Functional Assessment of Problem Behavior: Dispelling Myths, Overcoming Implementation Obstacles, and Developing New Lore

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ABSTRACT

Hundreds of studies have shown the efficacy of treatments for problem behavior based on an understanding of its function. Assertions regarding the legitimacy of different types of functional assessment vary substantially across published articles, and best practices regarding the functional assessment process are sometimes difficult to cull from the empirical literature or from published discussions of the behavioral assessment process. A number of myths regarding the functional assessment process, which appear to be pervasive within different behavior-analytic research and practice communities, will be reviewed in the context of an attempt to develop new lore regarding the functional assessment process. Frequently described obstacles to implementing a critical aspect of the functional assessment process, the functional analysis, will be reviewed in the context of solutions for overcoming them. Finally, the aspects of the functional assessment process that should be exported to others versus those features that should remain the sole technological property of behavior analysts will be discussed.

Keywords: autism, descriptive assessment, functional analysis, functional assessment, indirect assessment, intellectual disabilities, open-ended interviews, problem behavior

After a conversation with Timothy Vollmer, one of my graduate school professors at the time, in which we discussed the subtle differences in the manner in which we had learned to conduct functional assessments of severe problem behavior, we concluded that a paper describing functional assessment "lab lore" would be important and well received by those who routinely conducted functional assessments. By "lab lore" we were referring to the commitments people had to the various strategies and tactics involved in the process of figuring out why someone was engaging in severe problem behavior. My graduate school advisor, Brian Iwata, suggested that rather than focus on lore that I focus on detecting the different functional assessment commitments by reviewing the literature base that existed. These collective interactions eventually led to a review of functional analysis procedures being published several years later (Hanley, Iwata, & McCord, 2003).

The 277 articles aggregated in that review, along with the hundreds that have been published since 2000, are the primary reasons practitioners are able to conduct effective functional assessments of problem behavior. Much has been learned from the functional assessment research base. Nevertheless, best practices regarding the functional assessment process are sometimes difficult to cull from this massive empirical literature. I never forgot about the idea of contributing an article that attempted to answer questions that arose when one put down an empirical study and attempted to conduct a functional assessment. This article is an attempt to fill in the gaps that exist between how the functional assessment process is described in published research articles and book chapters and how it probably should be practiced, at least from my perspective.

This perspective piece is not merely a set of opinions however; it is a review of relevant existing literature synthesized with my own practice commitments. Some readers may disagree with particular assertions in this paper and lament that the assertion may not be followed by an empirical reference. I do include references when a satisfactory analysis has been conducted, but I admit that some of my assertions have developed through both experience conducting functional assessments and from my own conceptual interpretation of existing analyses.

There are still many important questions to be asked about the manner in which problem behavior is understood prior to treating it, and I look forward

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to reading and hopefully conducting some of that research, but practitioners cannot wait for this next generation of studies to be conducted. They need to know what to do today when given the opportunity to help a family or teacher address the severe problem behavior of a person in their care. I hope that this paper will help practitioners develop their own set of commitments regarding the functional assessment process and perhaps also stimulate some important future research if an assertion occasions skepticism from those who have different commitments.

Some Rationales for Conducting a Functional Assessment

What is a functional assessment of problem behavior? Despite the availability of a variety of functional assessment forms, you can't hold it in your hand—it is a *process* that involves a lot of highly discriminated, professional behavior. More precisely, it is a process by which the variables influencing problem behavior are identified. Why engage the process? Because it allows you to identify an effective treatment for severe problem behavior.

Behavior modification has been effectively used for many years to address problem behavior, especially of those with autism or intellectual disabilities (e.g., Hall et al., 1972; Risley, 1968). So you may be thinking, why conduct a functional assessment of problem behavior? In other words, assigning powerful but arbitrary reinforcers for not engaging in problem behavior or for behavior incompatible with problem behavior and assigning powerful punishers to problem behavior (i.e., modifying behavior) can effectively treat problem behavior, so why bother conducting a functional assessment at all? There are practical reasons; doing so increases treatment precision and efficacy. In other words, doing so identifies treatments that work and that can be practically implemented (as illustrated in Carr & Durand, 1985; Iwata, Pace, Cowdery, & Miltenberger, 1994; Meyer, 1999; Newcomer & Lewis, 2004; Taylor & Miller, 1997). There is an equally important humanistic reason for doing so; conducting a functional assessment dignifies the treatment development process by essentially "asking" the person why he or she is engaging in problem behavior prior to developing a treatment. Behavior modification, or programming powerful but arbitrary reinforcers and punishers without first recognizing the unique history of the person being served or the prevailing contingencies he or she is experiencing, is somewhat inconsiderate. It is like saying, "I don't know why you have been behaving in that extraordinary manner, but it does not matter because I can change your behavior. . ." By contrast, a behavior analytic approach, with functional assessment at its core, essentially communicates: "I don't know why you have been behaving in that extraordinary manner, but I will take some time to find out why and incorporate those factors into all attempts to change your behavior."

To drive this point home, let's do some perspective taking. Imagine that you experienced some temporary muscle paralysis that does not allow you to talk, write, or engage in controlled motor movements. You are now hospitalized and on several medications that have the common side effect of drying out your eyes, nose, skin, and, especially your mouth. Water is viewable on the rolling table, but unattainable due to your lack of dexterity. You learn that if you bang the bed rails with the back of your hands long enough and loud enough, people will come to you and do things for you, like turning the television on or off or fluffing your pillows, or give you things, one of which is the water that you desperately need. Due to its functionality, the banging continues to such an extent that the backs of your hands are bruised and your care providers annoyed. The consulting behavior modifier shows up and recommends a program of contingent restraint with Posey® mitts "to ensure your safety" and access to music and some Skittles when you are not banging. Your problem behavior occurs much less frequently. It doesn't go away, but your bruises are healing, and the staff is certainly less annoyed with you. Job well done by the behavior modifier? I doubt you think so.

If there were a process available to allow your care providers to know the simple reason why you were hurting yourself and annoying them, wouldn't you want it employed? Wouldn't it have been nice to just be able to push a button that requested assistance obtaining water at any given moment (or perhaps simply have access to a long straw!)? The functional assessment process makes these humane and practical outcomes possible. So let's return to the earlier question of why conduct a functional assessment and provide a better answer: Behavior analysts should do it to identify effective, precise, personally relevant, and humane treatments for problem behavior (see Hanley, 2010 & 2011, for additional reasons for conducting analyses).

Defining the Parts of the Process

Before I discuss some myths and isolate some good practices regarding the functional assessment process, it is important to define the three main types of functional assessment. With an *indirect assessment*, there is no direct observation of behavior; indirect assessments take the form of rating scales, questionnaires, and interviews (e.g., Durand & Crimmins, 1985; Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2000). With a *descriptive assessment*,[1] there is direct observation of behavior, but without *any* manipulation of the environmental conditions (Bijou, Peterson, & Ault, 1968; Lalli, Browder, Mace, & Brown, 1993; Lerman & Iwata, 1993; Mace & Lalli, 1991; Sasso et al., 1992;

[1]Because there is no manipulation of the environment when a descriptive assessment is conducted, the term descriptive assessment, and not descriptive *analysis*, is used here because as Baer, Wolf, and Risley (1968) noted, "a nonexperimental analysis is a contradiction in terms" (p. 92).

