

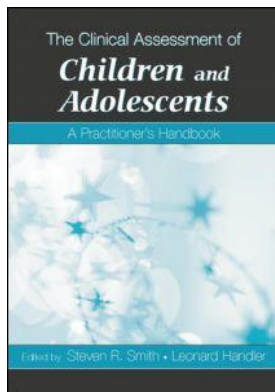
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Behavioral Assessment

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BEHAVIORAL ASSESSMENT

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Behavioral assessment is a primary assessment process for use with children and adolescents and is necessary for all aspects of multimethod child assessment (Merrell, 2003). For example, behavioral assessment methods are included in all four of Sattler's (2001) pillars of assessment: norm-referenced testing, interviews, observations, and informal assessment procedures. Surprisingly, even norm-referenced tests, such as the NEPSY: A Developmental Neuropsychological Assessment (Kemp, Kirk, & Korkman, 2001), include behavioral observation systems. McConaughy and Achenbach (2004) have developed an observational system to be administered during individualized testing. The other three pillars, interviews, observations, and various informal assessment procedures, are all techniques for gathering behavioral assessment data. Despite its broad implications and importance, there is no one universally accepted definition of or procedure for behavioral assessment. The purpose of this chapter is to describe behavioral assessment and its purposes, to explain methods of data collection, and to make procedural recommendations for data integration and interpretation. To begin to clarify the meaning of behavioral assessment, one must compare it with other assessment orientations.

**BEHAVIORAL, TRADITIONAL, AND
QUALITATIVE-DEVELOPMENTAL ASSESSMENT**

Historically, there has been a distinction between behavioral and traditional assessment (Hersen, 1976; Mash & Terdal, 1988). A central assumption accounting for this distinction is that behavioral assessment requires "situational specificity." That is, the particular target behaviors are caused by variables in the immediate settings (Shapiro, 1988). Traditional assessment, on the other hand, focuses on enduring traits resulting in consistent behavior across settings. Furthermore, traditional assessment is linked with making clinical diagnoses rather than describing behavior and its circumstances (Silva, 1993). As behavioral assessment evolves, it is becoming clear that situational specificity is a restrictive assumption. Rather, behavior in a situation can be caused by multimodal variables that are proximal,

distal, physiological, or intrapsychic (Haynes & O'Brien, 1990; Miller, Tansy, & Hughes, 1998). As a result of the recognition of the expanding influences on observed behavior, it has been recommended that behavioral assessments measure as many of the modalities as the assessment plan will permit.

There is concern, however, that behavioral assessment has become so encompassing that there are no limits to what behavior and environments need to be evaluated. To help clarify this upper limit, behavioral assessment can be contrasted with Simeonsson's concept of qualitative-developmental assessment (Simeonsson, Huntington, Brent, & Balant, 2001). Within his approach, like behavioral assessment, problems are thought to be idiosyncratic and complex. However, qualitative-developmental assessment, emerging from the biopsychosocial paradigm, extends focus to sensory, health, and developmental variables with the assumption of a highly integrated and dynamic social context. Thus, clinical decisions are based largely on the association of assessment data with developmental sequences. Qualitative-developmental assessment is important to the field of assessment but appears to go beyond the assumptions of behavioral assessment, which are explained next.

THE NATURE OF BEHAVIORAL ASSESSMENT

Based on the previous discussion, behavioral assessment is a procedure that is utilized by those who employ other assessment approaches, but equally sits beside them as an independent approach for drawing conclusions and making decisions. Behavioral assessment can be contrasted with other approaches in the behavioral tradition. These include behavioral analysis, applied behavioral analysis, and functional analysis. Behavioral analysis suggests systematic observations of behavior within experimental conditions. Applied behavioral analysis extends the term *behavioral analysis* to include socially relevant behaviors in humans (Silva, 1993). Functional analysis is concerned with both the situationally specific reasons for a target behavior and the relationship between these determinants and the behavior. Functional analysis, however, provides no procedures for examining causes of behavior outside the immediate context. The functions of behaviors are far more complex than can be observed in the subject's proximal setting (Haynes & O'Brien, 1990). Nevertheless, in the following description of behavioral assessment it can be seen that functional analysis is one of the central foci of behavioral assessment. Indeed, emphasis on function in behavioral assessment is evidenced by the emergence of the term *functional behavioral assessment*.

Behavioral assessment is a process of systematically gathering observations of a set of target behaviors, examining the relationships between these observations and potential multimodal determinants, and, based on these relationships, generating hypotheses about the important, controllable, causal functions of the behaviors for treatment planning and progress monitoring. Each part of this description can be examined independently. First, behavioral observations are gathered through direct observation, behavior rating scales, and structured interviews. Each technique provides a means for the systematic collection of quantitative and qualitative data. Second, there is a consideration of the potential causes of the target behaviors and how those causes relate to the target behavior. Data about these determinants are also gathered through the assessment procedures listed above. Next, integration and interpretation using clinical judgment are employed to make some conclusions about the nature of functions of the target behavior. Finally, behavioral assessment provides the information necessary to allow the clinician to target the functions of the behavior for treatment and measure the target behaviors to monitor progress.

PURPOSE OF BEHAVIORAL ASSESSMENT

The first purpose of behavioral assessment is to describe the problem behavior and the function of the behavior. In behavioral assessment, there is a focus on obtaining a precise measure of target behaviors. However, there is no assumption that the topography of the behavior is central to understanding the function of the behavior. For example, take the case of a child in school who becomes disruptive after the introduction of math work. A situation-specific interpretation of the behavior may lead to an intervention such as reducing the difficulty of the math work for the child. The function that justifies such an intervention is that the child was escaping from difficult math work. By making this conclusion, the clinician may be missing the real cause of the behavior, which may or may not have anything to do with math work, and possibly committing a disservice to the child. For example, it may be that the child has a skill or performance deficit regarding asking for help, maybe the child is frustrated because of problems he or she is having with peers, maybe the child has a learning disability in mathematics, or maybe the child is controlling the situation to get out of challenging work. It can be seen that there are many potential causes of the child's behavior, some of which are situationally specific and many which are distal to the situation. For each of these hypothesized functions, reducing the difficulty of work not only does not teach the child math or a generalizable skill; rather, it reinforces the escape behavior.

