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Agreement Among School Psychologists On Behavioral Function Using Antecedent-Behavior-Consequence Logs As A Functional Behavior Assessment Method

Beth Bourque
Eastern Illinois University

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Agreement among school psychologists on behavioral function using Antecedent-Behavior-Consequence logs as a functional behavior assessment method

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Beth Bourque

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Abstract

The purpose of this study was to a) determine if school psychologist hypotheses of behavioral function would be consistent with direct behavioral observation data collected via computer program, b) determine if school psychologists agreed with the teacher's hypotheses on behavioral function, and c) determine if school psychologists agreed with each other on behavioral function based on information from the A-B-C logs. Minimal agreement was found between the computer-based hypotheses and the school psychologist's hypotheses, and between the school psychologists and the teacher hypotheses. Agreement on behavioral function was found in two of the cases among school psychologists.

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Agreement among school psychologists on behavioral function using Antecedent-Behavior-Consequence logs as a functional behavior assessment method

Teachers report that disruptive and off-task behavior is the most common problem in the classroom (Myers & Holland, 2000). The majority of these teachers believe that the goal of behavior management is to implement consequences to control inappropriate behavior (Myers & Holland, 2000). This view on behavior management is outdated and can lead teachers to believe they "just know" why a student is behaving the way they are (Larson & Magg, 1998). Moreover, most teachers do not construct their behavior management plans based on research, resulting in interventions being implemented that are ineffective (Myers & Holland, 2000). When interventions fail, teachers become frustrated and discouraged. The need for effective means of developing successful classroom interventions has led many practitioners to use methods related to functional analysis and functional assessment of behaviors (Doggett, Edwards, Moore, Tingstrom, Wilczynski, 2001; Iwata, Dorsey, Slifer, Bauman, & Richman, 1994). The purpose of the present research was to establish whether or not school psychologists could correctly identify behavioral function and furthermore agree with teachers based on various assessment methods.

Functional assessment has been defined by O'Neill et al. (1997) as "a process of understanding the physiological and environmental factors that contribute to a problem behavior" (Myers & Holland, 2000). Functional assessment uses a combination of different methods to determine what the purpose or function of the student's behavior is. This is accomplished by gathering information about the antecedents and consequences

as well as data on the student's behaviors to determine what function the behavior serves. (Witt, Daly, & Noell, 2000).

Among researchers there are four main categories of functions. These functions include (a) escape (delay, reduction, or avoidance of aversive tasks, activities, or other individuals), (b) attention from peers or teachers, (c) access to tangible reinforcers or preferred activities, and (d) internal stimulation (Gresham, Watson, & Skinner, 2001; Iwata, Vollmer, & Zarcone, 1990; O'Neill et al., 1997). O'Neill et al. (1997) suggested five primary outcomes of the FBA process. These include (a)determining a clear description of the problem behavior, (b) identifying events, times, and situations that predict the target behavior, (c) identifying the consequences maintaining the behavior, (d) developing hypotheses to describe the behavior as it is related to the antecedent and consequence, and (e) collection of direct observation data that support these hypotheses (Steege, Davin, & Hathaway, 2001).

There are several clear advantages to using functional assessments in the classroom (Larson & Magg, 1998). First, determining the function of a problem behavior leads to effective interventions. FBA helps to provide interventions that are designed to teach appropriate behaviors rather than punishing inappropriate behaviors. Second, because functional assessment provides knowledge of what is evoking and maintaining a problem behavior, this allows teachers to focus on prevention and remediation of behavior. Finally, functional analysis provides those involved (parents, teachers, etc.) a common language pertaining to behavior (Chandler, Dahlquist, & Alan 1999).

Despite the positive advantages to using functional assessment there are two concerns. A major concern for using FBA in the classroom is the practicality and

acceptability. To be useful in the school setting, it is important that FBA be done in a timely, efficient manner. A literature review conducted by Reid & Nelson (2002) suggested that teachers reported the procedures as acceptable; however, there were few studies with information regarding the practicality. This lack of information related to practicality may be because the reviewed studies reported that teachers did not take part in the FBA process. While the actual practicality was not mentioned, it was reported that practitioners required 3-20 sessions to complete the entire process. The authors of the literature review concluded that there needed to be more data on the practicality of FBA in the schools, with the question of whether the process is being done in a timely manner.

There are legal considerations for when functional assessments are to be conducted. According to IDEA (1997) regulations, a functional behavior assessment must be conducted for students receiving special education services before disciplinary action can take place. However, guidelines for conducting appropriate functional behavior assessments are not clearly stated. This has left schools, practitioners, and researchers to decide how these procedures are to be conducted, which has in turn resulted in a variety of FBA methodologies.

FBA Methods. The process of FBA can include multiple combinations of indirect and direct methods. Indirect methods include such things as interviews, behavior rating scales, checklists, and questionnaires. The current study focuses primarily on the interview method. In most cases, a teacher is the one being interviewed. The goal of the interview is to identify and operationally define the problem behavior, identify antecedent events (times of day most likely to occur, particular academic subjects or transitions where there may be high rates of the target behavior, etc.), identify previous strategies

that have been used (successful and unsuccessful) (Larson & Maag, 1998; Sterling-Turner & Robinson, 2001), and obtain preliminary information concerning the hypothesized function (Gresham et al., 2001).

