues (Ervin et al, 2001). FBA is increasingly being used in general education settings, partially because the reauthorization of IDEA states that school personnel must complete an FBA in certain circumstances, and also because recent research has shown that FBA has been very successful in determining interventions in the general education classroom setting (Bergstrom, Horner, & Crone, 2007). Specifically, when interventions determined by FBA are compared with typical school interventions, interventions derived from an FBA showed a decrease in problem behavior, while typical school interventions were correlated with increases in problem behavior or a lack of effects (McIntosh et al, 2008). FBA has been shown to be effective in helping adolescents, elementary age, and even preschool students, some who have been diagnosed with ODD, ADHD, autism, etc, with problems such as increasing on-task behavior and decreasing disruptive behavior.

Ervin et al, (2001) conducted a meta-analysis of school-based FBA studies. The analysis included studies that were conducted between the years of 1980 and 1999, with human subjects, who spoke English, students with and without disabilities, and ranged from child to adolescent. In the students without disabilities, the researchers found that 47% of behaviors were to obtain adult attention, 43% of behaviors were to obtain an item or activity, 20% of behaviors were to maintain peer attention, 3% of behaviors were to avoid or escape an academic task, and 37% of behaviors were for multiple functions. For those individuals with disabilities, research showed that 44% of behaviors were to escape or avoid a
task, 26% of behaviors were to obtain adult attention, 13% of behaviors were to obtain an item or activity, 11% of behaviors were to obtain sensory stimulation, 4% of behaviors were to obtain peer attention, 2% of behaviors were to avoid or escape social interaction, 1% of behaviors were to escape sensory stimulation, and 21% of behaviors were for multiple functions. The data showed that there are obvious differences in function for children with and without disabilities. Functional behavior assessment is necessary to determine what the function is for each child so that an effective intervention may be put into place.

Many other researchers have conducted FBAs in school settings to determine the function of behavior. Taylor and Miller (1997) examined the ability of a time-out intervention to decrease the problem behavior of 4 students. The time-out procedure was only effective for the 2 students whose problem behavior was determined, through functional assessment, to be maintained by social attention. Time-out was not an effective punishment for the two students whose behavior was serving as an escape function. Through functional assessment, the researchers determined more appropriate interventions given the function of the students behavior and reduced the problem behaviors.

FBAs have also been found to be very effective in helping decrease disruptive classroom behavior. Ervin et al. (1998) showed how identifying effective interventions by the use of FBA helped to decrease disruptive classroom behavior for four adolescents diagnosed with oppositional defiant disorder (ODD) and attention deficit hyperactivity disorder (ADHD). Functional behavior assessment was used to hypothesize the function of these adolescents’ disruptive classroom behavior. Their hypotheses were then tested and confirmed and effective interventions were implemented.

FBAs have also been shown to be successful in developing interventions for developmentally disabled students. Ellingston et al. (2000) determined that behavioral intervention plans developed using function-based data were more successful that those determined without using function based data. In another study, Hoff et al. (2005) used functional behavior assessment to determine the environmental variables responsible for a 12-year-old boy’s (diagnosed with ODD and ADHD) disruptive classroom behavior. Through FBA, three functions were hypothesized, and after using an alternating treatment design, an effective intervention was determined.

FBAs have also been used successfully to improve younger children’s behaviors. Moore et al. (2005) used FBA to determine the function of a 6-year-old’s inappropriate classroom behavior. The function, hypothesized to be escape from assigned tasks, was confirmed with a successful intervention of breaking the child’s work into steps. He received a break after each step of his work was completed, which resulted in a lack of disruptive behavior.

Ingram, Lewis-Palmer and Sugai (2005) extended the FBA research to children diagnosed with emotional behavioral disorder (EBD) and found that interventions based on functional assessment information were more successful for both participants than those interventions not based on functional assessment information. The study included two 6th-grade students, Carter and Bryce, who attended a suburban middle school. The students were not receiving special education. They were engaging in problem behaviors which affected their grades, and had not had a FBA conducted on them. They were nominated by a general education teacher who had prior experience with FBA procedures. FBA procedures including student interviews, teacher interviews, and direct observations, were conducted on each participant.

After the FBAs had been conducted for each student, a behavioral intervention plan, including function-based and non-function-based strategies, was developed for each boy. The function-based strategies focused on ways to: neutralize setting events, remove antecedents, teach new behaviors to replace the problem behaviors, and eliminate consequences for problem behavior. The non-function-based strategies were empirically supported, but were not supported by the FBA results. The researchers conducted a baseline (A) condition for each participant then assessed the effectiveness of the non-function-based condition (C) and the function-based condition (B). Carter experienced the function-based condition first, then the non-function-based condition (ABCBC), and Bryce experienced the non-function-based condition followed by the function-based condition (ACBCB) in order to minimize order
The results of the study showed that the function-based condition showed a much lower percentage of problem behavior for both participants. Hawkins and Axelrod (2008) also used functional behavior assessment with children diagnosed with EBD. They developed and implemented strategies to increase on-task homework behavior using FBA data. They also compared the effectiveness of interventions that were based on the function of the behavior (as determined by FBA) to interventions that were not derived from the function of the behavior. They found that, for 3 of the 4 participants, the intervention identified using the FBA data was the most effective intervention in increasing on-task homework completion.