The next central purpose of behavioral assessment is to plan interventions. Interventions are planned in behavioral assessment based on the individualized needs of the client. In traditional assessment, a treatment plan may be devised based on a diagnosis. For example, if an individual was assessed and diagnosed as having depression, then the intervention would be to implement a manualized approach to cognitive-behavioral therapy for depression (Beutler, Clarkin, & Bongar, 2000). This approach has its advantages, but a strict aptitude-by-treatment approach is not flexible enough for children whose behaviors are associated with substantial developmental change and diverse influences from parents, peers, and teachers. Rather, behavioral assessment interventions are based on individual causes or functions of the child's target behaviors (Miller, Bagnato, Dunst, & Mangis, 2006). As an example, for one child exhibiting infrequent social initiation and flat affect, the function of the behavior may be parental discord, and the intervention is logically to intervene at the family-system level. For another child with the same symptoms, there may be a clear skill deficit in social skills that results in the child making depreciative self-statements. For this child the interventions may include direct social skills instruction and psychotherapy.

The final central purpose of behavioral assessment is progress monitoring (Cone, 2001). Evaluation of treatment has not been uniformly agreed upon as a purpose of behavioral assessment, because of debate about the equivalence of assessment and evaluation (Silva, 1993). However, because of the strong emphasis on direct observation of target behaviors, behavioral assessment is uniquely positioned as a procedure for monitoring response to intervention.

TYPES OF BEHAVIOR ASSESSED

Behavior assessment is not limited to motoric responses. Rather, behavior is conceptualized as multidimensional, including motor responses, verbal responses, covert responses (cognitions), and physiological responses (emotions) (Hersen, 1976; Shapiro, 1988). Another way to organize behaviors assessed in behavioral assessment is to use the categories behavioral, social, emotional, and cognitive. As discussed in the next section, sources of emo-

tional and cognitive behavior are most often gathered from self- or other-report sources. However, there is some limitation to the ability of individuals to self-report, as they are often unaware of their feelings or cognitions (DuBois & Silverthorn, 2004; Gladwell, 2005), and this must be taken into consideration in the interpretation of rating scales. Interestingly, there are quite reliable methods of identifying overt behavior that is indicative of feeling and cognitive states (Gottman, Levenson, & Woodin, 2001; e.g., eye rolling as a sign of contemptuous thoughts or hand wringing as a sign of anxious feelings). A clinician skilled in behavioral assessment is able to make systematic observations of client behavior that point to covert behaviors such as thinking and feeling.

SOURCES OF ASSESSMENT DATA

The data required for a complete behavioral assessment emanate from a variety of settings and sources. Behavioral assessment is concerned with the child's functioning in a variety of settings such as home, school, and other social situations. Therefore, sources of data include the child, family members, school personnel, and peers. The referred child is often observed, interviewed, and asked to complete self-report behavior rating scales. "School personnel" refers here to the child's teacher, the principal, other teachers (such as the teacher on duty on the playground), volunteers, trainees, parents of other children in the school, or even the superintendent. Peers are those children with whom the referred child comes in contact. Peers include children in class, students in the lunchroom, a child in the neighborhood, or children at the bus stop. It may not be possible to get data directly from peers. Alternatively, reports about peers from the child or parents and observations of peers' interactions with the child in naturalistic settings are quite revealing. Family sources of data include parents, foster parents, guardians, siblings, blended family members, extended family, or even absent family members.

CONSIDERATIONS FOR CONDUCTING BEHAVIORAL ASSESSMENT

Nomothetic versus Idiographic

Assessment practices can be thought of as falling along a nomothetic to idiographic continuum. Nomothetic approaches to assessment have come to mean comparison of scores with sample means, aggregation of data, and quantitative analysis. For example, administering a test of cognitive functioning and computing a standard score is nomothetic. Nomothetic practices are relevant to behavioral assessment particularly with regard to behavior rating scales, a core behavioral assessment procedure, in which subject responses are compared with various normative groups. For example, with the *Behavior Assessment System for Children—Second Edition* (Reynolds & Kamphaus, 2004) the clinician can compare a client's scores with a general sample, learning-disabled sample, or an attention-deficit/hyperactivity disorder sample. In contrast to nomothetic approaches, idiographic techniques include interview, direct observation, single-case design, and qualitative procedures. For example, making impressions from the observations made during a clinical interview is idiographic. Direct observation falls somewhere in between nomothetic and idiographic. On one hand, for classroom observations, the referred individual is compared with a peer, which involves some

normative comparison. On the other hand, specific behaviors are noted because they have value as markers for underlying problems. Behavioral assessment tends to require a convergence of nomothetic and idiographic assessment approaches (Merrell, 2003).

Quantitative versus Qualitative Interpretation of Assessment Data

Behavioral assessment relies heavily on clinical judgment to determine a course of action. These judgments are based on both quantitative and qualitative data. Data from behavioral rating scales, structured interviews, and frequency counts are quantitative in nature and amenable to measuring change. Other purposes of quantitative data are identification of relative strengths and weaknesses and determination of diagnostic classifications. Qualitative interpretations, on the other hand, provide rich individualized information. As discussed in what follows, the process of direct observation should entail both quantitative summaries, such as percentage of time on task, and qualitative summaries, such as narrative descriptions of actions occurring in the situation.

Level of Inference

Behavioral assessment requires a higher level of inference than behavior analysis. Such a level of analysis is needed because the explanations of behavior are diverse under the behavioral assessment approach. In behavior analysis, it is thought that all of the information necessary is available in the immediate situation. It only requires that the clinician notice the salient aspects of the environment. With behavioral assessment the clinician must keep a wide range of information in mind while observing behavior to generate a useful conclusion. For example, while a child is being observed in the classroom, the clinician must think about the results of the semistructured parent interview and rating scales completed by the parent. Furthermore, after the observation sessions, the clinician must consider what was observed during an interview with the referred child. Finally, the results of the rating scales completed by the child are interpreted in the context of all other observations. Connections and conclusions are formed through sophisticated examination of what is observed from these multiple sources of data.

BEHAVIORAL ASSESSMENT METHODS

Behavioral assessment, as some may conclude, is not only about direct observation in a naturalistic setting. Direct observation can occur in a clinical setting and even during a norm-referenced testing session. Furthermore, to understand the functions of an individual's behavior, the clinician is also interested in what others say about the client's behavior and what the client says about his or her own behavior and the behavior of others. Hence, interviewing and behavior rating scales are important to behavioral assessment. Behavioral assessment methods range from direct to indirect. The most direct is to observe an individual in the naturalistic setting. Indirect methods of behavioral assessment would include asking a child's parent to complete a behavior checklist. Methods of behavioral assessment most often used with children are direct observation, behavior rating scales, and interviewing (Merrell, 2003). Because interviewing and behavior rating scales are covered in other chapters in this volume, they are described only briefly here, and particular attention is given to the process of direct observation.