Vollmer, Borrero, Wright, Van Camp, & Lalli, 2001). This is the "fly on the wall assessment," which takes multiple forms like A-B-C recording and narrative recording (Bijou et al.). With a *functional analysis*,[2] there is direct observation of behavior and manipulation of some environmental event (see Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994, for the seminal example; see Hanley et al., 2003, for an expanded definition and a review of these procedures). These three types are all functional *assessments*; the term functional *analysis* is employed only when some aspect of the environment is systematically altered while problem behavior is being directly observed.

Reconsidering the General Approach to Functional Assessment

The necessity or utility of a least restrictive hierarchical approach to conducting functional assessment has not been proven, although it is apparent in practice and described (Mueller & Nkosi, 2006; O'Neill, Horner, Albin, & Storey, 1997) or implied (Iwata & Dozier, 2008; McComas & Mace, 2000) in book chapters or discussion articles regarding the functional assessment of severe problem behavior. The myth goes something like this: *Start the functional assessment process with an indirect assessment. If you are not confident in the results, conduct a descriptive assessment. If you still have competing hypotheses regarding the variables controlling behavior, then conduct a standard functional analysis.* Like all things based on a least effort hierarchy, this process has intuitive appeal, but there are several reasons why behavior analysts should reconsider their commitment to this assessment hierarchy. The first is that closed-ended indirect assessments (e.g., *Motivation Assessment Scale* [*MAS*], *Questions About Behavior Function* [*QABF*]) are notoriously unreliable; when two people who have a history with the person engaging in problem behavior are asked to complete a rating scale, analyses of their responses usually yield different behavioral functions (see Newton & Sturmey, 1991; Nicholson, Konstantinidi, & Furniss, 2006; Shogren & Rojahn, 2003; Zarcone, Rodgers, Iwata, Rourke, & Dorsey, 1991 for some analysis of the reliability of closed-ended indirect assessments; see Hanley, 2010, for a more in-depth discussion of the reliability of these instruments). Without reliability, there is no validity, meaning that there is no opportunity to determine whether the function of behavior is correct from these instruments. Closed-ended indirect assessments are likely preferred because quantifiable results can be obtained quickly, and documentation regarding behavior function is created and can be easily filed or shared at an interdisciplinary meeting. Behavior analysts can probably save a little time and be no worse off by simply omitting closed-ended indirect assessments from the functional assessment process.

At the start of the functional assessment process, behavior analysts should indeed talk to the people who have most often interacted with the person engaging in the problem behavior. But, instead of presenting generic scenarios and asking for numerical or yes/no answers (i.e., the substance of closed-ended assessments), the behavior analyst should ask questions that allow caregivers and teachers to describe in detail what happens before and after severe problem behavior occurs. These sorts of interviews are known as semistructured and open-ended interviews. The appendix at the end of this article contains an example of this sort of interview that allows behavior analysts to discover common, as well as unique, variables that may evoke or maintain problem behavior. Because of the likely unreliability of interviews, including the one in the appendix, treatments should typically not be designed based solely on the results of these interviews; instead, functional analyses are to be designed from the interview results. An open-ended interview allows for behavior analysts to discover prevalent variables that may be further examined and possibly demonstrated as important via functional analyses. An important thing to consider is that careful open-ended interviewing used to be the norm prior to conducting functional analyses (see Iwata, Wong, Riordan, Dorsey, & Lau, 1982).[3]

The second reason the least restrictive assessment hierarchy is troublesome is due to its reliance on descriptive assessment to determine behavioral function. I have yet to come across a study showing that the *exclusive* results of a descriptive assessment were useful for designing a treatment for severe problem behavior. This is likely related to the fact that descriptive assessments are notoriously invalid for detecting behavioral function (St. Peter et al., 2005; Thompson & Iwata, 2007). Why might this be? The fact that most people will attend to someone who just kicked them or to someone who makes a jarring sound when they bang their head on a wall leads to most descriptive assessments suggesting that attention is a possible reinforcer for severe problem behavior (McKerchar & Thompson, 2004; Thompson & Iwata, 2001). But studies that have compiled

[2]I prefer the term *functional analysis* to *experimental analysis* and to *experimental functional analysis* in both practice and in science in general because of the very different effects "function" and "experimental" have on the listener. Function can be understood in a mathematical sense, but more importantly, it also conveys the operant or adaptive nature of the response being analyzed, which has obvious importance in the context of behavioral assessment (see Hanley et al., 2003; and Hineline & Groeling, 2010). The term *experimental* does not convey this latter meaning, and instead erroneously conveys that the procedures being implemented are in a sort of trial phase, awaiting a proper analysis of their utility, as in an experimental medication. In addition, considering the quote from Baer et al. included in the footnote above, *experimental analysis* is redundant.

[3]There are multiple articles that describe conducting an open-ended interview prior to conducting the functional analysis, but the interview appears to only inform the topography of the behavior targeted in the analyses because the analyses in these same studies are all standardized (i.e., including the same test and omnibus control conditions).

data on the prevalence of behavioral function show that attention maintains problem behavior in only about one quarter to one third of the cases examined (Derby et al., 1992; Hanley et al., 2003; Iwata, Pace, Dorsey et al., 1994). The lack of correspondence between descriptive assessments and functional analyses is often due to these false-positive outcomes regarding attention (see Thompson & Iwata, 2007).

Consider also that most teachers and parents learn to avoid the presentation of events that evoke negatively reinforced problem behavior (Carr, Taylor, & Robinson, 1991; Gunter et al., 1994); perhaps this leads to the likely false negative outcomes regarding behavior maintained by escape. For instance, if the teacher has learned that difficult math evokes dangerous behavior, the teacher is not likely to present difficult math to the student while the behavior analyst is conducting the descriptive assessment. Furthermore, it is unclear how automatic reinforcement is to be detected and differentiated from socially mediated problem behavior via descriptive assessments (e.g., nonmediated sensory reinforcers cannot be detected and recorded).

The literature has shown that descriptive assessments are good at teaching us about the prevalence of the environmental events occurring before and after problem behavior, but that we need to conduct functional analyses to learn about the relevance of those events for the severe problem behavior we are charged with understanding.

The literature has shown that descriptive assessments are good at teaching us about the *prevalence* of the environmental events occurring before and after problem behavior (McKerchar & Thompson, 2004; Thompson & Iwata, 2001), but that we need to conduct functional analyses to learn about the *relevance* of those events for the severe problem behavior we are charged with understanding. Therefore, behavior analysts can save a lot of time and be no worse off by simply omitting formal, lengthy, and especially closed-ended descriptive assessments from their functional assessment process. Brief and open-ended observations may be useful for refining operational definitions of the problem behavior or for detecting possible unique antecedent or consequent events to examine in a functional analysis, and they may be especially useful if the interview does not yield unique information for designing the analysis.

