

## CHAPTER 1

# Introduction to Behavioral Assessment

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OVERVIEW OF THE BEHAVIORAL ASSESSMENT VOLUME	3
OVERVIEW AND DEFINITION OF BEHAVIORAL ASSESSMENT	6
APPLICABILITY, UTILITY, AND GOALS OF BEHAVIORAL ASSESSMENT	7
OVERLAP OF BEHAVIORAL WITH NONBEHAVIORAL ASSESSMENT PARADIGMS	8
ETHICS AND PRACTICE STANDARDS OF BEHAVIORAL ASSESSMENT	9
BEHAVIORAL ASSESSMENT, PSYCHOLOGICAL ASSESSMENT, AND PRINCIPLES OF SCIENCE	9

TENETS OF THE BEHAVIORAL ASSESSMENT PARADIGM	10
<b>Functional Relations Between Behavior and the Environment</b>	<b>11</b>
<b>The Dynamic Nature of Behavior Problems, Causal Variables, and Functional Relations</b>	<b>12</b>
<b>Idiographic Nature of Behavior Problems and Causal Variables</b>	<b>13</b>
<b>Behavioral Assessment and Psychological Paradigms</b>	<b>13</b>
FUTURE DIRECTIONS OF BEHAVIORAL ASSESSMENT	13
NOTE	16
REFERENCES	16

### OVERVIEW OF THE BEHAVIORAL ASSESSMENT VOLUME

*Behavioral Assessment*, one of four volumes in the *Comprehensive Handbook of Psychological Assessment*, presents the history, conceptual foundations, methods, applications, and future directions of behavioral assessment. In this first chapter of Section One, we present an overview of behavioral assessment and discuss the definition and distinguishing features of behavioral assessment, emphasizing its scientific and empirical bases. In Chapter 2, Ollendick, Alvarez, and Greene review the history of behavioral assessment. They trace the development of the science of psychological assessment and the impact of disease-oriented and scientifically based behavioral approaches to understanding, measuring, and treating behavior disorders.

Section Two includes chapters on the conceptual foundations of behavioral assessment. Suen and Rzasa (Chapter 3) discuss the psychometric foundations of behavioral assessment. They present an overview of the sign versus sample assumptions underlying measurement, the precision of measures, approaches to reliability and interobserver agreement, generalizability models for estimating sources of variance in obtained measures, measurement errors, and concepts of approaches to validity. O'Donohue and Ferguson (Chapter 4)

introduce the basic learning principles that, when applied to complex human behavior, dictate the precision of the methods used in both behavioral assessment and inextricably behavior and cognitive-behavior therapy. They describe learning mechanisms, such as classical, operant, and cognitive conditioning processes, that must be considered when identifying situational and behavioral targets to be measured in a particular case. They point out how an understanding of learning principles facilitates hypothesizing causal variables of problem behaviors and the acquisition and generalization of new behaviors. In Chapter 5, O'Brien, Kaplar, and McGrath, present models of causality that underlie behavioral assessment strategies. They discuss the role of behavior-environment interactions, complex functional relations, chains of causal variables, and multiple modes of causal factors. Eifert and Feldner (Chapter 6) discuss additional aspects of the conceptual foundations of behavioral assessment. They examine the epistemology associated with behavioral theory and how that epistemology affects the goals of behavioral assessment, its focus on functional relations, the contexts of behavior, the use of multiple sources of information and multiple targets, measurement specificity, and time-series measurement. The authors also discuss trends and challenges in behavioral assessment as the paradigm encounters a widening range of measured phenomena. The assessment method most strongly

#### 4 Introduction to Behavioral Assessment

associated with behavioral assessment is systematic observation. Hartmann, Barrios, and Wood (Chapter 7) review the background, underlying rationale, applications, and methods of behavioral observation, with a focus on strategies for developing a behavioral observation coding system. They provide guidance for the development of behavioral categories, operational definitions, observation settings, temporal considerations in observation, recording methods, and the use of technological aids. Hartmann et al. also discuss validity, sources of error, and the application of generalizability theory to examine the dependability of observation measures. In Chapter 8, Tanaka-Matsumi addresses the role of individual difference variables in behavioral assessment, particularly within the client's cultural context. She points out how the basic principles of behavioral assessment involve identifying causal behavioral and situational variables that inevitably include ones related to ethnocultural factors in order to be ecologically sound.