STRUCTURED INTERVIEWS

Interviewing children and their parents requires a high level of skill on the part of the clinician. Unlike observation and rating scale assessment, interviews require well-developed interpersonal, communication, and thinking-on-your-feet skills. These skills can only be developed through supervised experience and diligent self-evaluation. Interviews are conducted to gather information about the problem; to gather a developmental history; to identify proximal, distal, physiological, and intrapsychic factors associated with the problem behavior; to educate the client and his or her family; and to make observations about the client and the client's interactions with parents. For further information, Merrell (2003) provides an excellent introduction to interviewing techniques. Structured and semistructured interview protocols provide standard questions and a standard sequence for the interview. They have the advantage of providing the structure needed to minimize overlooking important background, behavioral, or interpersonal information. There are several types of structured interviews, such as the *Kiddie Schedule for Affective Disorders and Schizophrenia for School-age Children* (K-SADS; Ambrosini, 2000; Puig-Antich & Chambers, 1978) and the *Diagnostic Interview for Children and Adolescents—Fourth Edition* (DISC-IV; Reich, Welner, & Herjanic, 1997). As can be seen from the titles, these structured interviews have a strong association with diagnosis. For an alternative, Sattler (1998) provides an exhaustive book on structured and semistructured interviews that are designed for numerous types of referral concerns and situations.

BEHAVIOR RATING SCALES

Behavior rating scales augment behavioral assessment by providing clinicians with responses to a standard set of questions with a standard set of response options. These responses are summated and compared with a normative sample for interpretation. A significant difference between rating scales and other behavioral assessment procedures is that they provide indirect assessments of perceptions of behavior (Merrell, 2003). Data from rating scales tend to be interpreted in relation to other assessment data but have been shown to provide evidence-based information about functional impairment (Winters, Collett, & Myers, 2005).

DIRECT OBSERVATION

Observation is the *sine qua non* of behavioral assessment. Clinicians make observations from the moment of meeting a child. Observations are made of the child's gender, height, weight, cleanliness, ethnicity, and interpersonal style. In most cases, one begins to form judgments about a child within seconds of seeing her or him for the first time. Although there is emerging evidence that an expert may be able to make highly reliable conclusions based on a brief observation (Gladwell, 2005), for the purposes of behavioral assessment a more systematic and integrative approach is called for. Direct observation allows the clinician to operationalize problematic behaviors, conduct an observation based on these operational definitions, and use this information to develop interventions (Merrell, 2003). Direct observation is the only form of assessment that simultaneously considers the child's behavior and his or her environmental context (Saudargas & Lentz, 1986) and can therefore be used to resolve any conflicting data from other sources (Reynolds & Kamphaus, 2004). Moreover, direct observation

by a clinician is not subject to the same biases that may decrease the validity of rating scales completed by family members or other professionals.

To conduct a direct observation the clinician must consider a wide variety of behaviors assessed across a number of settings and times. In school settings, it is further necessary to compare the referred child with a similar peer in the setting where the referred child is being observed. An example observation form is provided in Figure 8–1. Other commercially available direct observation forms are discussed in the following sections. This form is freely reproducible from <http://www.mfba.net/behobsform.pdf>. In the following, the procedure for conducting a direct observation of a child in a school classroom, with the use of the form in Figure 8–1, is described.

First the observer documents basic data, such as the name of the child being observed, the context of the observation, and the times of day the observation started and ended. On the

Classroom Observation Record

Date: 05-15-05
 Name: John
 Age: 14 years old Grade: 8th
 Teacher: Mr. Jones
 Times: 8:42 a.m. - 9:02 a.m.
 Behavior:
 O= OnTask V= Verbal Off Task
 M= Motor Off Task P= Passive Off Task

Anecdotal Observations:
 John walked into class with a group and mocked a female peer in response to other boys mocking her. John was unsure of what to do after she challenged his behavior.

	GC	Peer	Referred	Task Description/Behavior
1	L	O	V	Many students chatting with
2		O	V	peers
3		O	O	Teacher raises voice - John
4		O	O	complies
5		O	P	Staring at peers
6		O	O	
7		O	O	
8		O	O	Answers question, answer
9		O	O	was wrong
10		O	V	Others start talking, John
11		O	V	finds someone to talk to
12		O	O	
13		O	O	
14		O	O	
15		O	V	Several peers off task, he
16		O	V	gets off task (modeling)
17		O	V	Persists with off task despite
18		O	O	others back on task
19		O	O	
20		O	P	Looking at the floor

(Circle Last Interval Observed)

Interval Length: 1 minute	Counts	20	11	
Partial <input type="checkbox"/> Time Sample	Intervals	20	20	
Whole <input type="checkbox"/> Event/Interval	Total	100	55	% On-Task

Grouping Codes (GC)
 L=Large Group
 S=Small Group
 O=One-to-One
 I=Independent
 F=Free Time

Summary:

John was modeling other's behavior. He did not seem to take the lead in class disruptions. His work space was disorganized and he was not able to use his materials to help answer a question. He appeared to make contact with peers, but they didn't attempt to interact with him.

FIGURE 8–1. Classroom observation record.

right side of the form there are two columns with 20 rows. This is where observations are recorded. There are two columns in which to record observations of the referred child and a comparison peer. Each row is a period of time, usually 1 minute or 30 seconds. To the right of the two columns there are lines for anecdotal notes about each time period. On the left side of the form there are codes for different types of observations and space for more general anecdotal observations. At the bottom left side there are different methods of behavioral observation that can be used with this form. At the bottom right is an area for total observations and codes for the different types of instructional settings that may be observed. Finally, at the bottom is space for summary statements. Those with experience conducting behavioral observations may note that this form has a lot of space for anecdotal reporting. Copious anecdotal comments are consistent with the notion that behavioral assessment is concerned with both quantitative and qualitative data.

Upon entering the classroom setting, the observer quietly sits in the back of the classroom and identifies the referred student and then a peer for comparison observation. The peer should be of similar gender, ethnicity, and seating placement in the room. That is, if the referred child is sitting in front of the classroom then the comparison peer should be sitting toward the front of the classroom. The goal is to find a peer that is most like the referred peer to reduce differences that may account for discrepancies between the students' behaviors.

Below the Starting Times line is a list of codes that are shorthand for documenting observations. There are four codes provided: O for on-task, V for verbal off-task, M for motor off-task, and P for passive off-task. Verbal off-task includes talking to neighbors, distracting verbalizations, and any noises made with the mouth. Motor off-task includes fidgeting, playing with items on the desk, getting out of one's seat, and turning around in the seat. Passive off-task includes daydreaming or lack of response to classroom stimuli. There is space available to add additional codes. It is particularly helpful to add additional codes when there is a behavior that is frequent and relatively discrete. For example, if there is a particular motor off-task behavior, such as rooting through a notebook, a special code such as N for notebook can be made to code each observation of the behavior. The observer then enters codes into the two columns on the right of the form and anecdotal observations about that time period on the line next to the time interval. In the section called Anecdotal Observations, observations that are not directly related to a specific interval of time should be recorded. For example, the observation that in general the teacher tends not to give reinforcement for correct answers, but is obviously negative toward children for wrong answers, should be documented in this section, as it may have a bearing on the referred child's behavior.