The third reason the common hierarchy is troublesome is due to its reliance on a standard functional analysis. By standard, I am referring to the rapid alternation of four conditions in a multielement design with tests for all generic contingencies (i.e., an attention test condition, an escape test condition, and an alone condition testing for maintenance via automatic reinforcement) and an omnibus control condition usually referred to as the play condition (Iwata, et al., 1982/1994). Simply put, there is no standard analysis; a functional analysis of problem behavior simply involves the direct observation of behavior while some event suspected of being related to problem behavior is manipulated. Note that this widely agreed upon definition of a functional analysis does not specify where the analysis takes place (e.g., in a 3 m by 3 m therapy room or in a busy classroom) or who will conduct the analysis. More important is that it does not specify how many test conditions to include or any particular type of control condition (e.g., the omnibus *play* condition is not mandatory). These are decisions to be made based on the many factors that will become evident during an open-ended interview.

For instance, if the results of the interview show that one child's loud moaning and hand flapping occur under most conditions and seem to occur irrespective of the social environment, conducting a series of alone sessions first to see if the problem behavior persists in the absence of social consequences is a good idea. By contrast, if the results of the interview show that another child's tantrums most often occur when the teacher removes toys from the child during free play, then two conditions should be conducted, with the access to the toys provided contingent on tantrums in one condition and perhaps uninterrupted access to toys arranged in the second condition. The former condition is known as the test condition because the contingency thought to maintain problem behavior is present, whereas the latter condition is referred to as the control condition because the contingency thought to maintain problem behavior is absent.

The point being made with these examples is that behavior analysts should consider asking simple questions about the variables most likely influencing problem behavior and testing the ones that seem to be most important first. By testing one hunch at a time, more careful control conditions can be designed in which only the *contingency* differs between test and control conditions. The interested reader is directed to Thompson and Iwata (2005) for a thorough discussion of the importance of properly designing control conditions. If the

hunch from the interview or observation is affirmed in this initial functional analysis, then the behavior analyst will have a stable and sensitive baseline from which to assess the effects of a function-based treatment. Examples of this approach in which results of open-ended interviews informed the design of analyses involving a single test condition and an intimately matched control condition can be found in Hanley, Iwata, and Thompson (2001).

More questions regarding other factors possibly influencing problem behavior can be asked separately and as often as there are still questions about that which is influencing problem behavior. In essence, there is no mandate that all questions be asked in a single analysis (e.g., in the analysis format first reported by Iwata et al., 1982/1994). It is equally important to consider that there is no single analysis that can answer all questions about the environmental determinants of problem behavior. Even comprehensive analyses such as that initially described by Iwata et al. (1982/1994) are incomplete in that these analyses do not test all possible contingencies that may influence problem behavior. The main strength of a functional-analytic approach is that the analysis is flexible and can be individualized. Although this set of assertions awaits empirical validation, it seems likely that the probability of differentiated analyses will be strongest when more precise and personalized analyses are conducted based on the results of semistructured, open-ended interviewing. I suggest the following for consideration as practitioner lore regarding the general functional assessment process: *Start with a structured, but open-ended, interview and a brief observation to discover potential factors that may be influencing problem behavior, and then conduct a precise and individualized functional analysis based on the resultant information to examine the relevance of those discoveries.*

Overcoming Common Obstacles to Conducting a Functional Analysis

The importance of the open-ended interview (e.g., Iwata et al., 1982), especially for informing the design of the functional analysis, seems to have been passively overlooked in behavior-analytic practice, whereas the functional analysis (Iwata et al., 1982/1994) appears to be more actively avoided in practice (Desrochers, Hile, & Williams-Mosely, 1997; Ellingson, Miltenberger, & Long, 1999; O'Neill & Johnson, 2000; Weber, Killu, Derby, & Barretto, 2005). Behavior analysts who are charged with treating severe problem behavior but who do not conduct functional analyses are quick to provide multiple reasons why they do not conduct analyses. These reasons may have had merit in the past, but our research base regarding functional analysis has grown tremendously (Hanley et al., 2003; see *JABA Special Issue* on functional analysis, 2013, volume 46, issue 1). With this growth, solutions for common

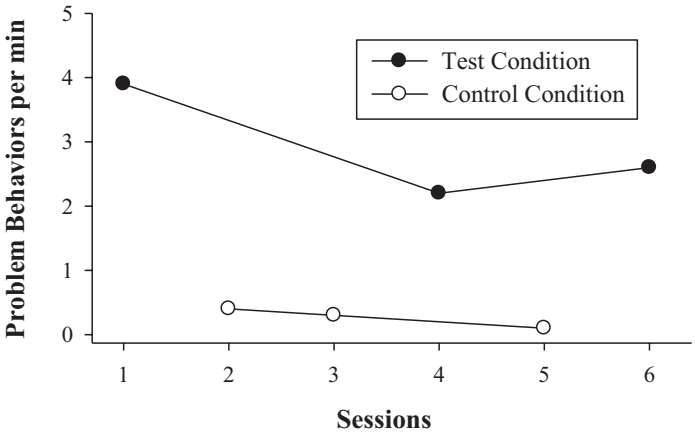

Figure. An example of graphically depicted data from a functional analysis. Note the presence of only two conditions; one in which a contingency thought to maintain problem behavior is present (test) and one in which the contingency is absent (control).

and seemingly insurmountable obstacles have been discovered, properly vetted, and await adoption by those who would benefit from an understanding of problem behavior prior to its treatment—behavior analysts and the people they serve. Tables 1 and 2 provide a summary of the available solutions in the context of general and client-specific obstacles. Some references for the empirically derived solutions for overcoming the oft-stated obstacles to conducting functional analyses and accompanying rationales follow.

Implementation Obstacle 1: Functional Analyses Take Too Much Time

Multiple researchers have proven the efficacy of several timesaving methods relevant to functional analysis. Wallace and Iwata (1999) showed that 5- and 10-min sessions are as valid as longer sessions. Iwata, Duncan, Zarcone, Lerman, and Shore (1994) showed us how to trim our designs to include only two conditions. Considering only these adjustments, a functional analysis can take as little as 30 min to complete (three 5-min test sessions and three 5-min control sessions; see Figure). Sigafoos and Saggers (1995), Wallace and Knights (2003), and Bloom, Iwata, Fritz, Roscoe, and Carreau (2011) described trial-based analyses in which test and matched control conditions occur for a maximum of one-min each. Thomason-Sassi, Iwata, Neidert, and Roscoe (2011) showed that sessions could be terminated after a single response and that measurement of the latency to the first response can be sensitive to typical contingencies

arranged in a functional analysis. In short, functional analyses need not require a lot of time.[4]

It is also important to consider the chief alternative to a functional analysis and that is to rely on a descriptive assessment that often yields spurious correlations as opposed to the more compelling functional relations derived from a functional analysis. Descriptive assessments often take a long time to complete because observers have to wait for problem behavior to occur in uncontrolled environments in which the establishing operation for the problem behavior may or may not be presented (and because there is no obvious criterion for terminating a descriptive assessment). In addition, considerable time and expertise is required to collect a sufficient sample of data to analyze and to undertake the increasingly complicated quantitative analyses necessary to depict and begin to understand the data yield via descriptive assessments (e.g., Emerson, Reeves, Thompson, & Henderson, 1996). These efforts certainly take more time than that required to conduct six brief observations of problem behavior in properly informed test and control conditions comprising an analysis.