Section Three includes chapters on the methods of behavioral assessment. Each chapter describes the method and its variations, its conceptual foundations, and its clinical and research applicability and utility. Sources of variance in obtained measures and potential errors are considered, and psychometric foundations are reviewed. Each chapter also considers future developments and offers recommendations for strengthening the precision, validity, applicability, and utility of the method. Chapter 9 by Dishion and Granic focuses on behavioral observation in the natural environment. They note that the use of trained observers assessing behavior across time and in context provides data that minimize error found in devices that rely upon self-report or contrived settings and yields information amenable to a functional analysis. They also point out that the use of naturalistic observation has become more cost-efficient with the use of videotaping and digital recording technology. They provide concrete examples of how such observations can involve some structure in order to elicit situation-specific behaviors that can be coded and that are relevant to a case conceptualization and evaluation of treatment outcome. Chapter 10 by Heyman and Smith Slep reviews behavioral observation in analogue environments where the situation is designed and manipulated in order to code clinically relevant behaviors. They underscore how analogue observations, like naturalistic observations, yield data conducive to hypothesis testing of functional relations among situational and behavioral causal factors and the target behavior. However, they also point out that analogue observations may be more cost-efficient than naturalistic observation in some individuals because there is more opportunity to control the situation to elicit the behaviors of interest. They provide a case study of a married couple, which

describes how the use of self-report information can guide hypothesis testing and the design of analogue observational situations. Chapter 11 by Barbour and Davison reviews the characteristics of behavioral interviewing, noting that the clinical interview is one of the most common and useful assessment devices used by clinicians. Behavioral interviews are distinguished by their structure in terms of how the interviewer behaves in order to obtain information about current environmental conditions under which the problem and causal behaviors are exhibited. They review structured interviews that have been developed to identify problem behaviors as classified by the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* as well as those designed to also assess some potential causal variables. They also review semistructured interviews that permit the behavioral assessor to obtain information critically relevant to developing a functional analysis so that the information yielded is directly relevant to treatment planning and evaluation. They provide an example of a semistructured behavioral interview that nicely illustrates how the interviewer elicits information relevant to cognitive-behavior therapy planning. Chapter 12 by Fernández-Ballesteros addresses the role of self-report questionnaires in behavioral assessment, another of the more common methods used in both clinical and research settings but one that was eschewed in the early behavioral assessment literature. She provides a history of the role of self-report questionnaires within behavioral assessment and how the development of narrow-band, low-inference questionnaires facilitated the acceptance of behavioral assessment methods within psychological assessment at large. She also indicates that behavioral self-report questionnaires are distinctive in that they are more likely than broadband personality questionnaires to be conducive to repeated measurement and causal model testing. She provides examples of how the information from behavioral self-report questionnaires can complement data obtained by other behavioral assessment methods, such as direct observation and psychophysiological indices, to guide treatment planning and outcome evaluation. Chapter 13 by Richard and Lauterbach reviews how various methods of behavioral assessment can be computerized, rendering them more cost-effective and facilitating data management and analysis needed for evaluation of hypothesis-testing. Their literature review documents a trend toward greater use of computerized behavioral assessment (both hardware and software) that has been facilitated by the availability of handheld computers. Computerized methods and tools, including the Internet, that they describe include simulation training of both clinical assessors to enhance accuracy of assessment and clients so that situational and behavioral problems can be identified and treatment outcome

evaluated when doing so in vivo is not practical (e.g., skills needed for the use of a wheelchair and parent-child interactions). They also describe computerized methods that have been developed for the use of behavioral observation, physiological indices, self-monitoring, self-report questionnaires, interviews, and rating scales. Chapter 14 on program evaluation by McKnight and Sechrest underscores how behavioral assessment principles provide guidelines for the development, ongoing evaluation, and determination of programs. The authors underscore the need for highly specific and operationalized components of programs' low-inference variables for the evaluation of the program. They indicate how evaluations need to include multiple methods (referred to as multiplism) when assessing both causal and outcome variables over time. They also point out that determining cost-effectiveness is inherent in a behavioral approach to program evaluation.