While indirect methods may be relatively easy and quick to administer they may not always produce valid information (Cunningham, & O'Neill, 2000). For this reason, direct methods are used. Direct methods include observations and environmental manipulations in natural or analog settings (Cone, 1997; Barnett, Bauer, Ehrhardt, Lentz, & Stollar, 1996).

Direct observations are used to confirm the information obtained from the interview. This method is regarded as essential to the development of a reliable FBA (Larson & Maag, 1998; Steege et al., 2001). The first and most important step in direct observation is to have an operational definition of the target behavior (which is usually defined in the interview). Observation is a descriptive procedure that can be completed as narrative recording, event recording, or time sampling. The key is not to just observe, but to address relevant environmental and setting variables (Sterling-Turner & Robinson, 2001).

An appropriate technique of direct observation is using contingency analysis (A-B-C logs). This procedure is the most common, simple to use method for collecting data (Bijou, Peterson, Marion,1968; Gresham, et al., 2001; Larson & Maag, 1998; O'Neill et al., 1990; Sterling-Turner & Robinson, 2001). Fox, Gunter, Davis, and Brall (2000) reviewed a national survey that found 87% of researchers and trainers believed that observations are always necessary in FBA; however it is unknown how often observations are used in practice. These descriptive observational methods may be more

familiar to people and require less expertise to carry out, but they may also produce ambiguous or invalid information (Cunningham & O'Neill, 2000).

It was suggested by Fox et al. (2000) that skillful, accurate, and informative observations are the key to all functional behavior assessments. In order to obtain these essential observations, clear and objective definitions of the problem/target behavior, as well as the antecedents and consequences, are needed. The authors argued that observations can be too time consuming for practitioners to implement, and may not be affordable by the school. It is also important to realize that the presence of a trained practitioner in the classroom can alter the "natural" environment. For these reasons it may be desirable to use teachers to collect observations.

Fox et al. (2000) suggested that teachers, when given training, can accurately observe and record the information needed to determine the function of a target behavior. Symons, McDonald, & Wehby (1998) reported on the inter-rater reliability of teacher-collected observational data. He found high reliability (.93) and concluded that teachers can successfully record observation data and participate in the decision-making process of reducing problem behaviors. Similar results found by Larson & Maag (1998) indicated that teachers could successfully conduct functional assessments. Not only can they be accurate, but teachers are also the most significant source of information on a student's behavior.

When school psychologists are doing the observations, there are additional ways of collecting data in the natural setting that have been found reliable and easy to use. One method that has resulted from technological improvements is computerized data collection software. In fact, there are several programs that have timing and coding

capabilities allowing the observer to concentrate on the target behaviors, rather than on the recording process (Larson & Maag, 1998).

Potentially, the most precise research-based means for generating assessment data is an experimental functional analyses (Iwata et al., 1990). This method involves controlling the environment and variables in order to test hypotheses made about the function of the target behavior. While there is much research to support its use, experimental functional analysis requires much skill and resources to be used in the classroom.

With the limitations of each of these different methods (interviews, direct observation, and experimental analysis), it is evident that more research in the area of functional assessment in the classroom is needed (Doggett et al., 2001; Miller, 2000; Nelson, Roberts, Bullis, Albers, & Ohland, 2000). Nelson et al. (2000) stressed that it is not practical to base educational policies, such as the revisions in IDEA about functional assessment, when there has been little research showing effectiveness (Kinch, Lewis-Palmer, Hagan-Burke, Sugai, 2001). Therefore, determining which components are the most likely to result in effective interpretations needs further research (Cone, 1997; Kinch et al., 2001; Mace, 1994; Nelson et al., 2000).

Evaluating FBA Methods. When evaluating the accuracy of data from FBA, it has been suggested that the outcome be compared with the outcome of another measure that has been determined to represent the target behavior (Cone 1997; Cunningham, & O'Neill, 2000;Shriver, Anderson, & Proctor, 2001). Of the research that looked at comparing methods, most compare interviews, direct observation, or rating scales to functional analysis. Presently, functional analysis is the most accurate method of

determining behavioral function (Lerman & Iwata, 1993). Nangle & Foster (1992) used this model to find that descriptive observation methods can produce results equivalent to functional analysis in identifying functions of behavior. One limitation of looking at these correlational data is that it can be difficult to determine the exact controlling variable, and it is probable that multiple hypotheses can be made (Sterling-Turner & Robinson, 2001).

Some researchers believe functional assessment interviews and direct observations are the best methods (Arndorfer, Miltenberger, Woster, Rortvedt, & Gaffaney 1994; Doggett et al., 2001; O'Neill et al., 1997). While conducting an interview is easier than direct observations, requiring less time and effort, the observation data may be more likely to lead to effective treatment (Shriver et al., 2001). Sterling-Turner & Robinson (2001) recommend that treatments not be developed based solely on indirect methods (i.e. interviews, rating scales, etc.). Instead, indirect methods most useful for identifying potential time periods to collect data, generating initial hypotheses, and establishing a working relationship with the teacher. Sterling-Turner & Robinson (2001) argued that the collection of direct observation data is essential to the development of a treatment plan.