Implementation Obstacle 2: Functional Analyses Are Too Complex

The functional assessment and treatment development process is complex, but functional analyses are less so, especially for anyone with training in behavior analysis. Iwata et al. (2000) showed that undergraduates could accurately implement common analysis conditions after two hours of training. Similar effects were shown by Moore et al. (2002). Hagopian et al. (1997) provided a set of rules that aid in the accurate visual analysis and interpretation of functional analysis data. In short, implementing the procedures and interpreting the data of functional analyses is possible with a little training. There are no equivalent studies teaching people how to conduct a proper descriptive assessment or how to analyze or effectively interpret the data resulting from descriptive assessment as they relate to detecting behavioral function.

If you, as a behavior analyst, are still not confident you can conduct functional analyses, consider the following logic. Establishing a baseline of problem behavior from which to determine whether a given treatment is effective is essential in behavior-analytic practice (Behavior Analyst Certification Board, 2012). Problem behavior must occur with some regularity in baseline to detect the effects of treatment. Regularly occurring problem behavior will only be observed if the controlling contingency is present in that baseline (Worsdell, Iwata, Conners, Kahng, & Thompson, 2000); if that is the case, you essentially have created a functional analysis test condition. By arranging a second condition in which the controlling contingency for problem behavior is absent (i.e., the reinforcer is provided according to a time-based schedule or for an alternative behavior, or withheld for all responding), you essentially have created a functional analysis involving a test condition and a control condition. In other words, if you are capable of changing some aspect of the environment and determining the effects of that single change on a direct measurement of problem behavior, which is what all behavior analysts are trained to do when evaluating a treatment, then you can indeed conduct a functional analysis.

Implementation Obstacle 3: Functional Analyses Are Too Risky for the Client or for the Person Conducting the Analysis

When considering risk, the main question to be asked is will the child or client be at greater risk in the analysis than that which they normally experience during the day? Put another way, will their problem behavior be more dangerous or intense in or outside of the analysis? This question is often best discussed with other professionals, especially medical professionals, if the problem behavior is self-injurious (see the description of human subject protections from Iwata et al., 1982/1994). Important information for such a discussion is that a properly designed functional analysis will almost always result in problem behavior that is of lower intensity than that observed outside of the analytic context. This is the case because best practices regarding functional analysis emphasize the inclusion of clearly signaled contingencies, continuous reinforcement schedules, and inclusion of problem behaviors in the contingency class that are safe for the client to emit (Hanley et al., 2003). These tactics typically result in more quickly discriminated problem behavior and overall decreases in the intensity and often the frequency of severe problem behavior in the analysis.

Risk is increased by certain tactics that may be adopted when conducting an analysis, such as not programming differential consequences in an analysis (Carr & Durand, 1985) or arranging consequences in your functional analysis on intermittent reinforcement schedules deduced from descriptive assessments (Mace, 1994; Mace & Lalli, 1991). The problem with both tactics is that higher rates and intensities of problem behavior are almost guaranteed if you do not provide the putative reinforcer for each and every problem behavior in your analysis.

Riskier alternatives to conducting an informed analysis, as have been described thus far, are to extend assessment time indefinitely by relying exclusively on descriptive assessment or to design treatments based on ambiguous outcomes associated

[4]I do not recommend any sort of brief functional analysis that involves conducting only one of each test condition (e.g., Northup et al., 1991) because necessary replication of test and control conditions is distinctly absent from these analyses. I recommend the tactics described above because they retain design features that allow for replication of suspected relations, the key element for believing in conclusions regarding the function of behavior.

with closed-ended indirect and descriptive assessments. Under these conditions, delayed and ineffective treatments are likely, resulting in the continuation of problem behavior, which is perhaps the greatest risk of all.

Implementation Obstacle 4: Functional Analyses Are Difficult to "Sell" to Constituents

Functional analyses of severe problem behavior probably do not make much sense to a parent or teacher the first time they are described to them. For instance, it must seem quite counterintuitive to allow someone to set up conditions that will seemingly worsen a child's self-injury. It is certainly more intuitive and more immediately agreeable to caregivers and teachers if we only ask questions about the person who is engaging in the problem behavior and/or watch the child in the classroom or at home to find out why the child is engaging in severe problem behavior. Conducting a functional analysis, which essentially requires reinforcement of problem behavior, is indeed counterintuitive and unexpected by our constituents; but, the process is not without precedent in our culture.

Conducting a functional analysis, which essentially requires reinforcement of problem behavior, is indeed counterintuitive and unexpected by our constituents; but, the process is not without precedent in our culture.

How should a behavior analyst proceed to obtain sufficient buy-in and necessary consent for this evidence-based process? First, the behavior analyst should build a therapeutic relationship with the parents and teachers. This relationship starts to develop during the open-ended interview and while making casual observations. Showing up, asking questions, and observing sends the important message that you need to learn a few things and that they have some answers. Once assessment partners (i.e., the parents and teachers) have a chance to talk and teach you about what the problem behavior is and the factors associated with it, you can then use analogies to help them understand what you are doing with a functional analysis. Like many people who routinely implement functional analyses, I have found the allergy test analogy especially helpful.

When you see a medical specialist for incapacitating allergies, she will first ask you a set of questions through which she is trying to narrow down the population of stimuli to which you might be allergic. The allergist will then use different needles to poke you with different possible allergens to see which ones will make your skin worsen a little bit (e.g., some redness and slight inflammation may occur on the site that was poked). Most allergists will also administer a control poke, just the needle with saline, no allergen, to be certain that the worsening is a function of the specific allergen. Really good allergists will provide multiple pokes of the same allergen and of saline or will repeat a smaller version of the test to ensure they got it right before they recommend a particular course of treatment. Sound familiar? This is what behavior analysts are essentially doing when they conduct a functional analysis. They are testing to see which environmental condition will give rise to a tolerable, slight, and short-lived worsening of problem behavior, and they will repeat the test until they are confident in the environmental conditions that are giving rise to the debilitating problem behavior. When the test is positive for some environmental event, we have a better understanding of the problem, which leads to more precise and practical treatment.