Applications of behavioral assessment in particular settings and with particular populations are presented in Section Four. Tran and Smith (Chapter 15) discuss behavioral assessment of treatment outcome. The authors review effectiveness and efficacy evaluations, methods of evaluating treatment-related change, clinical significance, reliability, validity, clinical utility, efficiency, and sensitivity of treatment outcome measures. The authors emphasize these dimensions in the measurement of treatment outcome with social anxiety disorders. Francis and Chorpita present an overview of behavioral assessment of children in outpatient settings (Chapter 16). They point out developmental considerations in the selection and application of specific behavioral assessment devices, such as situational factors related to the family, school, and peers as well as age-specific behavioral competencies. They provide a session-by-session case example of assessment and treatment of a 9-year-old girl who presented a number of behavioral problems (e.g., anxiety, peer relations, tantrums, vomiting) and indicate how target behaviors were selected and treatment outcome evaluated. In Chapter 17, Serper, Goldberg, and Salzinger examine behavioral assessment in restricted environments, with a focus on inpatient psychiatric units. They discuss the origins of severely maladaptive behavior, including the role of stimulus control, competing behaviors, and reinforcing contingencies. They review methods of measurement in restricted environments, such as Gordon Paul's observational systems, event sampling, duration measures, interviews, self-report questionnaires, rating scales, and self-monitoring. They also discuss cognitive and other assessment approaches to behavior problems such as delusions and hallucinations, depression, suicidal behaviors, aggression, and adaptive functioning. Murphy (Chapter 18) provides an overview of the conceptual bases and methods

of behavioral assessment for personnel selection and job performance in work settings. The role of biodata, structured interviews, standardized tests, cognitive ability tests, and personality tests are covered. Murphy also reviews work samples and simulations and the multimethod strategies associated with assessment centers. These methods and concepts are integrated in a case study of the development and validation of a selection test battery. Behavioral assessment in educational settings is reviewed in Chapter 19 by Shernoff and Kratochwill. The authors review the conceptual foundations and methodological underpinnings of behavioral assessment as applied to the design, outcome measurement, and modification of interventions in the classroom. Assessment and intervention with a girl experiencing selective mutism is used to illustrate behavioral assessment strategies. In Chapter 20, Franzen presents a behavioral approach to neuropsychological assessment, demonstrating how this traditionally nonbehavioral area of assessment can be conducive to the tenets of behavioral assessment. He finds an overlap between the methods used in traditional neuropsychological assessment and behavioral assessment, such as behavioral checklists, physiological indices, and use of the observation both in vivo and by informants. He also points out conceptual overlaps, such as the relation between assessment information and treatment planning. In its early stages, neuropsychological assessment was primarily concerned with inferring the locus of brain damage, but contemporary approaches involve a greater focus on specific behavioral strengths, deficits, and targets for rehabilitation. Chapter 21 by Nezu, Nezu, Peacock, and Girdwood provides an overview of the behavioral assessment implications of cognitive-behavior therapy, one of the most broadly applied empirically supported treatments. They underscore the need to generate and evaluate theory and data-driven hypotheses regarding causal variables of an individual's presenting problems. They note the fallibility of clinical decision making that is not empirically guided and self-correcting. They also provide four models of case formulation, including a problem-solving paradigm, an integration of cognitive therapy and functional analysis, a framework derived from dialectical behavior therapy, and quantitative functional analytic causal modeling. Common themes across these models include the need for causal modeling and an ongoing evaluation of treatment outcome. The role of behavioral assessment in the era of managed care is addressed in Chapter 22 by Strosahl and Robinson. They provide a contextual argument that the ethics, standards, and scientific soundness of behavioral assessment are consistent with the health care industry's reimbursement criteria of cost-effectiveness and accountability. They underscore the practical implications for applied psychologists' economic survival at a time when all health care providers are

facing declining incomes. They note that behavioral health care involves evaluation at the clinical, individual, and system level and that such evaluation is best served by methods used by behavioral assessors. Therefore, the authors predict that use of behavioral assessment in the future must expand if applied psychologists wish to sell their services to third-party payers.

Section Five concerns how the tenets of behavioral assessment interface with certain aspects of the common culture of nonbehavioral assessment. Chapter 23 by Garb, Lilienfeld, and Wood discusses the role of projective techniques in assessment given the popularity of these highly inferential instruments among applied psychologists, the empirical support for these instruments, and their use in the context of the ethics and standards of behavioral assessment. They review the three most popular projective techniques: the Rorschach, thematic apperception test, and human figure drawings. They address the controversy over the use of these instruments in the field, focusing on difficulties of interpretation of test data owing to situational effects on responses, a high rate of false negatives in identifying problem behavior, and lack of incremental validity in identifying both causal variables and problem behaviors. They provide a detailed review of the inadequacy of projectives in the identification of child sexual abuse to illustrate the need for extreme caution in the use of projectives. Although they do note some validity evidence for these projective techniques in the identification of a few problem behaviors, their review yields no clear rationale for including projectives in an assessment battery when the goal is case formulation and ongoing evaluation of treatment outcome. In Chapter 24, Nelson-Gray and Paulson present the interaction and integration of behavioral assessment with the hegemony of psychiatry's diagnostic system within both research and applied psychology. They point out that, although early behavioral psychologists eschewed psychiatric diagnoses for sound reasons, much recent work on behavioral assessment and treatments has accepted the utility of classifying target problems according to the American Psychiatric Association's *DSM* system despite limitations of its reliability and validity. While the authors note weaknesses in the manual, they also argue that a clinical science requires some taxonomy in order to organize findings in a systematic fashion, and a more precise taxonomy more congruent with the principles of behavioral assessment has not been fully developed or widely accepted. Until such a system is developed, the authors point out that a diagnosis from the *DSM* can be a starting point in providing more specification of the problem behaviors and their causal factors necessary for a case conceptualization.