FBA Methods

There are various methods by which to collect FBA data. Gresham et al. (2001), discuss the different methods which include indirect measures, direct measures, and functional analysis. Although all three methods provide important information about the behavior/student being studied, functional analyses are far more complex and time-consuming than indirect and direct assessment procedures (Alter, Conroy, Mancil & Haydon, 2008). Although school psychologists most frequently use direct observation procedures for assessment (Hintz, 2005), both indirect and direct procedures are necessary to receive a complete picture of the behavior (Hintz and Matthews, 2004).

Indirect assessment methods are an important part of the FBA process because they are time-efficient and require minimal response effort (Dufrene et. al, 2007). These methods involve the assessment of behavior that is removed from time and place of the behavior’s actual occurrence (Cone, 1978; Gresham & Noell, 1999). Indirect assessment methods include measures such as interviews, historical/archival record reviews, checklists and rating scales.

The first type of indirect assessment measure, functional assessment interviews, has four goals: 1) to identify and operationally define the target behavior, 2) to identify the target behavior’s antecedents, 3) to gain information necessary to generate a hypothesis regarding the function of the target behavior, and 4) to identify an appropriate replacement behavior that serves the same function as the target behavior (Gresham, Watson, & Skinner, 2001). School psychologists often collect interview data from parents, teachers, and even students themselves (Bergen & Kratochwill, 1990). Some frequently used interview measures include: the Functional Assessment Interview Form (FAI), the Functional Assessment Checklist for Teachers and Staff (FACTS), and the Student Directed Functional Assessment Interview Form (SDFAI) (O’Neil, 1997). Behavior rating scales/checklists serve as a brief method of gathering more information about the target behavior (Gresham, Watson, Skinner, 2001). Frequently used rating scales and checklists include: the Teacher Rating Form, Child Behavior Checklist, Youth Self Report, Social Skills Rating System (Gresham & Elliott, 1990), and the Critical Events Index (CEI).

Lastly, archival record reviews often generate a great deal of functional assessment data. The School Archival Records Search (SARS) (Walker, Block-Pedego, Todis, & Severson, 1991) is a useful tool in gathering data on school variables including demographics and student information such as special education status, school transience, attendance, achievement test scores and disciplinary information.

Direct assessment, another important part of a functional behavior assessment, provides data on the occurrence of a behavior in the natural context in which it occurs (Watson & Steege, 2009). This procedure also includes: generating an operational definition of the behavior, determining an appropriate behavior-recording procedure, and observing and recording the behavior and the associated antecedents and consequences (Watson & Steege). Direct assessment should also be used to confirm the information gathered in the indirect measures stated above. A very helpful FBA form, the Antecedent-Behavior-Consequence (A-B-C) Recording form, is used to determine the function of a child’s behavior by recording the child’s behavior as well as the events immediately prior to and following the behavior (Gresham, Watson, & Skinner, 2001). Direct observation, another commonly used direct assessment procedure, is used to assess objective features of the behavior such as: frequency, duration, latency, intensity, and permanent products. Different types of recording are used for direct observation including:
event-based recording, interval-based recording, time-based recording, and inter-response times (IRT) (Gresham et. al, 2001).

Both indirect and direct assessment methods provide very useful information about a child’s target behavior; however, experimental functional analysis, another FBA procedure, allows for stronger statements regarding the function of a behavior due to its rigorous experimental methodology (Gresham, Watson, & Skinner, 2001). Functional assessment involves using single-case designs to manipulate the aspects that are thought to control problem behavior. Individuals are exposed to each possible maintaining condition of the behavior in a tightly controlled environment. Students are typically exposed to four different conditions including: social attention, access to tangibles, escape from aversive stimuli, and a control condition. The rates of target behavior in each condition are graphed and compared, and the condition with the highest frequency of behavior is thought to the function of the target behavior (Gresham, Watson, & Skinner, 2001).

Psychometric Properties of Direct and Indirect Assessment

Indirect assessment, direct assessment, and functional analysis each provide valuable information to an FBA; however, it is equally important that the specific measures used are reliable and valid. Shriver et al, (2007) discuss the necessity of using reliable and valid FBA measures. Demonstrating evidence for reliability and validity of the assessment data is important so that one may have confidence that the results of the assessment have some degree of consistency or reproducibility and accuracy. Establishing evidence for the accuracy of FBA data also establishes evidence for its construct validity.

Because functional analysis is considered to be the most accurate measure of functional relation (Shriver et al, 2007), other methods of functional behavior assessment (interviews, rating forms, observations) are often compared to the results of a functional analysis to evaluate their accuracy (Anderson et al, 1999, Lerman & Iwata, 1993). One way of identifying construct validity for an FBA is providing evidence that the functional relation identified by the FBA is the same functional relation identified by another FBA measure with demonstrated accuracy (Shriver et al).