As noted initially, allergists usually interview people prior to poking them with needles, which underscores the importance of our asking questions prior to conducting a functional analysis, but allergists won't observe you for several hours (or more) recording the environmental correlates of allergic responses and base a treatment on those observed correlates (i.e., they don't do time-intensive descriptive assessments). Behavior analysts' time is just as important as that of any medical specialist.

In sum, to obtain proper buy-in from constituents of functional analysis: (a) build a therapeutic relationship during the interview process, (b) describe the practical and humane reasons for understanding the function prior to treating problem behavior, (c) describe how reinforcement-based treatments are more likely following a proper functional analysis (Pelios, Morren, Tesch, & Axelrod, 1999), (d) use analogies to explain why you are doing a functional analysis, (e) emulate the conditions they described in the interview as being important to problem behavior in your analysis so the connection between the two is apparent, and (f) adopt the previous suggestions for decreasing the assessment length and consider those articulated next for increasing the safety of the analysis.

Implementation Obstacle 5: Functional Analyses Can't Be Used for Dangerous Problem Behavior

The importance of creating analytic contexts that are safe for both the child and the analyst is paramount, and doing so is often seen as an insurmountable obstacle. This dilemma seems to be responsible for many behavior analysts' assertion that they are willing to conduct analyses as long as the problem behavior is not dangerous. Something to consider is that the more dangerous the behavior, the more important it becomes to accurately determine behavioral function so that a precise and effective treatment can be prescribed as soon as possible.

The first thing to consider is the assessment context. Soft toys should be included for children who are reported to break or throw toys. Padded tables should be included for children who are reported to bang the table with limbs or their head during instructional periods. If aggression is being analyzed, the analyst should wear protective equipment under their clothes so that they can implement the differential contingencies with fidelity while maintaining his or her own safety.

The analyst should remember next that proper scheduling of putative reinforcers in the test and control conditions will create safe environments for themselves and the person whose behavior is being analyzed. More specifically, providing a particular consequence for every instance of problem behavior in the test condition, and doing so immediately following each instance, will usually result in an immediate *decrease* in the intensity of problem behavior. Arranging for the putative reinforcer to be available for free and often or available for an alternative response that has a decent probability of occurring will increase the likelihood of a safe and manageable control condition. Arranging extinction as the control condition is likely to result in an unsafe condition because the continuation of the establishing operation is likely to result in either a burst of problem behavior or at least intermittent occurrences of the problem behavior in the control condition.

The third set of considerations to address dangerous behavior has already been described because they are the same tactics available for decreasing the overall analysis duration. Consider an analysis with only two conditions (test and control; e.g., Hanley et al., 2010) while using brief sessions (Wallace & Iwata, 1999), trial-based (Bloom et al., 2011), or latency-based analyses (Thomason-Sassi et al., 2011), all of which will shorten the time in analysis and the number of responses allowed to occur.

The fourth and perhaps most important consideration pertains to the decision as to which behaviors will be scheduled to receive the putative reinforcers. Very dangerous or intolerable behavior need not be the problem behavior reinforced in the analysis. To accommodate the dangerousness of problem behavior, Smith and Churchill (2002) demonstrated the efficacy of conducting functional analyses of precursor behaviors that were reported to reliably precede dangerous problem behavior to identify its function. Precursors are behaviors that we can tolerate more (e.g., pushing materials away) and that reliably precede or cluster with the more dangerous or less tolerable problem behavior (e.g., face punching or directed spitting, see Fahmie & Iwata, 2011). In essence, both the precursor and more dangerous behavior are measured, but the putative reinforcers are only provided following the precursor behavior in the test condition of the functional analysis. If a difference between test and control conditions is observed, a small inferential leap is made by concluding that the variable maintaining the precursor behavior must also be maintaining the more dangerous behavior. Behavior analysts can identify precursors in an open-ended interview by asking what the child usually does before she is aggressive or what other behaviors occur during aggression (see Herscovitch, Roscoe, Libby, Bourret, & Ahearn, 2009). Caregivers may not be able to routinely identify reinforcers for problem behavior accurately—most people who are not trained in behavior analysis do not see behavior through the lens of a contingency—but they are adept at reporting patterns and sequences of behavior (see for examples, Smith & Churchill; Herscovitch et al.). When discovered, this information can assist the behavior analyst in designing an efficient and safe analysis of dangerous behavior.

Implementation Obstacle 6: Functional Analyses Can't Address Low-Rate Problem Behavior

A conceptually systematic interpretation of low-rate problem behavior is that the environmental events that establish the value of the reinforcer for problem behavior are insufficiently present. Because putative establishing operations are repeatedly arranged in functional analyses, differentiated analyses can be obtained even for reportedly low-rate problem behavior. When the strong contingencies in functional analyses fail to evoke problem behavior in the analysis (this will look like near-zero responding in both test and control conditions), functional analysis session lengths can be extended or the timing as to when to conduct the analyses can be optimized to detect behavioral function. As an example of the former, Kahng, Abt, and Schonbachler (2001) observed no aggression by an adolescent with intellectual disabilities in an initial functional analysis based on 10-min sessions. Analysis conditions were then extended such that a single condition was implemented for about 8 hours each day. An attention function of this low-rate problem behavior was detected during the extended analysis, and an effective function-based treatment was designed. As an example of the latter, Tarbox, Wallace, Tarbox, Landaburu, and Williams (2004) identified the function of low-rate problem

behavior by initiating functional analysis sessions whenever problem behavior was observed to occur. They also showed that treatments designed from their "opportunity-based" analysis were effective.

Low-rate problem behavior may also be a function of not including the relevant establishing operation or type of reinforcer. Open-ended interviewing or observations have proven useful for identifying idiosyncratic aspects of contingencies influencing problem behavior. For instance, through open-ended assessment, Fisher, Adelinis, Thompson, Worsdell, and Zarcone (1998) discovered that instructions evoked problem behavior only when issued during highly preferred activities such as watching game shows or engaging in gross motor activities. Functional analyses then demonstrated the influence of these complex contingencies (for more examples involving the effective and necessary use of open-ended assessment as a response to low-rate problem behavior and undifferentiated analyses, see Bowman, Fisher, Thompson, & Piazza, 1997; Fisher, Lindauer, Alterson, & Thompson, 1998; Thompson, Fisher, Piazza, & Kuhn, 1998; Tiger, Hanley, & Bessette, 2006).

Implementation Obstacle 7: Functional Analyses Can't Address Covert Problem Behavior

By covert problem behavior, I am not referring to a situation in which someone is thinking about engaging in problem behavior; I am referring to conditions in which the problem behavior rarely or never occurs in the presence of others. When confronted with covert behavior of this sort, it would seem impossible to conduct a functional analysis because an analyst would never have the opportunity to provide or withhold the putative reinforcers in test and control conditions. Nevertheless, examples of functional analysis applied to covert behavior exist. For instance, while trying to understand why a young man with developmental disabilities would engage in life-threatening pill ingestion, Chapman, Fisher, Piazza, and Kurtz (1993) baited an empty room with pill bottles and provided different relevant consequences for ingesting inert pills from the different colored bottles (e.g., medical attention from the blue bottle, escape from school from the red bottle). These authors found a negatively reinforcing function of covert pill ingestion and their informed treatment reduced pill ingestion to near-zero levels.