The observation form also includes a space to note the interval length for the observation. It is profitable to use 30- or 60-second intervals for a total observation period of 10 or 20 minutes, respectively. For the 30-second interval, note the sweeping second hand on the classroom clock. When the second hand crosses the 12 on the clock, the observer makes an observation of the peer and then the referred child and notes any specific observations on the line to the right. When the second hand crosses the 6, the observer makes another observation of the children, and so on for 20 intervals. Taking momentary observations is a method of observation called *time sampling*. It allows the observer to observe the whole classroom during the interval, to take qualitative notes on anecdotal observations, as well as make quantitative, systematic observations of the referred child and peer. The process is called time sampling because the child's behavior is sampled only momentarily at set time intervals.

Just below the Length of Interval blank there are four types of observations listed, one of which is time sampling. The other coding methods are partial interval, whole interval, and

event/interval. *Partial interval coding* is used to identify behavior that occurs for part of an interval. For example, if the interval is 30 seconds and there is motor off-task behavior for 10 seconds in a particular interval, that interval would receive an M code for motor off-task. *Whole interval coding* is slightly different from partial interval coding. For whole interval coding a code is noted only when the occurrence of the behavior spans the whole interval. Whole interval coding is useful for behaviors that persist for long periods of time and can be summarized in terms of duration by a count of the number of intervals the behavior spanned. The fourth type of coding procedure is called *event/interval* for frequency coding. In *frequency coding* a code is awarded each time a behavior occurs. With this procedure, the frequency of behavior is recorded within each observation interval. For example, during observation of self-injurious behavior, such as hair pulling, a special behavior code could be designated for hair pulling, such as H. Each time the child pulls his or her hair the letter H is entered into the box of the current interval. So if in the second interval the child pulls his or her hair three times, there will be three H's in the box. This is a helpful method for tracking behavior because it allows one to identify increases or decreases in discrete behaviors associated with changes in activities in the classroom.

Other types of observation coding that are not included on the form are called *duration* and *latency*. *Duration coding* is much like whole interval coding, but rather than focus on the number of intervals the behavior spans, the observer times the behavior from start to finish. *Latency coding* is used to determine the time between a cue and the beginning of the behavior. A simple example is measuring the time it takes a child to act following a teacher's request, such as to take out a pencil. More subtle examples include the latency of a child to become engaged in a classroom disruption or to respond to a cue to engage in play with a peer.

For each interval it is important to know whether the activity is in a large group, small group, one-to-one, independent activity, or free time. Group activity is recorded in the column called GC (Grouping Code). Grouping codes are listed at the bottom right of the form. If the observation began in a large group setting, the observer would write a capital L in the GC column for interval 1. Then if in interval 11 there is a transition to small group activity, the observer would mark the letter S in the GC column for interval 11. It is then possible to examine differences in behavior across different classroom groupings. It is not necessary to note the grouping code for each observation; rather, simply indicate the grouping code when transitions occur. In this way it is possible to see the impact transitions have on the child's behavior.

At the end of the observation period the observer computes the referred child's and peer's overall performance. It is traditional to summarize the behavior in the positive, that is, percentage of time on-task. So for the referred child the observer sums all of the intervals marked as on-task and divides by 20 (number of intervals observed), then multiplies by 100. It is appropriate at times to observe only for 10 intervals or 15 intervals, given time demands. To compute a percentage on-task for these shorter observations, the observer simply divides the total number of on-task counts by the total number of intervals observed and multiplies by 100. The observer computes the percentage on-task for both the referred child and the peer. Quantitative summaries facilitate quick comparison of time on-task between the referred child and the peer. After completing all other sections of the classroom observation record, the observer writes a summary of impressions at the bottom of the page.

The above classroom observation process is just one of many direct observation systems. For comprehensive coverage of direct observation approaches, refer to Volpe and McConaughy (2005). In the following section published direct observation systems are discussed.

PUBLISHED DIRECT OBSERVATION ASSESSMENT FORMS

There are several behavioral assessment batteries that include direct observation forms to complement the normative batteries. The following provides a brief description of popular published observation systems. The *Behavior Assessment System for Children, Second Edition, Student Observation System* (BASC-2 SOS; Reynolds & Kamphaus, 2004), was designed for observations of children with significant behavioral or emotional problems that interfere with academic performance. Behaviors are assessed in both adaptive and maladaptive categories. Adaptive categories include Response to Teacher/Lesson, Peer Interaction, Work on School Subjects, and Transition Movement. Problem behavior categories include Inappropriate Movement, Inattention, Inappropriate Vocalization, Somatization, Repetitive Motor Movements, Aggression, Self-Injurious Behavior, Inappropriate Sexual Behavior, and Bowel/Bladder Problems.

There are three components to the SOS. The first is the Behavior Key and Checklist. It provides sample behaviors in each of the adaptive and problematic behavior categories that can be referenced throughout the observation session. At the conclusion of the 15-minute session the observer uses this list to note behavior frequencies (e.g., not observed, sometimes, and frequent). Behaviors on this list are ordered from most frequent to least frequent, as noted by school psychologists surveyed for development of the SOS (Reynolds & Kamphaus, 2004). There is also a space to indicate whether a behavior was disruptive to others during the observation session. The second component of the SOS is a time sample of behavior. The observer uses a 30-second interval and indicates the presence or absence of adaptive and problematic behaviors at the conclusion of the interval. The third and final part of the SOS is the Teacher's Interaction with Student section. This section provides the observer with a place to note specifics about teacher/child interactions and classroom environment. The observer can note what techniques for changing behavior and other classroom characteristics may alter or sustain a child's behavior. This section is designed to facilitate intervention planning (Reynolds & Kamphaus, 2004).

The SOS is available in both paper-pencil and electronic (BASC Portable Observation Program) format with a built-in timer to facilitate accurate recording of behavior in all settings. Test authors suggest that the SOS be used in the diagnostic, treatment-planning, and progress-monitoring stages of treatment. It is designed to be used by anyone who may be part of the treatment or consultative team, including teachers, counselors, and psychologists. Data from the SOS can be used to confirm or dispute data obtained from other reporters (Reynolds & Kamphaus, 2004).