Indirect Assessment Procedures. As FBA procedures become more valuable and useful in the schools, professionals begin to look for the most efficient way to determine the function of behaviors. They often look to indirect assessments which have been shown to be less invasive, time consuming, rigorous and more efficient than completing an entire functional behavior assessment (Conroy, Fox, Bucklin & Good, 1996). Indirect assessments are a good starting point in the FBA process and can focus the school psychologist and the team in the right direction for identifying problem behaviors, contexts, and the possible functions of behaviors. Although the information gathered from indirect measures is subject to bias, this information is often gathered more efficiently than by directly observing the behavior. This is particularly true for low frequency behaviors or behaviors that are difficult to predict because the behavior might not be seen during the scheduled direct observation period (Horner, Vaughn, Day, & Arden, 1996)

Although indirect assessment measures, specifically interview measures, are somewhat more convenient, efficient, and less invasive than direct assessment measures, as a whole, these measures show a lack of empirical evidence regarding psychometric properties (Cone, 1997; Gresham, 2003; Sasso et al, 2001). While there are relatively few studies that look at the psychometric properties of interview measures, these measures have been found to show moderate evidence of convergence between teacher and student interview measures (Kinch et al, 2001) and poor evidence of convergence between student interviews and teacher rating scales (Kwak, Ervin, Anderson, & Austin, 2004). Convergent validity with direct observation measures, particularly on maintaining consequences, has been weak (Kwak et al, 2004). Due to the frequent use of indirect assessments in schools, McIntosh et al. (2008) justify the need for more information regarding the psychometric properties of indirect assessments.

In a study comparing the data of 8 teachers using the Functional Assessment Interview form (FAI) and 8 students using the Student- Directed Functional Assessment Interview Form (SDFAI), convergent validity was found to be 79% on behavior, 100% on antecedents, 91% on consequences, and
21% on setting events. The high levels of agreement between the informants on antecedents, consequences, and behaviors suggests that teachers are very good at recognizing student behaviors, as well as the antecedents and consequences to those behaviors (Kinch, Lewis-Palmer, Hagen-Burke, & Sugai, 2001).

A study by Stage, Cheney, Walker, and LaRocque (2002) examined the discriminant and convergent validity of the Teacher Functional Behavioral Assessment Checklist (TFBAC). Specifically, the researchers tried to determine if the results of time-lag analysis were convergent with the results of the TFBAC. Teachers consistently identified the same problem behaviors for the individual students as measured on three TFBACs. A kappa coefficient of .72 was obtained for agreement between the first and second TFBAC. .80 was obtained when measuring agreement between the first and third TFBAC, and .86 was obtained when measuring the agreement between the second and third TFBAC. However, when the convergence between the functions of behavior as determined by time-lag analysis and TFBAC was measured, the kappa coefficient was .19. Thus, although teachers were able to correctly recognize problem behaviors across situations, they could not accurately determine the function of those behaviors. Being able to determine the function of a student’s behavior is a very important skill to have when providing information for an FBA, so it is of concern that the teachers’ recognition of the function of these behaviors was so low.

Another study by Murdock, O’Neil, and Cunningham (2005), found the agreement between 8 students and 21 teachers’ interviews to be only 69% when using the Functional Observation Assessment form (a direct assessment instrument) to determine the antecedent, behavior, consequence sequence. This agreement level is low, and like the preceding study, is alarming because in order to determine an effective intervention one must be able to determine the correct antecedents and consequences of behavior.

In another research study, Stage et al (2006), conducted FBAs in public schools on children with emotional/behavior disorders who were at risk for a change of school placement for behavior problems. The researchers were interested in studying the convergence of different methods of FBA and how well the results of each method correlated with other methods. Both indirect measures and experimental manipulations were used during this study. The indirect assessments showed a high degree of variability when the results were compared. The inter-informant agreement for indirect assessment measures ranged from 29 to 100 percent. This large range is due to the fact that the method for collecting the inter-informant information and the method for calculating inter-rater reliability weren’t consistent. The results from this study suggest that indirect assessment procedures should be used to generate hypotheses regarding the potential antecedents and consequences but should not be used alone.

**Direct Assessment Procedures.** Systematic direct observations are one of the most frequent assessment procedures used by school psychologists (Hintze, 2005). They are often used to quantify children’s classroom behavior (Hintze, Volpe, & Shapiro, 2003), and serve as the basis for measuring and recording behavior in school settings (Steege, Davin, & Hathaway, 2001). In a survey of more than 1,000 school psychology practitioners, Wilson and Reschly (1996) found that out of 26 types of assessments, across 7 different categories, direct observation measures has the highest frequency of use.

Behavior assessment procedures, often used in direct observation, have been criticized for being complex, time-consuming, and impractical, making them inapplicable in school settings. A study by Steege et al (2001) examined the reliability and accuracy of a behavioral rating procedure to determine if these procedures are practical for use in school settings. The performance-based behavioral recording procedure used with each participant was made up of a 15-minute interval recording data sheet to record the occurrence of each participant’s target behavior. The target behaviors were operationally defined, and Likert ratings (0-5) were assigned to specific behavioral definitions (ex. A target behavior of stereotypy was rated a 5 if the participant was engaged in stereotypic behaviors for more than 12 minutes of an activity). The researchers used the performance-based behavioral recording procedure to observe three different individuals with autism on three target behaviors. Inter-observer agreement totaled 88 percent, which is considered an acceptable level of agreement. These direct assessment measures showed a high
degree of correspondence and consistently identified similar trends in behavior, suggesting that they are reliable and valid, and applicable for use in school settings.