Section Six consists of the final chapter by Mash and Hunsley that integrates the volume and its implications for the future of behavioral assessment. It should be noted that the authors did not have the benefit of studying all of the volume's final chapters owing to publication deadlines. They end this volume on a very positive note, stating that behavioral assessment is becoming so integrated with psychological assessment that its principles, methods, and applications are often not recognized as "behavioral." They conclude that the era for wide applications of behavioral assessment has arrived.

We should point out that there are topics relevant to behavioral assessment that are not covered in depth in this volume. Section One on the overview of principles, strategies, and methods would have benefited by a chapter on the ethics of behavioral assessment (see Hayes, Follette, Dawes, & Grady, 1995). Section Two on conceptual foundations could have included an additional chapter on the learning principles upon which behavioral assessment is grounded (see Haynes & O'Brien, 2000). Section Three on methods of behavioral assessment fails to include chapters on self-monitoring (see Cole & Bambara, 2000), psychophysiological methods (see Sturgis & Gramling, 1998), and informant reports (see Haynes & O'Brien, 2000). Section Four on the applications of behavioral assessment could have a chapter on assessment of adults in outpatient settings (see Haynes, Nelson, Thacher, & Kaholokula, 2002). Section Five on the interaction/integration between behavioral and nonbehavioral methods would be more useful if it also included a chapter on behavioral approaches to the writing of psychological evaluations, although the case examples in several chapters of Sections Three and Four provide guidelines.

### OVERVIEW AND DEFINITION OF BEHAVIORAL ASSESSMENT

The first challenge to describing a psychological assessment paradigm is to construct a definition. Behavioral assessment is particularly difficult to define for several reasons. Most important, behavioral assessment is primarily defined by an epistemology of behavioral science, rather than by a circumscribed set of assessment methods or a model of behavior disorders. That is, it is defined by assumptions about the best approach to developing a science of psychological assessment. It is presumed that a scientific approach to psychological assessment will lead to an effective set of assessment methods and valid and useful models of behavior disorders. We address the scientific roots of behavioral assessment further below.

Partially as a function of its scientific basis, behavioral assessment is a dynamic paradigm. The methods, underlying models of behavior, and applicability of behavioral assessment evolve as we learn more about measurement and the phenomena that are measured. While behavioral assessment was originally associated with behavioral observation and manipulation of hypothesized controlling variables in analogue and naturalistic settings, behavioral assessment methods now include self-report interviews and questionnaires, psychophysiological assessment, computerized assessment, rating scales, self-monitoring, and product-of-behavior measures (e.g., school grades, blood-sugar levels). The targets of behavioral assessment now include not only observable behaviors, but physiological events, thoughts, expectancies, environmental settings and events, behavior chains, change in behavior and events over time, and interactions between persons and between persons and their environments.

The applicability of behavioral assessment also has expanded. As the following chapters illustrate, behavioral assessment is being used to develop clinical case formulations, measure treatment outcome and process, investigate the causes and correlates of behavior problems, enhance educational programs, provide data for psychiatric diagnoses, and aid in workplace and community-based decisions and interventions.

The supraordinate, guiding principle of behavioral assessment is that psychological assessment should be based on principles of scientific *inquiry and inference*. That is, measures and inferences derived from them should be precise, minimally inferential, based on a strong foundation of validation research, with well-documented sources of variance and error. A focus on sources of error in assessment encourages the use of multiple sources of information (e.g., parents, teachers) and methods of assessment (e.g., observation, self-report), in order to reduce errors that would occur if inferences were based on only one source or method.

The scientific epistemology of behavioral assessment is discussed in greater detail later in this chapter. At this point, we emphasize that it is the primary force underlying the paradigm's evolution and that it leads to the defining characteristics and methods discussed in the next sections.