Researchers have been successful in decreasing target behaviors by designing interventions based only on descriptive data (Sterling-Turner & Robinson, 2001). A major strength of using descriptive observation to develop hypotheses and interventions is it decreases the amount of time spent in assessment before moving to treatment. However, in many cases of using single data methods to determine the function of behavior there is no agreement found unless participants are trained in applied behavior

analysis (DeProspero & Cohen, 1979; Knapp, 1983; Matyas & Greenwood, 1990, 1991; Ottenbacher, 1990; Park, Marascuilio, & Gaylord-Ross, 1990). For example, when the only method of data collection is direct observation, psychologists could not agree on the function of the behavior. However, when the observers were given advanced training of 1-2 hours in applied behavior analysis, the agreement reached acceptable levels (Hagopian et al., 1997).

Doggett et al. (2001) used interviews and direct observation to determine functions of behavior of students with mental retardation. Separate hypotheses were developed following the interview and the partial-interval observations. The results indicated that the interview did not result in the identification of behavioral function other than teacher and peer attention.

In addition to Doggett et al. (2001), other research has suggested successful outcomes based on interview and descriptive observation data. For example, a reduction in "tantrum" behavior was successfully obtained when only teacher interview and descriptive observation data were used (Repp & Karsh, 1994). Descriptive data were also used to develop interventions to decrease "hand-flapping" by a developmentally typical student (Mueller, Sterling-Turner, & Scattone, 2001).

Research has also investigated the relationship between interview data and observational data. Kinch, Lewis-Palmer, Hagan-Burke, & Sugai (2001) investigated three middle school students displaying disruptive behavior. The student's teachers were interviewed and direct observation data collected on the problem behaviors. When compared, there was agreement on the hypothesized function using each method.

Umbriet (1995) conducted a study with a 5-year old boy with mild mental retardation in an inclusive kindergarten classroom who displayed frequent disruptive behavior. Structured interviews, analysis of antecedents, behaviors, and consequences, and a brief functional analysis were used to develop a hypothesis and implement an intervention. The teachers in the classroom collected all the information, while instructional activities were present. The intervention effectively eliminated all disruptive behavior, increased appropriate behavior, and remained evident several months later. The teachers involved in the process rated it with high acceptability. It was concluded that each assessment method resulted in identifying the variables associated with the disruptive behavior. However, it is unknown whether each method used was necessary, and whether each method would have been as effective if used by itself.

Cunningham & O'Neill (2000) demonstrated a method for comparing different types of information and data. Interviews of the teachers, descriptive observation and experimental functional analyses were conducted. Teachers were asked to make a hypothesis as to the function of the behavior in each separate method. When more than one function was indicated, they ranked them in order of importance. When comparing the rank order and the hypothesized functions, there was perfect agreement between the teachers. The descriptive observation and interview methods took less than five days to complete, while the experimental analysis took two weeks. It was concluded that accurate and valid results can be produced, a large percentage of the time, with less costly and time-consuming methods, and with lower levels of training and expertise required.

Future research should seek to determine the conditions and behaviors for which FBA is and is not required in designing effective behavioral intervention plans (Gresham

et al., 2001). It was recommended that a procedure be developed that can deliver precise and valid information about the problem behavior, as well as take less time and effort from the implementers (Horner, 1994). However, it is likely that there is not one "true" procedure for FBA. It is likely that different procedures will be recommended for different situations. Still, a method to improve and systematically compare of the multiple procedures is necessary (Cunningham, & O'Neill, 2000).

Given the minimal research found on the comparison of individual methods of functional behavioral assessment, the present study focused on the use of teacher interviews and contingency analysis (A-B-C log). Since research has suggested that teachers can accurately report and are the most significant source of information with regard to a student's behavior, these methods were compared to practitioner observation data to assess reliability. Previous research has not looked at the reliability of A-B-C Logs. The present study will look at school psychologist's ability to accurately determine behavioral function based on A-B-C Logs completed by classroom teachers.

Research Questions/Hypothesis

Three research questions were proposed. First, to what extent do school psychologists agree on behavioral function using the A-B-C log? It was predicted that the functions derived by the school psychologists would agree with the function derived from the researcher's observation data. Second, to what extent do teachers and school psychologists agree on behavioral function using the A-B-C log? It was predicted that the teacher's hypotheses would agree with the functions derived by the school psychologists. Finally, to what extent do school psychologists agree among them selves as to the

function of behavior? It was predicted that the psychologists would be able to agree on behavioral function.

Methodology

Participants

Teachers. One southwestern Illinois school district was targeted for participation. Participating teachers were selected based on availability of functional behavior assessment cases assigned to the present researcher during the school psychology internship year. To be considered for participation, a teacher was required to have a student in their classroom who presented behavior problems. Students could be male or female and of any grade and ethnicity. Any behavior that teachers indicated as a problem was considered.

The teacher for Case 1 was a first-grade master level teacher with 6 years of teaching experience. Her classroom consisted of approximately 25 students with no teacher aides. Teacher 2 (Case 2) was a kindergarten teacher with a masters degree and 19 years experience. This classroom contained 18 students and a half-day teacher's aide. The teacher for Case 3 was a pre-kindergarten teacher with 10 years experience and a Bachelor's degree. The classroom consisted of 10 students and one full-time teacher's aide. There was also a half-time aide and a high school student aide in the classroom during morning activities. This preschool classroom was in the public school, and consisted of students identified as "at-risk".