In a study by Hintze and Matthews (2004), the researchers measured how well direct observation results (of on-task and off-task behavior) can be generalized across time and place. Although they found inter-observer agreement to be about .90, the kappa coefficient, a more conservative estimate of reliability was in the low .60’s. The researchers are concerned with the discrepancy (about .3) between the estimates of reliability. Although better than adequate inter-observer agreement levels were attained, low levels of reliability were observed. This finding illustrates there can be a problem with using inter-observer agreement to determine reliability and accuracy. The results could also indicate a lack of construct validity. It is possible that measuring participants’ on-/off-task behavior isn’t a good way to estimate the construct being measured (attentive behavior). The current study’s results underscore the importance of reliability in assessment, and the researchers also discuss the importance of using a multimodal approach in which data is collected from different methods and sources, which includes indirect assessments.

Another direct observation method commonly used in schools as part of an FBA is Antecedent-Behavior-Consequence (A-B-C) recording (Eckert, Martens, & DiGennaro, 2005). A-B-C recording involves recording the antecedents, behaviors, and consequences of students and then analyzing the data (visually or mathematically). However, because the relationship between observable events is descriptive by nature, causality cannot be determined by using A-B-C recording (Sasso et al, 1992).

Although A-B-C recording data is not sufficient to determine causality, conditional probabilities, which are derived from the A-B-C recording data, can be computed to determine causality (Swartz, 1989). The Conditional Probability Record (CPR), used to compute conditional probabilities, allows the observer to simultaneously record the antecedents and consequences of behavior. The CPR also allows the observer to analyze the likelihood of a particular antecedent or consequence following a particular behavior (Watson & Steege, 2009). In using the CPR to determine the cause of a student’s behavior, the school psychologist and team can work to develop an intervention to stop the behavior, making this method very applicable in school settings.

A study by Eckert, Martens, and DiGennaro (2005) computed conditional probabilities as determined from Antecedent-Behavior-Consequence (A-B-C) recording to determine the consequences maintaining a 7-year old’s off-task behavior in a single-case study. They determined that peer attention was a common response to the student’s off-task behavior (p=.55), but peer attention rarely followed his on-task behavior (p=.06). Thus, they hypothesized that peer attention was maintaining his off-task behavior. To test their hypothesis, the researchers conducted a short experimental analysis in which the student was provided with peer attention contingent upon on-task behavior. The initial percentage of off-task intervals (60%), was reduced to 5% when the student was provided with peer attention after engaging in on-task behavior, suggesting that the CPR accurately determined the function of off-task behavior.

Convergence of Direct and Indirect Assessment Methods.

Indirect and direct assessment methods are both necessary when conducting a thorough FBA; however, it is important that the indirect and direct assessment methods used have convergence with one another in order to increase the reliability, validity, and consistency of results between measures. Convergence between multiple functional assessment procedures may also give school practitioners some flexibility in choosing an appropriate procedure (Dufrene, Doggett, Henington, & Watson, 2007). Convergent validity refers to how well the data obtained from one measure correlate with the data obtained from another measure, which is measuring the same construct. Evidence of validity is found when scores obtained on one measure relate to scores on another measure. In FBA, it is important that the functional relationship identified by one FBA is the same functional relationship identified in another FBA that has shown to be accurate. When two FBA measures identify the same functional relationship, they are said to be convergent. (Shriver, et al, 2007)
A study by McIntosh et al. (2008) provides support for the convergence of indirect and direct assessment methods. The researchers in this study used an interview measure, the Functional Assessment Checklist: Teachers and Staff (FACTS) to assess the technical adequacy of interview measures because a relatively low number of studies exist in the literature regarding the psychometric properties of FBA interview measures (indirect methods). The study was conducted by compiling existing research on psychometric properties of interview measures and other forms of FBA, and determining the extent to which the interview measures are reliable and valid across studies.

Four other measures were used in addition to the FACTS interview: 1) student guided interviews, 2) direct observation, 3) functional analysis, and 4) office/ discipline referrals. Of particular importance is the convergent validity between direct observation and the FACTS. The researchers identified 21 participants that had direct observation data and FACTS data. The data were described as a: confirmation (the direct observation and FACTS both identified a consequence that was identical), disconfirmation (the direct observation and the FACTS identified consequences that were not identical), and multiple consequences (direct observation and the FACTS identified one identical consequence, as well as others that weren’t identical). Ninety percent (19) of the participants were labeled as a confirmation, 1 was labeled as a disconfirmation, and 1 was labeled as multiple consequence (McIntosh et al, 2008). Data from this study provides evidence for the convergence between indirect and direct assessment methods because ninety percent of the time, the FACTS and direct observation identified consequences that were the same.

Dufrene et al. (2007) also found convergence between three FBA measures used in their study (FAIR-T preschool version, direct-descriptive assessment, abbreviated experimental analysis). The purpose of their study was to extend the FBA literature to preschoolers without developmental disabilities who exhibited high incidence problem behaviors. They used the Functional Assessment Informant Record for Teachers Pre-school Version (FAIR-T P) to obtain information from the student’s teachers about student’s problem behaviors and the context in which they occurred. Direct Descriptive Assessment (DDA) was conducted using 10 minute partial-interval observations with tape-cued 10 second intervals, and then conditional probabilities were determined using the DDA data. Obtaining conditional probabilities allowed the researchers to determine what percentage of time certain consequences (escape from teacher directions, social attention, or tangible reinforcers) followed the target behavior and hypothesize the function of the behavior. Lastly, the researchers used abbreviated functional analysis to test their hypothesis regarding the function of the problem behavior.