By combining multiple behavioral assessment techniques into a single observation sessions, the BASC-2 SOS provides a comprehensive observation of the referred child within the classroom setting. One weakness of the system is that the form does not have multiple spaces to accommodate data for a comparison student. There is enough space on the time-sample portion of the form to make multiple rows of marks, but practitioners will need to use some means to determine which marks are being used to describe each student. In the Behavior Key and Checklist, there is no space for comparison peer data.

The *Achenbach System of Empirically Based Assessment* (ASEBA; Achenbach & Rescorla, 2001) is another published assessment system that contains a direct observation form. In fact, the ASEBA contains both a Direct Observation Form (DOF) and Test Observation Form (TOF). The DOF is designed for a 10-minute observation session. The form contains a combination of observation techniques utilizing both rating scales for 96 specific behaviors and 1-minute interval recording of on/off-task behaviors. Like the BASC-2 SOS,

computer software is available to assist with scoring. Unlike the BASC-2 SOS, the DOF provides space for recording behaviors of two comparison peers. The DOF is also a normed measure with referred and nonreferred samples for comparison (Achenbach & Rescorla, 2001). Both of these options facilitate better interpretation of observation data. Scores are interpreted in the context of multiple scales, including empirically derived syndromes, on-task behavior, Internalizing, Externalizing, and Total Problems.

The Test Observation Form (McConaughy & Achenbach, 2004) is a direct observation tool designed to be used during an individual testing session. It is a normed instrument with samples of both referred and nonreferred children. Norms are gender-specific. Scores are compared with empirically derived syndromes, including Anxious, Oppositional, Withdrawn/Depressed, and others to assist with diagnostic conclusions.

COMPUTER APPLICATIONS

Computer technology is gradually infiltrating all aspects of the field of psychology. Many tasks that were previously completed with paper and pencil are now computerized. These include statistical calculations, stimulus presentation for research, and test score conversion. The next logical step in this progression is to utilize computer software to simplify the collection of behavioral data for clinical purposes. Because paper-and-pencil recording during observation sessions can be distracting to the observer, computer-based recording and analysis tools are being developed to allow the observer to spend more energy focusing on accurate and objective observations and less energy on recording. These computer-based systems are noted to improve reliability and accuracy of recording. They also provide a more efficient method of data analysis and graphing (Kahng & Iwata, 1998). Many computer-based observation systems are now available with a wide variety of features. Some representative computer-based systems are described in the following section.

One available observation system is the *Behavioral Evaluation Strategy and Taxonomy* (BEST) software developed by Educational Consulting Incorporated (Sharpe & Koperwas, 1999). This system, available for both PC and handheld systems, combines data collection and analysis software (Sidener, Shabani, & Carr, 2004). Observers program a configuration file for up to 36 behaviors to be recorded via different keys on the keyboard. An event recorder screen serves as a reminder for how the keyboard is programmed to record responses (Sidener et al., 2004). Types of data that can be recorded include frequency, duration, interval, time sample, latency, interresponse time, and discrete trial (Kahng & Iwata, 1998). Qualitative data can also be entered through a notes feature. Errors in recording can be corrected while the observation session is occurring. Frequency and duration of selected behaviors can be monitored as the session is progressing (Sidener et al., 2004). The included scoring program allows for analysis of multiple observation data files together. Available analyses include qualitative summary, hierarchical ranking of frequencies and duration, sequential analysis, and tables and graphs. Interobserver agreement can also be analyzed.

Another available software program is the *Ecobehavioral Assessment System Software* (EBASS; Greenwood, Carta, Kamps, Terry, & Delquadri, 1994). This system was designed for classroom observation based on feedback about observation instruments from school psychologists. Unlike BEST, EBASS is preprogrammed with existing, empirically supported observation systems for classroom use. The observer simply chooses one of three available systems and selects behaviors that apply to the current observation. The observation systems include the Ecobehavioral System for Complex Analysis of Preschool Environments

(ESCAPE), Code for Instructional Structure and Student Academic Response (CISSAR), and Mainstream CISSAR for students with disabilities who are included in regular education. The system allows for interval data to be collected for more than 100 different responses (Kahng & Iwata, 1998). The interval time is set and a sound can be used to signify a 10-, 15-, or 20-second interval. Data are entered through one of four keyboard keys, and a note feature is also available for observation notes. Analyses are also included for this program. They include percentage of intervals, conditional probabilities, mean, range, and frequency distributions (Kahng & Iwata, 1998). Similar to BEST, interobserver agreement can also be assessed. Data can be stored or graphed and files can be read by SPSS statistical software for further analysis. An additional feature available for EBASS is an included training program complete with a video to train observers to gather reliable data in the preprogrammed observation systems. This system requires a PC or Mac (with emulator) operating system and minimal memory requirements.

In contrast to BEST and EBASS, EthoLog is a freeware program available for observation data collection. It is a visual basic program that runs on PC operating systems. The observer programs the behaviors and the associated key code for data entry, with a keyboard or mouse. Data can be entered as an isolated occurrence or as an occurrence with duration, which are called "instant events" and "state events," respectively, by the software author (Ottoni, 2000). A sound can be programmed as a reminder for interval recording. Similar to BEST and EBASS, notes can be appended to the output file as qualitative data. Analysis is limited in this program; only sequential analysis of instant events is available. However, data can be exported to word processor or spreadsheet programs if further analysis is required (Ottoni, 2000).

Based on the available features of these programs, it is evident that direct observation data can now be more easily collected and analyzed. Computer software allows clinicians to quickly record and organize both qualitative and quantitative data for a variety of referral concerns. With the addition of software that is available for handheld systems, observers can continue to be discrete in their observations while reaping the benefits of computer data collection.

SEARCH STRATEGIES IN DIRECT OBSERVATION

Though behavioral assessment techniques can be used with any theoretical orientation, the thought processes and observation techniques utilized by the clinician during behavioral assessment may lead to broader or more narrow conclusions, depending on one's theoretical orientation. The theoretical orientation of the observer can act as a filter through which information is passed when he or she is forming, confirming, or refuting hypotheses. Specific theoretical orientations influence the clinician to focus on some information while deemphasizing information that clinicians of a different orientation may determine to be important. When conducting behavioral assessment, it is imperative that clinicians are aware of the assumptions they are using to gather and integrate information about a client.

Godoy and Gavino (2003) illustrate these variations in clinical judgment by observing the process of information gathering for hypothesis testing. Based on a contingency table created to categorize information gathered by clinicians, they suggest possible search strategies that are utilized when clinicians are presented with case information. These include (1) behavior-oriented strategy, (2) stimulus-oriented strategy, and (3) complex strategy. The behavior-oriented search strategy is used when the clinician's attention is focused on what

happens when a specific behavior occurs. This strategy considers problem behaviors but does not include behaviors that are not considered problematic. The stimulus-oriented strategy is used when a clinician focuses on behavior while a given stimulus is present. This neglects behaviors that result from other stimuli. The complex strategy is simultaneously observing a stimulus when a specific behavior is present and observing behavior when a specific stimulus is present (Godoy & Gavino, 2003). It is obvious that using only one of the above search strategies may lead to a clinician neglecting important information that may be useful to a case. Despite this fact, only 8% of participating clinicians in the Godoy and Gavino (2003) study comprehensively utilized more than one search strategy.