Target Students. Case 1, "John," was a six-year old male, in a regular education first grade classroom. He was referred to the consultation team because he was earning failing grades in math and reading. The teacher was most concerned that John seemed to

be off-task and "in his own world" much of the day. Case 2, "Tim," was a five-year old male, in a regular education kindergarten classroom. He was referred to the consultation team because he was unable to identify letters and their sounds; however, the teacher was most concerned that Tim frequently was fidgeting, getting out of his seat, and talking out. Case 3, "Ryan," was a four-year old male in a pre-kindergarten classroom. He was referred to the consultation team for aggressive behavior.

School psychologists. Other participants included practicing school psychologists. Names and mailing addresses of member school psychologists of the National Association of School Psychologists (NASP) were obtained from the INFOCUS List Brokerage. Two-hundred names were randomly selected for participation. Information packets were sent to the school psychologists. Data were anonymously recorded. There is no way to identify the names of participants with their responses.

Instruments

Teacher Interview. The researcher conducted an interview with each teacher. The goal of the interviews were to a) operationally define the problem behavior, b) define the setting events and environmental factors, c) define antecedent events, and d) identify specific consequences that follow the behavior. Another goal of the interview was to determine possible observation times, as well as to build a working relationship with the teacher. The interview questions were selected from an interview form used in a research study by Dahlstrom (2003) (See Appendix A).

Of the 200 packets sent out, a total of 47 responses were received (24%). Of the 47 responses, 6 were from retired school psychologists who did not complete the forms. Of the 41 completed responses, 18 (44%) had a Masters degree, 12 (29%) had a

Specialist degree, and 11 (27%) had a Doctoral degree in school psychology. The mean for the number of years experience was 9.03, with a range of one to thirty years. The median was six years of experience. Once the packets were returned, the hypothesized functions derived by the researcher (from the BEST program) were compared to those from the school psychologists, as well the teacher's hypothesis. These results are reported as percentages in Table 1.

A-B-C Log. This form was used by the teachers to record setting, antecedents, behaviors, and consequence variables (See Appendix B). The completed logs were then sent to school psychologists for analysis. The purpose of using these A-B-C logs was to determine if school psychologists could agree on behavioral function using only this method of observation.

B.E.S.T. Observation Program. The Behavioral Evaluation Strategies and Taxonomies (BEST) is a computer software program that allows researchers to easily record observational data and conduct analyses (Sharpe & Koperwas, 2000). Using the BEST program, researchers can improve the efficiency and accuracy of observational recording. The program allows for the observer to describe the observational setting, facilitate real-time data collection, record and categorize an infinite number of events, analyze data and provide graphs of the data. The program also has features such as assigning "hot keys" to perform specific functions during the observation and has a timing screen that will beep at the appropriate time during observation.

Using the computer program, the practitioner can examine the rate of behaviors, antecedents and consequences, as well as patterns among the three. Patterns between

certain antecedents/consequences and behaviors are used to hypothesize what function a behavior might serve.

Procedure

Teacher Interview. During the fall of this researcher's internship year, consultation meetings were conducted in the elementary school. As teacher's presented behavioral concerns of students in their classrooms, this researcher asked them to be participants. They were informed of the commitment and procedures of the study and an interview was scheduled. In the initial meeting with the teacher, an interview was conducted and the problem behavior was targeted and operationally defined. After completing the interview, the teacher was asked to make a hypothesis as to the function of the target behavior based on a forced choice of peer and/or teacher attention, escape, tangible reinforcement, or self-stimulation. Each function was described thoroughly and an example of each was given (see Appendix C). These functions were chosen based on recommendation from researchers that these are the four main categories of functions (Gresham, Watson, & Skinner, 2001; Iwata, Vollmer, & Zarcone, 1990; O'Neill et al., 1997). The teacher was provided a copy of the interview notes and asked to verify the accuracy of the information.

Observations. Following the interview, the teacher was instructed how to complete an A-B-C log. The teacher completed the log during specific time periods throughout one week, as recommended by Fox et al. (2000). The specific time periods were those times indicated in the interview that the behavior was most likely to occur. A date for the researcher to provide a classroom observation using the BEST program was scheduled at this time. The teachers completed the A-B-C log for one week. The

teacher's observation on the A-B-C log was in narrative form whenever the target behavior occurred.

On the day of the classroom observation questions regarding the procedure or completing the A-B-C log were answered. The classroom observation took place at a time that the teacher indicated the behavior occurred most frequently. The researcher entered the classroom and sat in an inconspicuous place in the classroom. The observation was done using the BEST software that was installed on a laptop computer. The analysis of the BEST observation data consisted of graphing the frequency of antecedents and consequences as well as the target behavior. The variables that appear at the highest rates were considered as the variables evoking or maintaining the target behavior. The researcher graphed the frequency/duration of each variable. The variable that occurred at the highest frequency/duration was hypothesized to be the variable maintaining the problem behavior. This hypothesized behavioral function was used in the comparisons to the school psychologists and the teacher's hypotheses. Using the BEST program, the researcher conducted the observation during a 20-minute time period. Once the observation was complete the teacher was given a debriefing statement informing them of the results of the observation.