The researchers found convergence between the results of the FAIR-T P, Direct-Descriptive Assessment (including conditional probability data), and the Abbreviated Experimental Analysis for each student. For two of the three participants, each FBA measure identified social attention as the maintaining function of their problem behavior. For the third participant, each FBA measure identified escape from teacher instructions as the maintaining function of problem behavior.

Summary/ Rationale for Current Study

Functional Behavior Assessments (FBAs) are a commonly used tool for school psychologists and have become an integral part of the intervention process (Ervin et al., 2001). When conducting FBAs, school psychologists typically collect information using direct and indirect assessment measures. Teachers often contribute to the FBA through indirect assessment measures. It is important for the validity of the FBA that teachers have the ability and competence to complete FBA related forms correctly. However, a variety of studies have shown the need for further training in FBA methods and procedures for teachers and practitioners in schools as well as pre-service teachers (Pindiprolu, Peterson, & Berglof, 2007; Fox & Davis, 2005). After reviewing the literature on functional behavioral assessment, it is clear that more information is needed regarding the effect of teacher knowledge and training on the convergence of direct and indirect assessment procedures.

Research Question: What is the degree of convergence between a direct assessment measure (Conditional Probability Record) and indirect assessment measures (Consequence Variables Assessment
From and Antecedent Variables Assessment Form), and does the participants’ amount of knowledge of FBA and its methods affect this convergence? Participants with more knowledge of FBA are predicted to have greater convergence on the direct and indirect assessment measures, while those with less knowledge of FBA are predicted to have less convergence on the instruments.

**Methodology**

**Participants**

Participants in the study included twenty-nine college students in EDP 494 at Miami University. Participants were selected because they were enrolled in a higher level special education class and were familiar with FBA and basic practices etc. because they had taken previous courses in FBA or courses that discussed FBA.

**Setting: Materials**

The study was conducted in rooms 222 and 416 in McGuffey Hall. Participants were invited to participate in the study before their regularly scheduled class began.

A 9-minute video clip of a child with a high level of problematic behaviors was used for the participants to view.

An FBA questionnaire was given to the participants to collect information about their knowledge of FBA and its methods, as well as the number of credit hours participants had taken in behavior management courses.

Three measurement instruments were used. The Conditional Probability Record (CPR), developed by Watson and Steege (2003), was used to determine the antecedents and consequences of the target behavior of the child in the video clip.

A second instrument, the Antecedent Variables Assessment Form (AVAF), an interview measure developed by Watson and Steege (2003), was used to determine what the participants viewed as the antecedents to the problem behavior of the child in the video clip. A third instrument, the Consequence Variables Assessment Form (CVAF), an interview measure developed by Watson and Steege (2003), was used to determine what the participants viewed as the consequences of the problem behavior of the child in the video clip.

The video clip that was used showed a child sitting at the dinner table, refusing to eat his dinner. The child’s mother was the only other person present in the video clip. Antecedents and consequences of the child’s problematic eating behavior as well as many reinforcers were present in the video clip which made the AVAF and CVAF applicable.

The Conditional Probability Record is a form that allows the observer to observe the antecedents and consequences of behavior simultaneously. This form was individually tailored to include the relevant antecedents and consequences of the study. After calculating conditional probabilities, the observer was able to see the likelihood of a particular behavior given an antecedent and the likelihood of a particular consequence given a behavior. This form gave the observer data important to determining the function of a behavior.

The Antecedent Variables Assessment Form was used to determine the “triggers” of the target behavior. The four sections on the AVAF (environmental, instructional, social, and transitional) are four areas in which problem behavior is likely to occur.

The Consequence Variables Assessment Form was used to determine the consequences of the target behavior, in other words, what was maintaining the behavior. The CVAF was used to identify the variables that followed the target behavior. Specific sections addressed positive reinforcement, negative reinforcement, automatic reinforcement, and the parameters which surrounded each type (duration, frequency, schedule, etc.).
**Design and Procedures**

Before beginning the study, the experimenter and another graduate student trained in data collection watched the video of the children with problem behaviors. The experimenter and graduate student completed the Conditional Probability Record based on what they saw on the video of child’s problem behaviors. The CPR was also scored by the same graduate student and the experimenter. Interrater reliability was calculated from the observers’ CPR data and found to be 100%. After the CPR data was collected and analyzed, the correct antecedents and consequences for the child’s problem behavior was determined.

Data were collected over two sessions in two classrooms in McGuffey Hall, during participants’ regular class time. After the participants’ arrival, they were given a packet of papers which included the informed consent, the FBA questionnaire, the AVAF and the CVAF. First, they were asked to read and sign the informed consent. Next, participants were asked to complete the FBA questionnaire to help the experimenter gauge their knowledge of and experience with FBA methods.

The experimenter explained to participants that they were going to watch a 9-minute video clip about a child with a high frequency problem behavior and complete two different forms. Participants were given approximately five minutes to look over the AVAF and CVAF so they were aware of what they needed to look for in the video clip. Participants were instructed to complete the AVAF and CVAF to the best of their ability based on their previous knowledge. They had the option of completing the forms while watching the video, or waiting until the clip is finished.