An emphasis on the science of psychological assessment applies to three of the major foci of behavioral assessment—the measurement of *change*, the measurement of *functional relations*, and measurement of these phenomena for *individuals*. Many applications of behavioral assessment involve time-series measurement—the frequent measurement of behavior and environmental events in order to capture their dynamic aspects. The focus on functional relations is central to the use of behavioral assessment for clinical case formulation because it facilitates the identification of events

that control clients' behavior problems or the acquisition of their goals. Inferences are derived for individual clients because change in behavior and environmental events, and functional relations, can differ in important ways across persons.

To summarize: *Behavioral assessment is a scientific approach to psychological assessment that emphasizes the use of minimally inferential measures, the use of measures that have been validated in ways appropriate for the assessment context, the assessment of functional relations, and the derivation of judgments based on measurement in multiple situations, from multiple methods and sources, and across multiple times.*

## APPLICABILITY, UTILITY, AND GOALS OF BEHAVIORAL ASSESSMENT

As documented in the chapters that follow, behavioral assessment has been used in most applied assessment settings and for most applied assessment purposes (see overviews in Sections Three and Four: Bellack & Hersen, 1998; Haynes & O'Brien, 2000). Perhaps more important, the applicability and utility of behavioral assessment is increasing, sometimes in the context of decreasing use of alternative assessment strategies (e.g., the decreasing use of projective and personality assessment methods in managed care; Chapter 22).

Behavioral assessment is used in the measurement of treatment process and outcome (Chapter 15), in program evaluation (Royse & Thyer, 1996), for case formulation and treatment planning (Chapter 21), to enhance the validity of psychiatric diagnostic decisions (Chapter 24), to facilitate decisions in the workplace (Chapter 18), as a screen for behavior problems in primary care settings (Chapter 13), for basic research across a range of psychology subdisciplines (e.g., developmental psychology, learning, psychobiology), and to identify the causes and correlates of behavior problems (e.g., Cicchetti & Rogosch, 1999).

As we reviewed earlier, behavioral assessment is also applicable across a range of assessment settings. It has been used in classrooms and schools (Chapter 19), the home (Chapter 7), outpatient psychiatric settings (Chapter 16), inpatient psychiatric settings (O'Brien & Haynes, 1993; Chapter 17), the workplace (Chapter 18), community settings (Tolan, 1999), and medical settings (see overview in George, 1991; Simeonsson & Rosenthal, 2001).

Behavioral assessment has been used with persons across many dimensions of individual differences. It has been used with infants (Singer & Zeskind, 2001), children and adolescents (Greene & Ollendick, 2000), adults and older adults

(Haynes, 2000; Rybarczyk & Lopez, 1999), persons from diverse cultures and ethnicities (Chapter 8), and across a range of developmental and cognitive abilities (Simeonsson & Rosenthal, 2001). Behavioral assessment also has been used in the assessment of couples (Floyd, Haynes, & Kelly, 1997) and families, and persons with physical disabilities (Malec & Lemsy, 1995) and acute or chronic medical illnesses (Simeonsson & Rosenthal, 2001; Tait, 1999).

The broad applicability and utility of behavioral assessment is a consequence of its emphasis on a science of assessment rather than on a set of methods or fixed models of behavior disorders. Foremost, behavioral assessment presumes that scientific principles of psychological assessment are applicable across most assessment settings, dimensions of individual differences, client behavior problems and goals, and assessment purposes. Regardless of the application, assessment strategies can entail carefully constructed measurement of carefully defined and precisely measured targets (Haynes & O'Brien, 2000; Mash & Terdal, 1997; Shapiro & Kratochwill, 2000). However, it is noteworthy that there are some contexts for which some behavioral scientists question the current applicability of a science of assessment. For example, judgments about whether a person was legally "insane" at the time a crime was committed cannot currently be subjected to the same degree of validation as many other clinical judgments.

A scientific approach to assessment permits a diverse set of methods (e.g., Bellack & Hersen, 1998; Shapiro & Kratochwill, 2000). Most personality assessment methods, for example, require that respondents have at least a moderate level of verbal comprehension and communicative abilities. These methods often require the respondent to provide retrospective and integrative judgments (e.g., about beliefs, past events, emotions, and perceptions) to written, pictorial, or verbally presented queries. The requirement of a moderate level of cognitive and communicative functioning reduces the applicability of these instruments for the assessment of infants and young children, persons with developmental and other cognitive disabilities, family and social systems, and of functional relations among multiple events.