School Psychologist's Participation. Following the teacher interview, teacher A-B-C Logs, and the classroom observations with the BEST, school psychologists from across the country were provided the A-B-C logs, a questionnaire, and a letter that briefly explained this researcher's position in gathering data and directions for completing the forms (see Appendix D), an information sheet and questionnaire (see Appendix E), and the A-B-C logs from the three students. The school psychologists were instructed to

examine the A-B-C logs and make a forced choice as to the function of the target behavior for each student case. The same four functions used in the teacher's hypothesis are used here. A description of each function, as well as an example of each was given. An incentive was provided to maximize participation. The incentive was a raffle for two people to win a $25 gift certificate to amazon.com.

Case 1 Results

Teacher Interview. John's teacher indicated that the problem (target) behavior was passively off-task behavior. This was operationally defined as not attending to an assigned academic activity for a period of at least three consecutive seconds (e.g. looking around the room or staring out the window). According to the teacher, this behavior occurred approximately 3 times in every 15 minutes and would last up to 5 minutes each time. During an examination of antecedent events, the teacher noted that it occurred during tasks that were not interesting to John, which was most likely during math, physical education, music, and art. The teacher's consequences for John's passively off-task behavior were verbal or physical redirections (e.g. touch his shoulder or desk and remind him to pay attention). This reportedly consequence did not usually help in reducing the behavior. To complete the interview, the teacher made a hypothesis that John's passively off-task behavior was maintained by the escape function. This behavior allowed for a delay, reduction, or avoidance of an aversive task.

BEST Observations. Using the BEST observation system, three 20-minute observations were conducted during John's math class. The target behavior (passively off-task) was recorded using duration recording. The other variables that were recorded were demands (verbal direction or instruction from the teacher to either John or the entire

class), attention (verbal praise for good behavior to either John or the entire class), physical redirection (touch the student or the student's desk to direct him to pay attention), verbal redirection (verbally telling the student to pay attention), escape (removal from the classroom), and time-out (sent to the "time-out chair" for six minutes). The escape and time-out variable did not occur during any of the observations; therefore they were not included in the rest of the results section. It should be noted that the teacher's hypothesis of escape as a mediating variable was not apparently related to the target behavior of passive off task as the behavior occurred.

During the initial baseline (see Figure 1), the variables were recorded as follows: attention occurred 1, 0, and 1 time; teacher demands occurred 15, 13, and 19 times; physical redirection occurred 1, 3, and 2 times; and verbal redirection occurred 0, 4, and 4 times. John's passively off-task behavior (see Figure 2) occurred the following durations: 183, 140, and 64 seconds.

Upon completing three baseline observations, the observer noted a decreasing trend in the problem behavior. For this reason, the observer chose to continue the baseline for two additional observations. In addition, two more observations were conducted prior to intervention implementation because John was placed in a special education classroom to receive resource help in academics. For this reason, the remaining observations took place in the resource classroom, with the special education teacher present. During the next two observations (Figure 1), the variables were recorded as follows: attention occurred 0 times; demands occurred 23 and 11 times; physical redirection occurred 0 times; and verbal redirections occurred 2 and 1 time. John

displayed passively off-task behavior (Figure 2) for 98 and 82 seconds during each observation respectively.

Behavioral Function. A function of behavior was hypothesized using the BEST observation data. Since the number of demands that the teacher gave was higher than the number of attention variables, it was concluded that escape of demands was the maintaining function. This was the function that was used in the A-B-C Log Analysis.

A-B-C Log Analysis

Agreement between BEST hypothesis and school psychologists. The BEST observations resulted in a hypothesized behavioral function of escape for John's behavior. Nineteen school psychologists (46.34%) agreed with this hypothesis (see Table 1).

Agreement between teachers and school psychologists. The teacher's hypothesis of the behavioral function was escape. Nineteen of the school psychologists (46.34%) agreed with this hypothesis (see Table 4).

Agreement among school psychologists. Of the 41 school psychologists, 19 (46.34%) were in agreement that the behavioral function was escape; 16 (39.02%) agreed the function was attention; and 6 (14.63%) thought the function was maintained self-stimulation. There were no school psychologists that thought the behavioral function was tangible reinforcement. See Table 7 for a review of these results.

Case 2 Results

Teacher Interview. Tim's teacher indicated that his problem behavior was physically off-task. This was defined as fidgeting in his seat (engaging in repetitive motor movements for at least 3 consecutive seconds), out-of-seat behavior (buttocks not

in contact with the chair or floor), or physically touching another person (with a part of his body or an object). It was estimated that this behavior occurred for five out of every fifteen minutes. The transition from doing the morning routine (teacher directed, group instruction on the carpet) to independent seatwork was when the behavior reportedly occurred most often. His teacher indicated that she usually redirected the student by physically putting her hands on his shoulders, or by verbal redirection of repeating directions and asking him to repeat the directions. Based upon the information in the interview, it was decided that Tim would be observed during the morning routine, including the transition period to independent seatwork. At that time, the teacher felt the function of Tim's physically off-task behavior was adult attention.