The nine minute video clip was then shown to the participants. After filling out both the AVAF and CVAF, participants returned to their regularly scheduled class.

**Protection of Human Subjects**

Approval was obtained by the Institutional Review Board (IRB) at Miami University before the study began. No harm was anticipated and risks were minimal. Confidentiality was maintained, and the names of the students do not appear in the final report.

**Confidentiality**

The packets which included the student questionnaire, the AVAF, and the CVAF, were numbered before the study began. Each page in a participant’s packet contained the same number. Participants were instructed not to put their names on any of the papers and to paperclip all papers back together. This insured that participants’ responses could in no way be linked to their names.

**Data Analysis**

To eliminate bias, a graduate student, not connected with the study, was asked to review and rate half of participants’ responses on the AVAF and CVAF, while the experimenter rated the other half. Criteria for the correct answers were determined by the researcher before the forms were scored. Each question on the AVAF and CVAF was scored on a range of 1-5 (1=total incorrect answer; 5=total correct answer). After each question was scored, the total points from each question were summed to determine each participant’s total AVAF and CVAF score.

Participants also received two scores on the student questionnaire. They received a total score based on how they rated their knowledge of FBA. They also received a total score for the second half of the questionnaire which asked FBA related questions. Participants were then divided into two groups based on their knowledge score.

To determine whether a relationship existed between one’s training in FBA methods and one’s ability to accurately complete FBA forms, an independent samples t-test was performed to determine if there was a difference between the high and low knowledge group scores on the second half of the questionnaire, the AVAF score, and the CVAF score.
To determine whether convergence existed between the direct (CPR) and indirect (AVAF,CVAF) measures, participants received a score on the AVAF and CVAF based on the number of correct antecedents and consequences (as determined by the CPR) that were discussed. The correct antecedents and consequences were determined by the experimenter before the study began. There were four antecedents (Gatorade, proximity to mom, command to eat, and talking to him) and four consequences (drinking the Gatorade, command to eat, verbal attention, and physical attention). Conditional probabilities were calculated for each antecedent and each consequence. The most frequent antecedent and consequence was worth four points, the next frequent one was worth 3 points etc. Participants received a score on the AVAF based on which antecedents they identified and on the CVAF based on which consequences they identified. An independent samples t-test was performed between the high and low knowledge groups to determine if there was a difference in convergence between low and high knowledge groups on the CPR and the AVAF/ CVAF.

Results

The current study was conducted to answer two research questions: 1) the level of convergence between a direct assessment measure (Conditional Probability Record) and two indirect assessment measures (Antecedent Variables Assessment Form, Consequence Variables Assessment Form) and 2) to determine if participants with more knowledge of FBA methods and procedures etc. correctly identified antecedents and consequences of behavior better than participants without such knowledge.

To determine the level of convergence between the direct and indirect assessment measures, the scores from the CPR, AVAF, and CVAF were compared. The antecedents and consequences identified on the AVAF and CVAF were compared to the correct antecedents and consequences from the CPR, which was completed by the researcher and another graduate student. An independent samples t-test was performed on the data between the group of participants with high FBA knowledge and low FBA knowledge on their AVAF and CVAF scores. No significance was found, suggesting that participants’ level of knowledge did not have an effect on the convergence of the measures.

A Pearson R correlation was also performed on the participants’ scores on the AVAF, the CVAF, the sum score of the AVAF and CVAF, and their CPR score to determine if there was convergence between the AVAF/ CVAF scores and the CPR. A significant correlation was found between the AVAF score and the CPR score demonstrating convergence between the AVAF and the CPR. See table 1.
Table 1
Pearson Correlations Between the AVAF, CVAF, and CPR

<table>
<thead>
<tr>
<th>CPR score</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AVAF Score</td>
<td>$r = .397^*$</td>
</tr>
<tr>
<td>CVAF Score</td>
<td>$r = .103$</td>
</tr>
<tr>
<td>AVAF + CVAF Score</td>
<td>$r = .338$</td>
</tr>
</tbody>
</table>

Note *= p<.05
Note **= p<.01
Ns = not significant
The second research question was evaluated by comparing participants’ total scores on five FBA knowledge based questions (on the FBA questionnaire) with their total scores on the second half of the student questionnaire, and their total scores on the AVAF and CVAF.

The Student Questionnaire, which participants completed at the beginning of the study, contained 5 questions to measure their knowledge of FBA. Students were asked to rate their knowledge of FBA methods and procedures and to identify antecedents, consequences, and interventions on a scale of 1-5 (1 =no knowledge, 5=high knowledge) based on the results of a FBA. A total score ranging from 5-25 was calculated for each participant based on how they rated their knowledge.

Participants also received a total score for their answers on the second half of the student questionnaire which contained specific questions about FBA and determining an intervention based on FBA data. There were a total of seven questions, each worth a certain number of points, and scored on a scale. Each question was worth a different number of points, and participants could receive partial credit for each question depending on the answer they gave. Criteria for the correct answers on each question were determined by the researcher before the questionnaires were scored. The questionnaires were scored by the researcher and another graduate student, familiar with FBA, in order to ensure inter-rater reliability. Reliability was found to be 100%.