Piazza, Hanley, and Fisher (1996) also used a baited room strategy to detect the variables influencing the covert cigarette pica of a young man with autism. Additional manipulations of the content of the cigarettes revealed that the nicotine was the likely automatic source of reinforcement for his problem behavior; treatment based on this understanding was successful in reducing this problem behavior.

Grace, Thompson, and Fisher (1996) were challenged with understanding a young man's low-rate, high-intensity self-injury that resulted in torn eyelids and wounds requiring stitches and that only occurred while no one was watching. To infer the reinforcers for the covert self-injury, these authors designed an analysis to detect the reinforcing value of different material and social reinforcers (e.g., medical attention) for an arbitrary response of stuffing envelopes. They found that adult interaction was a reinforcer. Covert self-injury was eliminated when high-quality attention was provided for the absence of the products (e.g., wounds) of the young man's self-injury. Their analysis was similar to a functional analysis in that the reinforcers analyzed were those that were thought to maintain the covert self-injury; their analysis was unique in that reinforcement sensitivity was assessed on responses that were not problematic. As in the case of precursor analyses (Smith & Churchill, 2002), a small inferential leap is required to determine behavior function with this sort of reinforcer analysis. Nevertheless, these studies show that obstacles based on response topography are surmountable.

Implementation Obstacle 8: Functional Analyses Can't Address Multiple Topographies or Functions of Problem Behavior

It is probably true that the odds of an undifferentiated analysis are likely to increase as the number of topographically distinct members that are available to receive the putative reinforcer increase in an analysis. Restricting the class of behaviors that are reinforced in the analysis may be good practice (Hanley et al., 2003), but it does imply that multiple distinct analyses are required if the goal is to determine the function of multiple topographies of problem behavior. If you do include several topographies in the contingency class, Magee and Ellis (2000) showed how the systematic arrangement of extinction for additional topographies could provide information as to which ones are maintained by the same reinforcer.

Furthermore, if a behavior analyst suspects that the same topography of problem behavior is sensitive to multiple reinforcers, confident determinations of function can be made by arranging different test and control comparisons in sequence or by applying the tactic of affirming the consequent (Sidman, 1960) as was done by Smith, Iwata, Vollmer, and Zarcone (1993). These authors arranged for various function-based treatments following high levels of responding in different test conditions as a means of affirming whether or not different reinforcers influenced problem behavior.

Implementation Obstacle 9: Functional Analyses Can't Address Problem Behavior Influenced by Constantly Changing Reinforcers

For some children, and perhaps especially those with diagnoses of autism, it seems that the reinforcers for severe problem behavior are continually changing. The static nature of the functional analysis test condition, in which a single reinforcer type is established and delivered following problem

Table 1. Tactics to Overcome General Obstacles to Conducting Functional Analyses

To address concerns regarding. . . .	Consider. . . .
. . . the time required to conduct an analysis	• scheduling brief (5-min) sessions • conducting an analysis informed by an open-ended interview consisting of only a single test condition and intimately matched control condition • implementing trial-based analyses • implementing latency-based analyses
. . . the complexity of an analysis	• conducting an analysis informed by an open-ended interview consisting of only a single test condition and intimately matched control condition
. . . the difficulty "selling" the analysis to constituents	• building a therapeutic relationship with parents and teachers via open-ended interviewing • describing the practical and humane reasons for understanding function prior to treating problem behavior • describing how reinforcement-based treatments are more likely following a proper functional analysis • using analogies to explain the logic and acceptable risks inherent in a properly designed functional analysis • emulating the conditions they described as being important to problem behavior in your analysis • adopting the tactics for decreasing the assessment length and for increasing the safety of the analysis
. . . the danger to the client and person conducting the analysis	• conducting the analysis in an environment that allows for the problem behavior to occur safely • including clearly signaled contingencies and continuous schedules of programmed consequences in test conditions • scheduling brief (5-min) sessions • conducting an analysis informed by an open-ended interview consisting of only a single test condition and intimately matched control condition • implementing trial-based analyses • implementing latency-based analyses • arranging for putative reinforcers to only be provided for precursors to the dangerous behavior in the test condition

behavior, seems ill-suited to understand the determinants of problem behavior for these children. Bowman et al. (1997) described an analysis method for these situations with two boys with pervasive developmental disorder. Open-ended assessment suggested the children engaged in severe problem behavior when the parent did not comply with their requests, and the requests made by these boys were varied, frequent, and sometimes extraordinary. Problem behavior was observed at high rates in a test condition when the therapist complied with the child's requests only following severe problem behavior; it was observed at low rates when the therapist complied with all requests immediately. This analysis capitalized on the fact that the various events that were momentarily reinforcing and whose absence would evoke severe problem behavior were specified by each child. Successful function-based treatments can be designed for these children by teaching them which type of requests will be reinforced and when their requests will be reinforced and by not reinforcing requests following problem behavior.

Avoid Undifferentiated Analyses by Incorporating Their Solutions in the First Analysis

Undifferentiated analyses occur infrequently (less than 5%) in the published literature (Hanley et al., 2003), partly because it is difficult to publish empirical data that provide no information. Published examples of initially undifferentiated analyses do exist, however (e.g., Bowman et al., 1997; Fisher et al., 1998; Thompson et al., 1998; Tiger et al., 2006). A recent analysis of data from a leading institution in functional analysis research and practice showed that initial analyses are undifferentiated about 50% of the time (Rooker, Hagopian, DeLeon, & Jessel, in press). This analysis also illustrated the iterative nature of the functional assessment process with 87% of analyses differentiated by the second or third attempt, with these attempts involving procedural adjustments to the analysis. Adjustments made to the undifferentiated analyses in the published literature cited above and from Rooker et al. clarified the initially ambiguous results. These procedural modifications can be classified according to which aspects of the assessed contingency are altered.

One class of modifications involves making changes to the type of the reinforcer manipulated across test and control conditions (e.g., incorporating a more specific physical type of attention or a unique tangible item). A second class involves making changes to the events that are likely to establish the value of the reinforcer for problem behavior (e.g., having the adult engage in a conversation with another adult as opposed to merely diverting their eyes to a magazine; having caregivers serve as therapist [Ringdahl & Sellers, 2000]; changing the type instructions provided). A third class of modifications involves adding or simplifying the events that signal the presence or absence of the contingency influencing problem behavior (adding condition-correlated stimuli [Conners et al., 2000], or reducing the number of rapidly alternating conditions from 5 to 2). A fourth class of modifications involves the introduction of an entirely new and unique contingency (i.e., changing both the EO and reinforcer) as in the provision of a requested event following problem behavior in Bowman et al. (1997).