BEST Observations. Using the BEST system, four 20-minute observations were completed as a baseline. Tim's target behavior (physically off-task) was recorded as three separate behaviors: fidgeting, touching others, and out of seat. However, the touching others and out of seat variables did not occur during the observations and were not included in the remaining results section. Fidgeting was coded using duration recording. The teacher variables that were recorded were demands, attention, tangible reinforcement (an item given to Tim as a reward), physical redirection, verbal redirection, escape, and time-out (these variables are the same as defined in the previous case). During the observation physical redirection, escape, and time-out did not occur and are not used for the remaining results.

During the baseline observations, the teacher did not engage in any attention variables nor did she give Tim any tangible items during baseline. Demands were given the following number of times: 7, 12, 4, and 8; while verbal reprimands were given 1, 0,

0, and 0 times (see Figure 3). Tim was physically off-task (fidgeting) 53, 91, 6, and 46 seconds per 20-minute observation (see Figure 4).

Behavioral Function. From the B.E.S.T. observation data, the variable that occurred at the highest rate was hypothesized as the function. Based on the data, the teacher's high rate of demands appeared to be evoking Tim's fidgeting behavior. Therefore, a hypothesized function of escape was used in making comparisons in the A-B-C Log Analysis.

A-B-C Log Analysis

Agreement between BEST hypothesis and school psychologists. The BEST observations suggested the hypothesized behavioral function to be escape. For Case 2, five school psychologists (12.20%) agreed with the escape function. See Table 2 for complete review of these data.

Agreement between teachers and school psychologists. Tim's teacher (Case 2) chose attention as the hypothesized function. Eleven of the school psychologists (26.83%) agreed with this hypothesis. See Table 5 for a review of these data.

Agreement among school psychologists. Of the school psychologists, 5 (12.20%) were in agreement that the behavioral function was escape; 11 (26.83%) agreed the function was attention; and 25 (60.98%) thought the function was self-stimulation. There were no school psychologists that thought the behavioral function was tangible reinforcement. See Table 8 for a review of these results.

Case 3 Results

Teacher Interview. Ryan's teacher indicated the most significant problem behavior was hitting. This was defined as using a part of Ryan's body (hand, fist, elbow,

foot, etc.) or an object in his hand to hit another person (peer or adult). The teacher indicated this behavior was severe and occurred at least once every half hour. Ryan usually hit others when he was in line to leave the room, in the bathroom, during center time, and any time when a student was in close proximity to him. The consequences that were typically used were time-out, being sent to the principal's office, or sit in the hallway. At the time of the interview, the teacher hypothesized the function of Ryan's behavior was attention (peer and/or adult).

BEST Observations. Using the BEST observation system, three 20-minute observations were conducted for baseline. The number of times (frequency) Ryan hit another person was recorded during this time. Based on the interview information, the following variables were recorded as they occurred: demands, attention, item given, physical redirection, verbal redirection, escape, and time-out (all variables were the same as defined in the previous cases).

The teacher gave attention to Ryan 0, 2, and 0 times during the three observations. The number of demands given by the teacher were 13, 3, and 3. Ryan was aloud to escape 0, 1, and 0 times and an item was given 0, 2, and 0 times. The teacher physically redirected him 2, 3, and 0 times; while she verbally redirected him 3, 5, and 0 times (see Figure 5). Ryan's hitting behavior occurred 21, 8, and 3 times (see Figure 6). While this is a decreasing trend in the frequency of Ryan's hitting behavior, Ryan moved from the school before additional baseline observations could be conducted.

Behavioral Function. Based on the data collected from baseline, the variable that occurred most often was teacher demands. Therefore, escape from demands was used as the function for comparisons in the A-B-C Analysis.

A-B-C Log Analysis

Agreement between BEST hypothesis and school psychologists. For Case 3, the BEST observations indicated a hypothesized behavioral function of escape. Five school psychologists (12.20%) agreed with this hypothesis. These results, as well as results of remaining choices from the school psychologists, can be viewed in Table 3.

Agreement between teachers and school psychologists. The teacher in Case 3 (Ryan) chose attention as the hypothesized function. Eleven (26.83%) agreed with this hypothesis. These results, as well as results of remaining choices from the school psychologists, can be viewed in Table 6.

Agreement among school psychologists. Of the school psychologists, 5 (12.20%) were in agreement that the behavioral function was escape; 11 (26.83%) agreed the function was attention; and 2 (4.89%) thought the function was self-stimulation; and 23 (56.20%) agreed the behavioral function to be tangible reinforcement. Refer to Table 9 for a review of these results.

Discussion

The current study focused on a) whether school psychologists could accurately choose behavioral function, based on information from contingency analysis (A-B-C Logs), b) if school psychologists agree with the teacher's hypotheses on behavioral function, and c) to what extent school psychologists agreed upon behavioral function among themselves.

Results of this study indicate that school psychologists did not agree with the direct behavioral observation data collection. In one of three cases, the school psychologist's functions agreed with the function derived from the BEST observation

data more than they disagreed. Similar results were found when comparing teacher and the BEST observation hypothesis. In this same case, the teacher's hypothesis also agreed with the BEST observation data. It should be noted that the hypothesized functions derived from the BEST observation system indicated a correlation between the behaviors and maintaining variables, but not causation.