After all the scoring was complete, each participant received a total score for their knowledge of FBA (measured by the 5 ratings on the student questionnaire) which was compared with the total scores obtained from the second half of the questionnaire, the AVAF, and the CVAF. To analyze the data, an independent samples t-test was performed. A scatterplot was used to divide the 29 participants into two groups, using their knowledge scores on the 5 knowledge based FBA questions. Group 1 contained the 14 participants with the lowest knowledge scores (ranging from 10-16). Group 2 contained the 18 participants with the highest knowledge scores (ranging from 17-22). The t-test was performed to determine if participants in group 2 (with more knowledge of FBA) would also obtain higher scores on the second half of the questionnaire, the AVAF, and the CVAF.

The results of the t-test showed significance (p=.011) between the level of knowledge and the scores on the second half of the questionnaire, and significance (p=.046) between the level of knowledge and the total scores on all items (second half of questionnaire, AVAF, CVAF), suggesting that those in the higher knowledge group obtained higher scores on the total score of all FBA forms and on the questions on the second half of the questionnaire. See table 2.
<table>
<thead>
<tr>
<th>Level of Knowledge</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Half of Questionnaire</td>
<td>.011*</td>
</tr>
<tr>
<td>AVAF Total</td>
<td>.300 ns</td>
</tr>
<tr>
<td>CVAF Total</td>
<td>.273 ns</td>
</tr>
<tr>
<td>Total Score (2nd half, AVAF, CVAF)</td>
<td>.046*</td>
</tr>
</tbody>
</table>

Note *= p<.05
ns= not significant
A Pearson R correlation was also performed on the data to determine other significant relationships. Significant correlations can be found in the table 3.
Table 3

Pearson Correlations in the Data

<table>
<thead>
<tr>
<th></th>
<th>2(^{nd}) Half of Questionnaire</th>
<th>2(^{nd}) Half of Q, AVAF Total, CVAF Total</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Knowledge</td>
<td>(r = .439^*)</td>
<td>(r = .308) ns</td>
<td>(r = -.526^{**})</td>
</tr>
<tr>
<td>2(^{nd}) Half of Questionnaire</td>
<td></td>
<td>(r = .530^{**})</td>
<td>(r = -.305) ns</td>
</tr>
<tr>
<td>AVAF Total</td>
<td>(r = .132) ns</td>
<td>(r = .821^{**})</td>
<td>(r = -.480^{**})</td>
</tr>
<tr>
<td>CVAF Total</td>
<td>(r = .248) ns</td>
<td>(r = .721^{**})</td>
<td>(r = -.201) ns</td>
</tr>
<tr>
<td>2(^{nd}) half of Q, AVAF Total, CVAF Total</td>
<td></td>
<td></td>
<td>(r = -.491^{**})</td>
</tr>
</tbody>
</table>

Note \(^*\)= \(p<.05\)
Note \(^{**}\)= \(p<.01\)
Ns = not significant
Based on the significant correlation between total knowledge score and the second half of the questionnaire, it appears that participants with greater knowledge of FBA measures and procedures could more correctly answer questions based on FBA than those without such knowledge.

**Discussion**

The current study was conducted to answer two research questions: 1) whether knowledge of FBA methods and procedures affects one’s ability to complete FBA related forms, and 2) whether convergence would be found between one direct and two indirect assessment measures.

In answering the first question, the results of the study indicated that participants who rated themselves as having a higher knowledge of FBA could correctly answer more FBA related questions on the student questionnaire (which also involved providing an effective intervention to a problem behavior). The study also showed that participants with higher knowledge of FBA obtained higher scores on the combined score from the FBA related questions, the AVAF and the CVAF.

The results also showed convergence between the CPR and the AVAF, demonstrating 1) convergence between a direct and indirect assessment measure, and 2) that the participants in the current study were better able to determine the antecedents than consequences of problem behavior.

A link between knowledge of FBA measures and the ability to answer FBA related questions including determining an effective intervention for a student was found in the current study. Due to the frequency of use of FBA measures in schools, it is important that teachers have knowledge of FBA so they are able to determine interventions in the classroom. The current study suggests that without training and follow up, one should not assume that the information contained in the FBA forms is correct. Because FBAs are mandated in schools, people often just want to complete the paperwork, but it is not always correct. Even participants with a higher knowledge of FBA did not complete the forms perfectly or identify all of the correct antecedents and consequences. Even though a significant correlation of .397 was found between the scores on the AVAF and CPR, this is not a strong correlation, suggesting that despite the relationship between these two variables, participants still had difficulty completing the form correctly and identifying antecedents of behavior.

In their study, Dufrene et al (2007) found convergence between the indirect assessment measure, the direct assessment measure, and the results of the functional analysis. One difference between the current study and the study by Dufrene et al (2007) was that Dufrene et al (2007) used the Functional Assessment Interview Record for Teachers (FAIR-T). When using interview measures, the success of the interview depends more on how skilled the interviewer is as opposed to the skill and training of the interviewee. The interviewer has the opportunity to clarify responses and questions that were not understood, and ask questions to gain the exact information they are seeking. In contrast, participants in the current study were asked to read and interpret the forms on their own and received no assistance from the examiner when completing these forms. These results suggest that when practitioners are conducting FBAs in the school setting, they should conduct interviews with teachers and other professionals instead of just handing a teacher an FBA form to complete. When information is obtained through an interview with a skilled interviewer, there is a greater likelihood that the information received will be more accurate, relevant, and complete.