In contrast, the behavioral assessment paradigm includes a broad and flexible collection of methods. Some behavioral self-report and cognitive assessment methods also require a minimal level of comprehension and communicative abilities (e.g., parent reports of their child's behaviors). When clients lack cognitive or communicative abilities, other methods, such as naturalistic and analogue observation, experimental functional analyses, psychophysiological assessment, and informant reports often can be substituted.

## OVERLAP OF BEHAVIORAL WITH NONBEHAVIORAL ASSESSMENT PARADIGMS

Many authors (e.g., Bellack & Hersen, 1998; Haynes & O'Brien, 2000; see overviews in Mash & Terdal, 1997; Shapiro & Kratochwill, 2000) have outlined facets of behavioral assessment that differentiate it from other psychological assessment paradigms (see also Chapter 6). Before we present these discriminative facets, we note that behavioral assessment and some other psychological assessment paradigms overlap in several ways. For example, neuropsychological and psychophysiological assessment (often included in books on behavioral assessment; e.g., see Chapter 20) and empirically based personality assessment paradigms stress the use of validated measures to draw carefully constrained inferences. These psychological assessment paradigms address, as does behavioral assessment, sources of error (e.g., malingering and faking good, effects of test administration variables), reliability and validity, the precision of measured constructs, and clinical utility.

Differences between these paradigms and behavioral assessment are more apparent when the specifics of psychometric evaluations are considered. For example, because of the types of measures derived and assumptions about the stability of measures, content validity assumes a greater role and temporal stability assumes a lesser role in the validation of behavioral observation systems (see Chapter 3). Similarly, many behavioral assessment instruments are assumed to sample events from a domain of interest (e.g., to sample some oppositional behaviors of a child in a classroom) rather than to derive indirect indices (i.e., signs) of latent constructs (e.g., to measure multiple markers of narcissism; see Chapter 6).

Other facets of behavioral and nonbehavioral assessment paradigms also overlap. For example, psychophysiological and neuropsychological assessment also focus on dynamic aspects of behavior—the measurement of behavior change over time and as a function of environmental events and states. Psychophysiological assessment (Tomarken, 1999), as with behavioral assessment, often entails extensive time-series assessment—many samples of events in order to track their time course and effects of interventions. The time-series measurement strategy of behavioral assessment differs from these paradigms in that it often involves the measurement of multiple behaviors and events in order to estimate their functional relations (e.g., estimating the degree to which daily mood changes of arthritis patients are affected by their pain and social interactions; Thacher & Haynes, 2001).

The overlap of behavioral with other psychological assessment paradigms is further discussed in several chapters in this book. Garb and colleagues (Chapter 23) discuss the

relation between behavioral and projective methods. Nelson-Gray and Paulson (Chapter 24), discuss behavioral assessment and psychiatric diagnosis. Barbour and Davison (Chapter 11) discuss behavioral assessment and structured interviews. Strosahl and Robinson (Chapter 22) discuss behavioral and nonbehavioral approaches to assessment in managed care.

## **ETHICS AND PRACTICE STANDARDS OF BEHAVIORAL ASSESSMENT**

The ethical principles underlying behavioral assessment techniques include an emphasis not only on science in general, but specifically on cost-efficiency and incremental validity (Haynes & O'Brien, 2000)—principles that are congruent with the industrialization of health care (see Chapter 22) and, of course, consumer protection. These ethical principles represent more strict standards than those of the American Psychological Association (APA, 1990), which govern practice in most states in the United States. Dawes (1994) pointed out that the APA's ethical standards simply require a psychologist to be aware of the scientific knowledge related to services rendered. The ethics do not require psychologists to use the most valid and cost-efficient techniques. This is in sharp contrast to the ethical code of the American Medical Association (AMA, 1989), which explicitly requires physicians to use the most valid techniques and explicitly prohibits the use of ineffective or outdated ones. The APA permits psychologists to use invalid and ineffective techniques as long as they are aware that they are doing so. Adherents to the use of behavioral assessment follow ethical principles that are more similar to those followed by the AMA than the APA. The need for higher ethical standards for psychologists has been underscored by McFall (1991), who proposed a manifesto involving the cardinal principle that a scientific psychology is the only legitimate and acceptable psychology. He provided a corollary that reiterates the ethical principles underlying behavioral assessment, particularly that the assessment must be validated and have benefits that outweigh the costs.