In addition to not using multiple search strategies for comprehensive information gathering, the type of hypothesis tested appears to influence the type of information gathered. Godoy and Gavino (2003) found that if clinicians were testing a hypothesis about a functionally relevant antecedent stimulus, a stimulus-oriented search strategy was used most often. If the clinician was testing a hypothesis about a reinforcing stimulus, the behavior-oriented strategy was used more frequently. Based on these results, it appears that the type of hypothesis and search strategy used greatly influence the judgments made about a case.

During any given observation session, the clinician is provided with a wealth of information. What information the clinician chooses to focus on influences conclusions about the client's behavior made from the observation session. The clinician may focus on the child's behavior, the child's interactions with others, the environment, or any other aspect of the situation. Clinicians should utilize metacognitive processes to monitor the influence of their theoretical orientation on their information gathering and hypothesis testing in order to prevent neglect of important information in behavioral assessment.

ASSESSMENT OF FUNCTION

A critical step in behavioral assessment is to generate hypotheses about the cause or function of the target behavior. Functions of behavior can be defined as "important, controllable, causal functional relationships applicable to a specific set of target behaviors for an individual client" (Haynes & O'Brien, 1990, p. 654). Therefore, there are three characteristics that a potential function of a target behavior must meet. The first characteristic is that a functional relationship must be *important* or not trivial. Identifying and intervening on the most important functions results in more positive and generalized outcomes. The second characteristic is *controllable*, which means that there is a potential through intervention to change the function of the behavior. The final characteristic is *causal*. There must be a causal link between the target behavior and identified determinants. Although *cause* has been used synonymously with *function*, Haynes and O'Brien (1990) clarify that the cause must also be important and controllable to warrant consideration as a function of the target behavior.

Information about the function is gathered through the same assessment approaches described above. That is, while assessing the target behavior, the clinician is also attempting to identify potential determinants of the behavior. Under the assumption of situational specificity, the immediate environment is examined for potential functions of behavior. These include (1) positive reinforcement or obtaining something and (2) negative reinforcement or escaping/avoiding something (Artesani, 2001). For each of these the client may be seeking or avoiding internal stimulation, such as hunger, or external stimulation, such as attention.

Walker and Sprague (1999) argued that the situationally specific functions of behavior should be extended to include nonsituational risk factors such as family dysfunction, emotional

dysregulation, and hostile attitudes toward schooling. Miller and colleagues (1998) made a similar argument and identified eight classes of functions of behavior. They are (1) *Affect Regulation/Emotional Reactivity*, including emotional factors, anxiety, depression, anger, and poor self-concept; (2) *Cognitive Distortion*, including distorted thoughts, inaccurate attributions, negative self-statements, and erroneous interpretations; (3) *Reinforcement*, including environmental triggers and payoffs; (4) *Modeling*, including social learning, degree to which behavior is copied, who the behavior is copied from, and why it is being copied; (5) *Family Issues*, including family systems issues, parents, siblings, and extended family; (6) *Physiological/Constitutional*, including physiological and/or personality characteristics, developmental disabilities, or temperament; (7) *Communicate Need*, including functional communication, what the student is trying to say through the behavior; and (8) *Curriculum/Instruction*, including curriculum and educational environment in general and in which the behavior is seen. Each of these areas should be assessed through the various techniques of behavioral assessment to determine if any or several are accounting for the target behaviors.

INTEGRATION AND INTERPRETATION OF ASSESSMENT DATA

Behavioral assessment involves gathering data from a broad range of sources and settings. Furthermore, the problems faced by children are multidimensional and complex. Finally, causes and target behaviors do not necessarily have an obvious one-to-one relationship with each other. These characteristics of behavioral assessment make interpretation a daunting task (Huberty, 2003). In addition, behavioral assessment can be thought of as part of a broader assessment plan that may include measures of cognitive, academic, personality, or neuropsychological functioning.

To make the process of integrating and interpreting assessment data manageable, a stepwise process can be followed. The process proceeds from divergent to convergent thinking within each assessment modality and then proceeds to integration of all assessment modalities (Hughes & Morine, 2005). For example, start with the direct observation results. The task first is (1) to find patterns and (2) to identify inconsistencies among the information sources. When hypotheses about consistencies and discrepancies are being formulated, initial attempts should be divergent. That is, the clinician should be open-minded, considering all possible explanations. This process is repeated with the interview data, behavioral rating data, and, if available, the norm-referenced test results. After each of the assessment modalities has been examined, two assessment modalities are compared. The clinician asks, "Are the consistencies and discrepancies among the two modalities the same or different? Do the two modalities provide any similar interpretations? What revisions to the interpretations are necessary to accommodate the data from both modalities?" This process continues until all assessment data have been examined together. From this process, convergence will emerge in which similar causes or functions of behavior are identified across different assessment modalities.

PROGRESS MONITORING

Direct observation data should be taken at multiple points during the assessment and intervention process. Using direct observation during initial assessment provides a contextual understanding of a child's behavior. Observation after implementation of an intervention

allows the clinician to monitor both the child's response to the intervention and the integrity of the intervention implementation. Subsequent observations can be used for progress monitoring to ensure that the intervention is having the desired affect.

In the stage of progress monitoring, it is advantageous for the clinician to employ techniques adapted from single-subject research design to graph and analyze assessment data. Though single-subject research designs are often thought to be a strictly behavioral technique, they can be applied to many situations and theories for the purpose of progress monitoring (Hayes, 1981). Single-subject research designs allow the clinician to track progress and provide clear evidence of an intervention's effectiveness or a client's improvement. In this context, the initial observation data serve as baseline information. From this baseline information, goals for improvement are set. A graph is then constructed that contains the baseline measure and the established goal for improvement. With time designated by the x axis and some measure of behavior by the y axis, an aim line is drawn from the baseline to the goal. This aim line is used in combination with observation after the intervention is implemented. Each observation is then charted and compared with the aim line. If the observation data are above the aim line, then the child is improving faster than expected to meet the goal. If the child's behavior is graphed below the line, then the child is not improving at the needed rate to reach the goal. In either of these cases, the goal should be evaluated for appropriateness and the intervention should be evaluated for appropriateness and integrity of implementation. Using more elaborate single-subject designs, multiple interventions can be tested to determine which is most effective (Elliot, Witt, Kratochwill, & Stoiber, 2002). In each case it is the clinician's responsibility, based on direct observation and all other collected data, to determine the best single-subject design to ensure that the most empirically validated and appropriate intervention is implemented and monitored.