Implications of the present results indicate that these functional assessment methods can be practical to use in the classroom environment. The three teachers involved in the study verbally reported that the interview was quick, simple, and helped them think more systematically about the student's behaviors, as well as the variables that surround the behaviors. They also reported that the A-B-C logs were easy to complete and did not take a considerable amount of time.

The current study provided practitioners with a systematic method of recording data on multiple variables. Using a computerized observation system provided a quick, efficient observation of target variables. This method provides advantages over the traditional paper-pencil method of observations. The program provided immediate feedback about the variables that were recorded. It also allowed for an organized way of storing observation data for multiple observation sessions.

Results from the present study were similar to those found in previous studies (DeProspero & Cohen, 1979; Knapp, 1983; Matyas & Greenwood, 1990, 1991; Ottenbacher, 1990; Park et al., 1990). In these studies, there was no agreement found when single data methods were used to determine behavioral function. However, these studies found that agreement could be obtained when the examiners were trained in applied behavior analysis. This is one limitation of the present study. It is unknown how

much training the school psychologists had in functional behavior assessments, especially in using A-B-C logs as a method of data collection. Future research should focus on training examiners prior to analyzing observation data (A-B-C logs). A guideline for this was reported by Hagopian et al. (1997). They found that when psychologists were given advanced training of 1-2 hours in applied behavior analysis, agreement on behavioral function reached acceptable levels.

It has been previously reported that teachers can accurately observe and record the information needed to determine the function of a target behavior (Fox et al., 2000) and that teachers can successfully conduct functional assessments (Larson & Maag, 1998). Based on this information, it was expected that the teachers in the present study would accurately record the information on the A-B-C logs. However, it is unknown whether the teachers accurately reported the behavior, which may have resulted in disagreement between the school psychologists.

Another limitation of the current study is whether the BEST observation data was accurate in determining behavioral function. There was only one observer present during each observation. Had there been a procedure in place for inter-observer agreement, the examiner would have more confidence in stating the "true" function was derived from the BEST observation data.

A major confound in the present study is that the researcher conducted the interviews and did all the observations using the BEST system. This ultimately could have impacted the observations the researcher did (bias to what the teacher's interview revealed). Future researchers should use independent interviews and observations.

Future research should focus on training examiners in functional assessment and applied behavior analysis prior to analyzing data to hypothesize behavioral function. Variations on the present study should be conducted to determine which components are the most likely to result in accurate behavioral functions, but mostly to result in effective interventions. In doing so, inter-observer agreement should be accounted for, as well as treatment integrity when behavioral treatments are utilized. Aside from research on effective functional assessment methods, further examination on whether behavioral function is actually needed to decrease problem behaviors should be examined.

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Appendix A

FUNCTIONAL BEHAVIORAL ASSESSMENT INTERVIEW

Teacher Name: _____Student Age:_____Grade:_____Date:_____

Interviewer: _____

Student Profile: What is the student good at or what are some strengths that the student brings to school?

Description of the Behavior

What does the problem behavior(s) look like?

How often does the problem behavior(s) occur?

How long does the problem behavior(s) last when it occurs?

What is the intensity/level of danger of the problem behavior(s)?

Description of the Antecedent

Where, when and with whom are the problem behaviors most likely?

Schedule (Times)	Activity	With Whom does the Problem Occur?	Likelihood/Intensity of Problem Behavior	Specific Problem Behavior
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	
			Low **High** 1 2 3 4 5 6	

Summarize Antecedent (and Setting Events)

What situations seem to set off the problem behavior? (difficult tasks, transitions, structured activities, small group settings, teacher's request, particular individuals, etc.)

When is the problem behavior most likely to occur? (times of day and days of the week)

When is the problem behavior least likely to occur? (times of day and days of the week)

Setting Events: Are there specific conditions, events, or activities that make the problem behavior worse? (missed medication, history of academic failure, conflict at home, missed meals, last of sleep, history of problems with peers, etc.)

Description of the Consequence

What usually happens after the behavior occurs? (what is the teacher's reaction, how do other student's react, is the student sent to the office, does the student get out of doing work, does the student get in a power struggle, etc.)

Appendix B

ANTECEDENT-BEHAVIOR-CONSEQUENCE LOG

FUNCTIONAL ASSESSMENT OBSERVATION	Date: _____ Time: _____ *Observer*: _____ Classroom/School: _____
Setting Description:	
Operational Definition of the Target Behavior (What does the behavior look like?)	

Time	**Antecedents** What precedes the behavior?	**Behaviors** Describe the behavior	**Consequences** What follows the behavior?

Appendix C

POST INTERVIEW

Operational definition of the target/problem behavior:

Teacher Hypothesis:

At this time, which of the following do you believe is maintaining the behavior? (What is the function of the behavior?) Please choose only one.