In 1995, the American Association of Applied and Preventive Psychology (AAAPP) held a conference and published the proceedings on practice standards (Hayes, Follette, Dawes, & Grady, 1995). The speakers at the conference agreed on the following conclusions, among others, that are congruent with behavioral assessment: (1) applied psychologists should use empirically valid repeated measures of problems being treated; (2) applied psychologists should only use interventions that are protective of the consumer, effective, and empirically validated; (3) the entire discipline of psychology should develop and follow hortatory and min-

tory standards of scientific practice; (4) consumers of applied psychology should be informed of the scientific status of services offered; and (5) if scientifically supported treatments are not effective and no scientifically supported alternative treatments exist, the applied psychologist should emphasize to the consumer points (1) and (4).

Therefore, it may require not only market factors but also a change in ethics for behavioral assessment to be common in clinical psychology training programs and to be the primary method of assessment in research and practice. Hayes et al. (1995) called upon the AAAPP to develop standards of practice and be open to psychologists who believe in developing procedures that meet the above-delineated standards.

## **BEHAVIORAL ASSESSMENT, PSYCHOLOGICAL ASSESSMENT, AND PRINCIPLES OF SCIENCE**

As indicated above, the principles of behavioral assessment are congruent with the basic tenets of science. These tenets include posing constructs and hypotheses that are testable (refutable) and parsimonious (minimizing inference and unnecessary explanatory mechanisms). The history of modern science since the Renaissance shows that advancements occur when more direct measurement devices are developed. As examples, the invention of the telescope, microscope, and thermometer as well as socially permissible dissection of the human body resulted in replacing dogma and speculation with mechanical and direct observations. More direct measurement led to great developments in the natural and life sciences and provided a model for a science of psychology. Psychological physiologists in the early nineteenth century measured gross human motor behavior by direct observation (e.g., reaction time), sensorimotor behavior by psychophysiological methods (e.g., electrical stimulation of the brain), and covert behavior such as perception by self-report (verbalizing the color seen when exposed to a visual stimulus). In the late nineteenth century German scientists applied these approaches to more complex human behavior by adopting broader human phenomenology as a legitimate focus of study, and thereby ushered in the birth of psychological science and eventually applied psychology (Boring, 1950). Therefore, the origins of assessment in psychology involved methods that curiously are now viewed as a fairly modern behavioral approach (see Chapter 2).

A curiosity concerns whether it would be necessary to classify assessment of human behavior into the types represented in this *Comprehensive Handbook of Psychological Assessment* if psychologists had maintained the same approach to measurement that established the discipline. Perhaps there

would not be a need for this volume entitled *Behavioral Assessment*, as all assessment in psychology would be what we now call behavioral. Instead, the *Handbook* might be organized around a taxonomy of clinically relevant behaviors, their causal and maintenance variables, and methods of assessment that are conducive to particular individuals and contexts. In this volume's final chapter, Mash and Hunsley conclude that behavioral assessment is rapidly becoming integrated with psychological assessment, suggesting the possibility that future handbooks may be organized differently than this one.

It is beyond the scope of this chapter to summarize the history of psychology's twists and turns regarding its adherence to the basic tenets of science and the development of various approaches to assessment. However, it is instructive to consider briefly how behavioral assessment evolved from psychological physiology, psychological physics, and psychological philosophy that emerged in the late nineteenth and early twentieth centuries. The predecessors to psychologists became interested in complex individual differences that had applied implications, such as success in educational or work settings and identification of psychopathology. The term *mental tests* was coined by Cattell in his 1890 paper "Mental Tests and Measurement," in which he proposed 50 assessment devices. These tests focused on direct observation of multiple measures over time (i.e., reaction time and self-report of perceptions). Binet, around the same time, sampled behaviors of children through observation and self-report that were directly relevant to skills needed in school settings. Binet's low-inference measures became reified decades later into the higher-level construct of intelligence. Other highly inferential psychological tests, such as the projectives, were developed to measure personality constructs and abnormal behavior. However, what we now call behavioral assessment techniques invented by the predecessors to psychology (observational, psychophysiological, and self-report) were never abandoned. These techniques came to be labeled *behavioral* when a school of thought that evolved out of objective psychology was founded by Watson's 1913 paper "Psychology as the Behaviorist Views It" (see Chapter 2). Watson assessed behavior using both observational and self-report measures while contemporaries such as Lashley focused on psychophysiological measures (Boring, 1950). Modern behaviorists have expanded upon these techniques, developing low-inference self-report measures that include interviewing, self-monitoring, and questionnaires. At the same time, the field of psychological assessment reflects the influence of philosophy and authoritarianism that has permitted untestable psychological theories, highly inferential approaches to measurement, and treatments that have little or no empirical support.