CASE EXAMPLE

John is a 14-year-old boy in eighth grade, referred for assessment because of chronic academic failure and escalating disruptive behavior across school settings. With regard to academic functioning, records indicate a long-standing mathematics learning disability. He exhibits general academic failure, which started around third and fourth grade. John's eighth-grade discipline record is extensive. He appears to be in a cycle of disrupting various settings (classrooms, lunchroom), being assigned detention, missing detention, and then being assigned more detention. He appears to miss both afterschool and lunch detentions. If he does attend detention he tends to receive infractions for disrupting the detention setting as well. By January and February infractions appeared more serious or brazen, including insubordination, insolence, and abusive language. By the end of the year he stopped attending assigned detentions.

Results of the structured interview with John indicate he dislikes school so much that he does not want to go and that his level of effort toward schoolwork varies. He sometimes feels "down," irritable, and like a failure. John reports having close friends he can confide in and being able to communicate with his mother and father, despite mild conflicts. He reports often making careless mistakes, having difficulty getting organized, and finishing what he starts. He often has difficulty concentrating on one thing for very long, is often easily distracted, tends to forget what he is supposed to do, and loses personal belongings. Parent and teacher interview data indicate that John tends to be overreactive to feedback and conflicts tend to quickly escalate into quite disruptive behavior.

Norm-referenced tests, including the Woodcock-Johnson III Tests of Cognitive Abilities (WJ III CA), Woodcock-Johnson III Tests of Achievement (WJ III A), Delis-Kaplan Executive Function System (D-KEFS), and the Conners' Continuous Performance Test (CCPT), indicate that John has average intelligence but has a very slow processing speed and poor sustained attention. Test results are summarized in Table 8.1. He has average reading

TABLE 8.1.
Summary of Test Results

Woodcock-Johnson III Tests of Cognitive Abilities

Composite scores *Standard scores (M = 100, SD = 15)*

Global intellectual ability (1-7)	95
Verbal ability (1)	94
Thinking ability (2-5)	103
Cognitive efficiency (6, 7)	82
Processing speed	78
Phonemic awareness	98
Working memory	100

Subtest scores

1. Verbal comprehension	94
2. Visual-auditory learning	103
3. Spatial relations	107
4. Sound blending	87
5. Concept formation	112
6. Visual matching	75
7. Numbers reversed	94
Incomplete words	117
Auditory working memory	109
Decision speed	87

Woodcock-Johnson III Tests of Achievement

Composite scores *Standard scores (M = 100, SD = 15)* *Grade equivalent*

Broad reading (1, 2, 9)	91	6.7
Broad mathematics (5, 6, 10)	77	4.7
Math calculation skills (5, 6)	65	3.7
Academic skills (1, 5, 7)	89	6.3
Academic applications (9, 10, 11)	90	6.5

Subtest scores

1. Letter-word identification	98	8.5
2. Reading fluency	85	5.4
5. Calculation	73	4.1
6. Math fluency	58	2.6
7. Spelling	96	7.1
9. Passage comprehension	96	7.7

(continued)

TABLE 8.1. (Continued)

<i>Subtest scores</i>	<i>Standard scores (M = 100, SD = 15)</i>	<i>Grade equivalent</i>
10. Applied problems	91	6.4
11. Writing samples	84	4.8

D-KEFS**Trail Making Test**

<i>Condition scores</i>	<i>Scaled scores (M = 10, SD = 3)</i>
Condition 1: Visual scanning	12
Condition 2: Number sequencing	12
Condition 3: Letter sequencing	8
Condition 4: Number-letter switching	11
Condition 5: Motor speed	12

Verbal Fluency Test

<i>Condition scores</i>	
Letter fluency	12
Category fluency	16
Category switching: correct responses	12
Category switching: switching accuracy	7

Contrast measures

Letter fluency vs. category fluency	12
Category switching vs. category fluency	16

Color-Word Interference Test

<i>Condition scores</i>	
Condition 1: Color naming	5
Condition 2: Word naming	8
Condition 3: Inhibition	7
Condition 4: Inhibition/switching	11
Condition 5: Combined naming & reading	7

Tower Test

<i>Condition scores</i>	
Total achievement score	9
Mean first move time	10

Conners' Continuous Performance Test

<i>Measure</i>	<i>T scores (M = 50, SD = 10)</i>
Omissions	48
Comissions	54

(continued)

TABLE 8.1. (Continued)

<i>Measure</i>	<i>T scores (M = 50, SD = 10)</i>
Hit RT	56
Hit RT std. error	59
Variability	52
Detectability (d')	61
Perseverations	49
Hit RT block change	68
Hit SE block change	62

Behavior Rating Inventory of Executive Function

<i>Composite scores</i>	<i>T score (M = 50, SD = 10)</i>		
	<i>Parent</i>	<i>Teacher 1</i>	<i>Teacher 2</i>
Behavior Regulation Index (BRI)	64	85	79
Metacognition Index (MI)	72	92	100
Global Executive Composite (GEC)	71	95	97
<i>BRI subtest scores</i>			
Inhibit	60	83	83
Shift	47	88	79
Emotional control	75	76	66
<i>MI subtest scores</i>			
Initiate	73	84	84
Working memory	71	101	97
Plan/organize	72	86	98
Organization of materials	69	84	116
Monitor	62	79	82

Behavior Assessment System for Children—Second Edition

<i>Composite</i>	<i>T score (M = 50, SD = 10)</i>		
	<i>Parent</i>	<i>Teacher 1</i>	<i>Teacher 2</i>
Externalizing problems	49	61	57
Internalizing problems	54	68	66
School problems		66	64
Behavioral symptoms index	49	61	66
Adaptive skills	43	41	34
<i>Scale</i>			
Hyperactivity	43	63	61
Aggression	48	54	55
Conduct problems	55	63	55
Anxiety	50	69	58

(continued)

TABLE 8.1. (Continued)

Scale	<i>T score (M = 50, SD = 10)</i>		
	Parent	Teacher 1	Teacher 2
Depression	59	53	75
Somatization	51	72	56
Atypicality	44	70	61
Withdrawal	47	51	62
Attention problems	56	66	64
Learning problems		63	61
Adaptability	39	45	37
Social skills	45	48	34
Leadership	51	43	35
Activities of daily living	38		
Study skills		38	36
Functional communication	45	38	38

Minnesota Multiphasic Personality Inventory–Adolescent*T score (M = 50, SD = 10)*