These changes are primarily directed toward the test conditions; however, analyses may also be clarified by redesigning the control condition. Using a noncontingent reinforcement control condition as opposed to an extinction control condition, incorporating a denser schedule of noncontingent reinforcement, or perhaps omitting noncontingent reinforcers that follow close in time to problem behavior may result in lower levels of problem behavior in the control condition and hence result in a differentiated analysis.

All of the tactics described thus far may clarify an initially undifferentiated analysis, but a reasonable question to ask is: Why wait for an undifferentiated analysis to employ these tactics? Why not consider them with the initial design of a functional analysis? The point here is that we may not be analyzing severe problem behavior as efficiently as we could be when we standardize a powerful idiographic assessment such as the functional analysis. In fact, the flexibility of the functional analysis was evident in the Iwata et al. (1994) review, which included an escape-from-noise test condition. When first designing a functional analysis, the practitioner should consider the following tactics:

- Conduct a thorough open-ended interview and brief observation to discover ecologically valid and unique controlling variables, and allow this information to inform the design of the functional analysis.
- Alternate a single test condition, designed from the information obtained via interview and observation, and an intimately matched control condition, in which only the contingency between problem behavior and the putative reinforcer is removed.
- Select only topographically similar behavior that can be safely exhibited as the target of the analysis (i.e., limit the class of behaviors scheduled for the putative reinforcer).
- Assign salient discriminative stimuli to the test and control conditions.
- Schedule consequences to occur immediately following each target behavior (and withhold the same consequences for all other behaviors).

Table 2. Tactics to Overcome Client-Specific Obstacles to Conducting Functional Analyses

To address concerns regarding function detection with. . . .	Consider. . . .
. . . low-rate problem behavior	• acknowledging that because putative establishing operations are repeatedly arranged in functional analyses, differentiated analyses can be obtained even for reportedly low rate behavior • extending the durations of sessions and assessments • conducting analyses only when problem behavior is occurring • conducting additional open-ended interviews or observations to discover idiosyncratic factors that may be included in analyses
. . . covert problem behavior	• conducting the analysis in a baited environment and in the absence of others • conducting a reinforcer analysis in which the likely reinforcers for problem behavior are available concurrently and/or for arbitrary responses of similar effort
. . . multiple topographies of problem behavior	• restricting the class of behaviors that are reinforced in the analysis • systematically arranging for extinction of progressively more topographies
. . . possible multiple functions of problem behavior	• conducting multiple test and control comparisons in succession • testing the independent effects of different treatments based on different functions of problem behavior
. . . what appears to be constantly changing reinforcers for problem behavior	• relying on the child's requests or current activity to identify the momentarily valuable reinforcers and establish the value of those reinforcers by briefly denying their access

Toward an Understanding of When to Consider Functional Analysis

All problem behavior certainly does not require a functional assessment as described herein prior to developing a treatment. When consulting in classrooms, it is probably best to ensure that there are class-wide contingencies in place that promote desirable behavior. When consulting in homes, it is important to detect whether parents have a sound understanding of, and good habits relevant to, differential reinforcement of desirable behavior.

Practitioners should also consider consulting the function-based treatment literature to extract important skills to be developed for the children they serve. In other words, all skills taught following effective functional analyses should almost certainly be assessed and taught to all children, especially children diagnosed with autism or intellectual disabilities, in order to address existing problem behavior or to prevent the development of more severe forms of problem behavior. The particular skills taught following the identification of reinforcers for problem behavior include:

- Playing and other leisure skills for producing automatic reinforcers
- Complying with typical instructions
- Recruiting and maintaining the attention of others
- Escaping and avoiding unpleasant situations
- Gaining and maintaining preferred materials
- Tolerating delays, denials, and termination of preferred events

These skills should probably be discussed routinely by parents and interdisciplinary team members, and some variant should remain on all individualized educational plans. These are life skills. Those in our care should never be passed on these general skills; the amount, complexity, and discriminated nature of skills in each category should simply be refined over time. The beginning of this sort of function-based prevention curriculum can be found in Hanley, Heal, Ingvarsson, and Tiger (2007).

Nevertheless, problem behavior may still persist under these conditions. Behavior-analytic practitioners should first determine the risk and cost for the child and their caregivers of being prescribed an ineffective treatment. If the problem behavior is dangerous or life threatening, the functional assessment process should be initiated immediately and simultaneous with the implementation of class-wide motivational systems and basic parent training in contingency management.

An additional consideration is whether a stable and ecologically relevant baseline that will be sensitive to an effective treatment can be established in the absence of an analysis. One of the most useful features of an effective functional analysis is that the test condition can serve as a baseline from which the effects of any treatment can be assessed. This attribute of functional analysis seems especially important for behavior of a free-operant nature, those behaviors that can occur anytime and are not firmly anchored to any single environmental event (e.g., self-injurious behaviors such as hand biting or head hitting). Without an effective functional analysis, it is often difficult to establish a stable baseline of problem behavior. Naturalistic baselines of free-operant problem behavior obtained by collecting data throughout the day in a myriad of conditions tends to be highly variable and, therefore, less useful for detecting the effects of treatment, especially in a rapid fashion. Functional analysis seems especially important for free-operant behaviors for which an effective baseline is difficult to establish.

> Open-ended interviewing and perhaps some open-ended observation allow for the discovery of factors influencing problem behavior. Functional analyses are often necessary to demonstrate the relevance of those factors. Both are essential to the functional assessment process.

There are several problem behaviors that, in contrast, could be classified as restricted operants and that seem to require little effort to establish stable and sensitive baselines. These restricted operants are occasioned by highly specific environmental events. Some examples include noncompliance, feeding-related problem behaviors, and sleep-interfering behaviors. Stable baselines of these behaviors can very often be established merely by presenting the precipitating event (e.g., instructions, food, and the bid goodnight). In one sense, the functional analysis is obviated because an effective and ecologically-relevant baseline can be established in its absence. It is under these conditions that conducting a functional *analysis* is probably not necessary. Developing effective treatments with only consideration of the probable positive and negative reinforcers for these particular behaviors has been demonstrated (e.g., Jin, Hanley, & Beaulieu, in press; Stephenson & Hanley, 2010; Valdimarsdóttir, Halldórsdóttir, & Sigurðardóttir, 2010). Omitting the functional analysis does not imply that the controlling variables for the problem are not considered;

Table 3. Questions to Be Answered in Order to Develop an Individualized Functional Analysis

1. What problem behavior(s) will be targeted in the analysis?
2. What problem behaviors will be measured and how?
3. What are the safety precautions for the analysis? Has consent been obtained?
4. What reinforcers will be arranged in the test condition?
5. How will the value of the reinforcer be established?
6. How will the control condition be arranged?
7. What discriminative stimuli will be incorporated in test/control conditions?
8. What materials will be available in all conditions?
9. How long will sessions be? How long will the between-session time be and what will occur during that time?
10. Where will the analysis be conducted and by whom?
11. What session order will be used (what will the experimental design be)?
12. Who will graph and interpret the results?
13. Who will design and evaluate the function-based treatment?
14. Who will adjust the treatment so it is effective once extended to the school and home?

often times a more thorough open-ended interview is required to determine the unique variables influencing these problem behaviors (see, for example, Jin et al., who recently showed the utility of a particular open-ended functional assessment for determining the variables influencing sleep-interfering behaviors among other sleep issues for young children).