**Limitations**

Limitations of the current study primarily involve the small sample size. The study included only twenty-nine subjects from one major university in the Midwest. Due to the small sample size the results of the study cannot be generalized to the population at large.

Another limitation of the study was the missing data on the student questionnaire. Students were asked to provide the number of behavior management courses (and hours) they had taken, as well as their total number of credit hours at the university. Approximately half of the participants left these questions blank, even though instructed to fill out all questions to the best of their ability. The number of behavior
management courses was going to be used as an objective way of determining how much knowledge of FBA participants had, but given the lack of response on these questions, a self rating scale had to be used to determine participant’s level of knowledge of FBA measures etc. The subjective nature of the scale brings into question the reliability of the data.

The confounding variable of knowledge of FBA is another limitation of the current study. The independent samples t-test performed to determine convergence between the AVAF and CVAF with the CPR was not found to be significant. It is impossible to determine whether the lack of significance was found because the measures are truly not convergent, or whether it was the participant’s lack of knowledge FBA measures which caused the lack of convergence. It is possible the problem is not with the instruments themselves, but with the participants using them.

**Consistency with Previous Research**

Previous research has shown many procedural inadequacies in FBAs. One of the most common problems in an FBA is the practitioners’ lack of ability to determine the function of the behavior and to link that function with an effective intervention. While participants in the current study were not specifically asked to determine the function of behavior of the boy in the video clip and develop an intervention, they were asked to determine the antecedents and consequences of his behavior which are necessary in determining a behavior’s function as well as an intervention. Participants were asked to determine an intervention for a child’s problem behavior in the student questionnaire before the study began which appeared problematic for most of them.

Previous research has also called for more behavior management training for pre-service teachers who will be entering the field of education. The current study also found this to be true. Participants in the current study were unable to consistently identify the correct antecedents and consequences of the child’s problem behavior and correctly complete the AVAF and CVAF. Approximately half of the participants also had a lack of knowledge of the number of behavior management courses they had previously taken which could indicate that a lack of importance was placed on completing these courses.

There is very little research to compare the current studies’ findings on convergence to, as there are only a few studies looking at convergence between direct and indirect measures. There are far more studies conducted to determine the convergence of indirect or direct measures with one another. The current study is also the first known study to be conducted which compares these specific instruments (AVAF, CVAF, and CPR). Convergence was found between the CPR and AVAF but not the CPR and CVAF. In the few studies that have been conducted, convergence was found between the direct and indirect measure, however, in general, the findings on convergence are mixed, possibly due to the confounding variables of FBA training and knowledge of FBA measures. Therefore, half of the current studies’ results are consistent with previous research.

**Implications for Research and Practice**

In order to generalize the results to the population at large, the study should be replicated on a larger, more diverse sample. It may also be beneficial to replicate the study on teachers currently teaching in schools, to determine exactly how much knowledge teachers have.

The current study estimated the level of convergence between the measures as well as the effect of FBA knowledge on convergence and the participants’ ability to identify antecedents and consequences of a child’s behavior. In order to extend this study and gain more knowledge about the effects of training on participant’s ability to correctly complete FBA measures, a training component could be added to the study. Participants could complete the FBA forms based on a student’s behavior, just like the current study; however, they would then receive training in how to complete the forms correctly. Participants would then watch a different video clip and fill out the same FBA forms based on the new clip. Their “before” and “after” scores would be compared to see if the FBA training made a difference in their ability to complete the FBA forms correctly. This variation of the current study would allow researchers to better determine the effects of training on participants’ ability to complete FBA forms.
The results of the current study are also relevant in the field of education and training. Practitioners in the field must be very cautious when interpreting forms from teachers without a lot of FBA knowledge. The current study has shown that participants who rated themselves as having a higher knowledge of FBA were better able to determine more effective interventions than those who rated themselves with less FBA knowledge.

The current study also found that participants were more successful at identifying antecedents than consequences of behavior. Current teacher training programs should devote more time to discussing how to identify antecedents (and consequences) of behavior, and once identified, how to use those identified antecedents and consequences to determine an effective intervention. Participants in the study had a difficult time creating a successful intervention (with all the relevant parts) for a given scenario. Training programs should also require more behavior assessment courses, since teachers will need the knowledge gained in these courses to help practitioners complete successful FBAs in the schools.

If conducted properly, the FBA process can provide valuable information about the function of a student’s behavior. All teachers will encounter students with behavior problems in their classrooms, making the current findings especially relevant to teachers. Because the teacher is often the one in school who knows the child and his or her behaviors the best, their information is invaluable to identifying and implementing a successful intervention to change the problem behavior. Teachers need to be well trained in behavior assessment in order to provide relevant information. The current study showed that the more self reported knowledge participants had, the better they were able to complete the FBA forms. When generalized to the classroom, these findings suggest that more training and teacher self reported knowledge of behavior assessment procedures leads to more complete and correct FBA data, which ultimately leads to successful interventions for students. With better training in behavior assessment, identifying antecedents and consequences, developing interventions, and more knowledge of FBA forms and procedures, teachers will have the ability to be an integral part of the FBA process and help determine interventions which will make each student a success.