Basic	<i>T score</i>	Content	<i>T score</i>
F	44	Anxiety	41
L	41	Obsessiveness	38
K	51	Depression	44
Hs	40	Health concerns	39
D	45	Alienation	42
Hy	46	Bizarre mentation	37
Pd	45	Anger	54
Mf	42	Cynicism	47
Pa	40	Conduct problems	57
Pt	42	Low self-esteem	48
Sc	40	Low aspirations	49
Ma	35	Social discomfort	38
Si	46	Family problems	50
		School problems	78
		Negative treatment indication	45

BarOn EQi: YV*Standard score (M = 100, SD = 15)*

Intrapersonal	92
Interpersonal	77
Stress management	85
Adaptability	73
Total EQ	86
General mood	85
Positive impression	96

comprehension, but his reading fluency is low. There is a convergence of data indicating that any task requiring fast cognitive processing is difficult for him. Mathematics, as suggested from the record review, is low. On the *Minnesota Multiphasic Personality Inventory–Adolescent* (MMPI-A) basic scales, which assess emotional and personality problems such as depression, anxiety, paranoia, and antisocial personality, his responses show no significant problems. The MMPI-A Content and Supplementary scales indicate quite significant school problems and a propensity toward substance abuse as a coping technique.

Parent and teacher ratings on the *Behavior Rating Inventory of Executive Function* (BRIEF) show a convergence of concern about poor initiation, planning, and organization. On the *Behavior Assessment System for Children–Second Edition* (BASC–2) his teachers consistently report inattentive, overactive, impulsive, uncooperative, withdrawn, and inappropriate (nonaggressive) behaviors at school. On the BASC–2 his mother only reports difficulty adapting to change. On the *BarOn Emotional Quotient Inventory: Youth Version* (BarOn EQ-I: YV), a self-report rating scale of emotional intelligence, John appears to experience moderate dysphoria, which would be expected for an individual who has normal intrapersonal emotional intelligence and experiences repeated failure. He appears to have very poorly developed interpersonal emotional intelligence, which can lead an individual to act in various socially inappropriate ways to gain affiliation with peers. John also lacks appropriate skills for coping with academic and social expectations or adapting to change. His primary coping technique is oppositional behavior.

During a classroom observation, John was observed as having more off-task behaviors than another male student who was identified as typical. The observation record is reproduced in Figure 8–1. During the 20-minute time-sample observation, the comparison student was on-task 100% of the time, and John was on-task 55% percent of the time. The primary problem behavior was talking to peers at inappropriate times, and the secondary problem behavior was inattention. Immediately before the inappropriate talking occurred, other peers were engaging in the same behaviors. This suggests that John models the behavior of his peers. Anecdotal observations indicate that John was disorganized and was unable to efficiently use materials, such as a book and his notes, to respond to the teacher’s questions. Furthermore, he appeared awkward in his interactions with peers before class started. According to John’s teacher, his behavior during the observation was typical for him.

Function of Behavior

John exhibits three primary functions of his disruptive behavior. First, he is not able to meet the demands of the curriculum and probably has not been able to for years. Poor processing speed and sustained attention, accompanied by poor initiation, planning, and organization, interfere with his ability to complete assignments, particularly more complicated, multistep assignments typically found in middle and high school. Second, because of poor interpersonal intelligence and social skills he models the disruptive behavior of others. Furthermore, he has poor insight into when to stop the inappropriate behavior. For example, on the classroom observation form it is noted that he models peers’ behavior but perseverates once the rest of the class has stopped and gained control. Finally, John lacks appropriate skills for coping with academic and social expectations or adapting to change. His primary coping technique is oppositional behavior, which likely provides him with a sense of control over a school environment in which he is unable to succeed. It is clear that the consequence of detentions is ineffective and actually seems to provide him with an additional level of control through his success at refusing to attend.

Recommendations

Various interventions are recommended for the first function of his behavior, including direct instruction in organization; instruction in breaking tasks into smaller parts to assist with initiation; modification of assignments that have a high time demand; and coaching from a special education teacher on improving mathematics, processing speed, and sustained attention.

Regarding the second function of the problem behavior, including poor interpersonal emotional intelligence, social skills, coping, and adaptability, it is recommended that he receive weekly individual counseling. Specific targets for counseling include improving insight and acceptance regarding his lack of ability in the above-named areas; reality testing in social situations; social problem solving, including generating a range of alternative and acceptable behaviors with peers; increased insight into the benefits of appropriate social behavior; direct instruction and practice on techniques to remain calm in stressful situations; and increased fluency in coping with unexpected changes in the environment.

Regarding the final function of his behavior, control of his educational environment, John would benefit from a behavioral intervention plan implemented in the short run. It is thought that improvements in the two previous functions will replace his need to take control of the educational environment and, therefore, mitigate the need for an overt reinforcement plan in the long run. A response-cost system related to his extracurricular activities is not recommended, because those activities, including sports, may be a source of school-related success. However, a more proactive, classroom-based approach is indicated. John's classrooms should have clear behavioral expectations for all students and predictable routines and habits, the teacher should frequently scan the classroom and provide supportive feedback to students, and all students should be involved in the lessons throughout the class period. Furthermore, when giving John feedback, the teachers should remain calm, treat John with respect, have a hierarchy of mild consequences, and establish a concurrent plan to reinforce success. Reinforcements that may be effective for an individual in secondary school include complementing the student in front of others, providing tickets to school activities, or coupons to rent a movie or video game.

Commentary on the Case Study

The normative testing was utilized to rule out significant cognitive problems, identify areas of weakness, and examine John's personality structure. This information was useful in beginning to understand some causes of John's disruptive behavior. However, normative test data were insufficient to characterize the complexity of his problems. Behavioral assessment data in the form of interviews and rating scales provided more contextual information and history about the problem. It should be noted that the rating scales resulted in a laundry list of problems that had to be narrowed, based on the totality of the case. Moreover, John rated himself as having appropriate friendships, a rating that was not supported by other data. The proper interpretation of this apparent inconsistency is that John has poor insight into appropriate friendships and thus rates himself inaccurately. The behavioral observation was integral because the quantitative data showed that John is indeed exhibiting more problem behaviors than his peers. More important, the anecdotal information was integrated with other sources of data to provide a convergence of evidence around three main functions of his target behaviors. If this case were examined from a traditional assessment viewpoint, one might conclude that John has attention-deficit/hyperactivity disorder (ADHD). From a behavioral assessment perspective, many of the apparent ADHD behaviors

are secondary to more fundamental problems John is facing. To treat John for ADHD with pharmacotherapy would probably not be the best course of action, because it would not provide him with the wealth of new skills and behaviors that would be provided under the above treatment plan.

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