Exporting the Functional Assessment Process

Numerous articles imply that teachers in classrooms or our allied professionals (e.g., social workers, speech and language pathologists) should be expected to conduct functional assessments following some training. Multiple studies describing ways to train teachers to conduct analyses provide some evidence of this expectation (e.g., Ellingson, Miltenberger, Stricker, Galensky, & Garlinghouse, 2000; Moore et al., 2002). I would like to suggest that Board Certified Behavior Analysts® (BCBAs®) conduct functional assessments of severe problem behavior with teachers, parents, and allied professionals as partners in the process.

As described earlier, a proper functional assessment involves both a semistructured open-ended interview (step 1) and a safe and informed functional analysis (step 2), in which some event is manipulated to determine its effects on the probability of problem behavior. Open-ended interviewing and perhaps some open-ended observation allow for the discovery of factors influencing problem behavior. Functional analyses are often necessary to demonstrate the relevance of those factors. *Both* are essential to the functional assessment process (see exceptions in the above section).

If we break down these two steps, a proper functional assessment of problem behavior then involves skills relevant to building relationships; clinical interviewing; direct measurement of behavior; single-subject experimental designs; data graphing, analysis, and interpretation; and reinforcement schedules and behavioral processes. This is not something that can be or even should be exported to teachers, social workers, speech pathologists, or anyone else without the BCBA credential or other solid evidence that they have competence with respect to all of these skills (a list of questions to be skillfully considered prior to an analysis is presented in Table 3). This skill set is precisely that which should be learned in programs yielding behavior analysis certification. What's the current message in trying to export the functional assessment process? It is that anyone can do this thing called functional assessment and the necessary component of the process called functional analysis. I just don't think that is the case. I could be taught to suture a wound, but

that would not make me a surgeon. People can be taught to say, "don't do that, you're going to hurt yourself" when a child hits his head in an attention test condition of a functional analysis, but that does not make them competent in the functional assessment and treatment development process.

There is something I think we should export to teachers and all of these allied professionals, however, and that is the fundamental assumption that *problem behavior is learned, learned like any other behavior*. This assumption should be packaged with our other assumptions relevant to problem behavior:

- that problem behavior serves a purpose for the child,
- that all problem behavior is a function of particular environmental conditions,
- that there are not aggressive kids per se but contexts that support aggression,
- that extraordinary behavior can develop and maintain under rather ordinary conditions,
- that the answers to how to help children with their problem behaviors can be found in understanding the effect their problem behavior is having on the environment.

These assumptions and their multiple framings are what we need to export. Functional assessment for the masses should be this heuristic, this thinking guide, to be applied every time our allied professionals are engaged in conversations about how to change another person's behavior. It is vital that we teach other professionals that if the problem behavior is persisting, it is being reinforced. This is an assumption with great empirical support that needs to be exported. When providing advice to a school that has no BCBAs employed, behavior analysts should help school personnel to develop systems that occasion people thinking about and discussing the probable reinforcers for the problem behavior before attempting to intervene. After these conversations about reinforcers for the problem behavior occur, teaching school personnel how to expand the discussion to acknowledge all aspects of a controlling contingency—the reinforcers *and* the events that establish their value and signal their availability—would be a good next step. Given the acumen required for proper functional assessment for problem behavior, this is probably where our technical advice should end. If treatments developed from these conversations do not adequately address the problem behavior, assistance with creating an effective employment advertisement for a full-time BCBA should then be provided.

Having training in behavior analysis or being a BCBA are the minimal requirements for conducting functional assessments, but these histories may or may not be sufficient. Behavior analysts who are responsible for treating severe problem behavior of children with autism should seek out academic programs or internships that will provide them with the necessary competency-based training to conduct safe and effective functional assessments of severe problem behavior. Perhaps the greatest legacy the field of applied behavior analysis can leave the world is this concept that the most relevant determinants of problem behavior are accessible, determinable, and capable of being changed to improve the lives of all who exhibit problem behavior.

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Appendix

Open-Ended Functional Assessment Interview

Date of Interview: _____

Child/Client: _____

Respondent: _____

Respondent's relation to child/client: _____

Interviewer: _____

RELEVANT BACKGROUND INFORMATION

1. **His/her date of birth and current age: ____-_____-_____ ____yrs ____mos**
   Male/Female
2. **Describe his/her language abilities.**
3. **Describe his/her play skills and preferred toys or leisure activities.**
4. **What else does he/she prefer?**

QUESTIONS TO INFORM THE DESIGN OF A FUNCTIONAL ANALYSIS

To develop objective definitions of observable problem behaviors:

5. **What are the problem behaviors? What do they look like?**

To determine which problem behavior(s) will be targeted in the functional analysis:

6. **What is the single-most concerning problem behavior?**
7. **What are the top 3 most concerning problem behaviors? Are there other behaviors of concern?**

To determine the precautions required when conducting the functional analysis:

8. **Describe the range of intensities of the problem behaviors and the extent to which he/she or others may be hurt or injured from the problem behavior.**

T*o assist in identifying precursors to dangerous problem behaviors that may be targeted in the functional analysis instead of more dangerous problem behaviors:*

9. **Do the different types of problem behavior tend to occur in bursts or clusters and/or does any type of problem behavior typically precede another type of problem behavior (e.g., yelling preceding hitting)?**

To determine the antecedent conditions that may be incorporated into the functional analysis test conditions:

10. **Under what conditions or situations are the problem behaviors most likely to occur?**
11. **Do the problem behaviors reliably occur during any particular activities?**
12. **What seems to trigger the problem behavior?**
13. **Does problem behavior occur when you break routines or interrupt activities? If so, describe.**
14. **Does the problem behavior occur when it appears that he/she won't get his/her way? If so, describe the things that the child often attempts to control.**

To determine the test condition(s) that should be conducted and the specific type(s) of consequences that may be incorporated into the test condition(s):

15. **How do you and others react or respond to the problem behavior?**
16. **What do you and others do to calm him/her down once he/she engaged in the problem behavior?**
17. **What do you and others do to distract him/her from engaging in the problem behavior?**

In addition to the above information, to assist in developing a hunch as to why problem behavior is occurring and to assist in determining the test condition(s) to be conducted:

18. **What do you think he/she is trying to communicate with his/her problem behavior, if anything?**
19. **Do you think this problem behavior is a form of self stimulation? If so, what gives you that impression?**
20. **Why do you think he/she is engaging in the problem behavior?**