- ☐ **Attention** – from peers or teachers/adults
- ☐ **Escape** – delay, reduction, or avoidance of aversive tasks, or other individuals
- ☐ **Tangibles** – access to objects (e.g. toys, food, other objects) or preferred activities
- ☐ **Self-Stimulation** – internal stimulation

Appendix D
December 1, 2004

School Psychologist
Insert Addresses

Dear School Psychologist,

I am a graduate student at Eastern Illinois University. I am working on my thesis for my Specialist degree in School Psychology. I ask that you take a moment to participate in my research project. Your participation will enter your name in a drawing to win a **$25 gift certificate to amazon.com.**

This project is designed to examine the extent to which school psychologists can accurately determine behavioral function using a specific method of observation. There are three student cases for you to review. For each case, the teacher completed an Antecedent-Behavior-Consequence Log for approximately one week. At the top of each log, you will see the operational definition of each target/problem behavior. On the log, the problem behavior was documented each time it occurred. In addition, the events leading up to the behavior and following the behavior were recorded. Your time reviewing the material is greatly appreciated!

- Please take approximately 30 minutes to examine the Antecedent-Behavior-Consequence logs (A-B-C log) for each of the three cases. You are to review each A-B-C log and determine what you believe the function (maintaining variable) of each target behavior is.

- Please return the questionnaire in the self-addressed, stamped envelope provided by April 1, 2004. Included is a form for entry into the drawing for a gift certificate to amazon.com in the amount of $25. By completing and returning the questionnaire, the researcher is assuming your consent in the study. There is no need to include your name on the questionnaire, as all responses are anonymous.

Thank you for taking the time to review the data and completing the questionnaire. Winners from the drawing will by notified by May 30, 2004. If you would like results of the drawing or survey, please contact Beth Bourque via e-mail at b_martin8894@yahoo.com.

Sincerely,

Beth Bourque
School Psychologist Intern
Eastern Illinois University

Enclosure

Appendix E

School Psychologist Information/Questionnaire

Please indicate your highest degree earned: ____ Masters
____ S.S.P.
____ PhD

How many years have you been a practicing school psychologist?

What type of work setting do you practice in? (e.g. cooperative, self-serving school district, private practice, specialize school, detention center)

School Psychologist Case Hypotheses:

Which of the following do you believe is maintaining the behavior? (What is the function of the behavior?) Please choose only one for each case

Case 1

- ☐ **Attention** – from peers or teachers/adults
- ☐ **Escape** – delay, reduction, or avoidance of aversive tasks, or other individuals
- ☐ **Tangibles** – access to objects (e.g. toys, food, other objects) or preferred activities
- ☐ **Self-Stimulation** – internal stimulation

Case 2

- ☐ **Attention** – from peers or teachers/adults
- ☐ **Escape** – delay, reduction, or avoidance of aversive tasks, or other individuals
- ☐ **Tangibles** – access to objects (e.g. toys, food, other objects) or preferred activities
- ☐ **Self-Stimulation** – internal stimulation

Case 3

- **Attention** – from peers or teachers/adults
- **Escape** – delay, reduction, or avoidance of aversive tasks, or other individuals
- **Tangibles** – access to objects (e.g. toys, food, other objects) or preferred activities
- **Self-Stimulation** – internal stimulation

Table 1
Agreement among school psychologists and BEST observation data. The BEST observation data indicated Escape as the behavioral function.

Case 1

	Number of Responses from School Psychologists	Percent Agreement
Attention	16	
Escape	19	46.34%
Tangibles	0	
Self-Stimulation	6	

Table 2
Agreement among school psychologists and BEST observation data. The BEST observation data indicated Escape as the behavioral function.

Case 2

	Number of Responses from School Psychologists	Percent Agreement
Attention	11	
Escape	5	12.20%
Tangibles	0	
Self-Stimulation	25	

Table 3
Agreement among school psychologists and BEST observation data. The BEST observation data indicated Escape as the behavioral function.

Case 3

	Number of Responses from School Psychologists	Percent Agreement
Attention	11	
Escape	5	12.20%
Tangibles	23	
Self-Stimulation	2	

Table 4
Agreement among school psychologists and the teacher. The teacher indicated Escape as the behavioral function.

Case 1

	Number of Responses from School Psychologists	Percent Agreement
Attention	16	
Escape	19	46.34%
Tangibles	0	
Self-Stimulation	6	

Table 5
Agreement among school psychologists and the teacher. The teacher indicated Attention as the behavioral function.

Case 2

	Number of Responses from School Psychologists	Percent Agreement
Attention	11	26.83%
Escape	5	
Tangibles	0	
Self-Stimulation	25	

Table 6
Agreement among school psychologists and the teacher. The teacher indicated Attention as the behavioral function.

Case 3

	Number of Responses from School Psychologists	Percent Agreement
Attention	11	26.83%
Escape	5	
Tangibles	23	
Self-Stimulation	2	

Table 7
Agreement among school psychologists on behavioral function.
Case 1

	Number of Responses from School Psychologists	Percent Agreement
Attention	16	39.02%
Escape	19	46.34%
Tangibles	0	0.00%
Self-Stimulation	6	14.63%

Table 8
Agreement among school psychologists on behavioral function.
Case 2

	Number of Responses from School Psychologists	Percent Agreement
Attention	11	26.83%
Escape	5	12.20%
Tangibles	0	0.00%
Self-Stimulation	25	60.98%

Table 9
Agreement among school psychologists on behavioral function.
Case 3

	Number of Responses from School Psychologists	Percent Agreement
Attention	11	26.83%
Escape	5	12.20%
Tangibles	23	56.20%
Self-Stimulation	2	4.89%