Recently, McFall (2002) observed that modern applied psychologists can be divided into two basic types: those who adhere to a science of psychology (clinical scientists and scientist-practitioners) and those who are guided by a more intuitive approach. Therefore, behavioral assessment, which adheres to the tenets and ethics of science, has not dominated the history of psychological assessment nor its current practice. The differences between scientists and philosophers remain evident in the different epistemologies of today's approaches to applied psychology.

The modern rediscovery of behavioral assessment is evident in the chapters of this volume. Other promising indices suggest the influence of behavioral assessment will continue to grow and return applied psychology to its scientific roots. Most empirically supported treatments are products of behavioral theories and research. For example, Fisher, Hayes, and O'Donohue (in press) describe 69 empirically supported therapies, which have evolved primarily from behavioral research that inherently is conducted with behavioral assessment techniques. Their book provides clinicians with a guide for using assessment and treatment approaches that can be justified for third-party reimbursement. Insurance companies have begun to demand evidence that procedures used by clinicians are scientifically sound. This era of accountability has led more clinicians to appreciate the contributions of behavioral approaches to assessment and treatment that they formerly eschewed. In 1993, Piotrowski and Zalewski found that training in behavioral assessment was provided in only a little over half of clinical psychology doctoral programs, but the teaching and use of behavioral assessment was predicted to increase. Consistent with this prediction, the number of paid subscriptions to behavioral journals has, on average, increased 23% between 1992 and 1997 (Haynes & O'Brien, 2000). Indeed, Strosahl and Robinson's Chapter 22 in this volume notes that managed care companies are becoming unwilling to pay for most traditional assessment techniques and are demanding the type of data gathered by behavioral assessment techniques to justify reimbursement for clinical services. Therefore, applied psychologists seem to be returning to the basic scientific approaches of experimental psychology, and, oddly enough, it may be market factors rather than an adherence to science that is promoting this trend.

### TENETS OF THE BEHAVIORAL ASSESSMENT PARADIGM

The emphasis on a scientific approach to psychological assessment mandates that behavioral assessment strategies reflect empirical findings on the characteristics and causes of behavior disorders, treatment process and outcome, and prin-



ciples of measurement. Therefore, the foci and methods of behavioral assessment reflect the importance of behavior-environment functional relations, dynamic aspects of behavior, and the idiographic nature of behavior disorders and their causes.

### Functional Relations Between Behavior and the Environment

A central and well-supported tenet of behavioral paradigms is that variance in behavior and behavior problems often can be understood through an examination of behavior-environment functional relations (Pierce & Epling, 1999; Plaud & Eifert, 1998).<sup>1</sup> These functional relations most often involve differences in the rates or other dimensions of behavior across different contexts and settings and as a function of different response contingencies. Functional relations also can involve extended social systems.

#### *A Focus on Settings, Contexts, and Consequences*

An examination of the *settings and contexts* associated with different rates (or other dimensions, such as duration or intensity) of behavior can provide information about factors that affect the behavior (e.g., Bandura & Goldman, 1995; Boutin & Nelson, 1998). For example, it can be helpful for the design of intervention programs to know how often or to what extent a client expresses delusions of persecution. But it is even more helpful to identify the environmental settings in which the client's delusions are most likely to occur or in which they are most strongly believed, the degree to which the client's delusions are affected by specific environmental stressors or medication adherence, and the degree to which their rate or intensity varies in the presence of different persons.

The probability of a behavior problem often differs across contexts. That is, it can exhibit differential conditional probabilities (see overview in Bellack & Hersen, 1998)—it is more likely to occur in some settings or following some events. For example, for some persons, domestic violence is more likely when a spouse is intoxicated.

Often, particular settings are associated with a higher likelihood of a behavior problem because the setting has been associated with an elevated probability of reinforcement for the behavior—the setting has acquired *discriminative stimulus properties*. These properties elicit affect, direct behavior, and function as reinforcers (Staats, 1968). Thus, a child may be more likely to exhibit tantrums with one parent than with another if tantrum-like demands for attention, toys, or escape from an aversive situation have been reinforced more often by one parent.

Context refers to stimuli and conditions that accompany specific antecedent-response-consequence associations. Contexts can involve environmental settings, complex behavior and behavior-environment chains, interaction effects involving multiple stimuli, and physiological states (see overview in Morris, 1988). In following with the above example, the probability of violent domestic interactions can be significantly affected by the intoxication state of a partner as well as the recent history of couple conflict and occupational and financial difficulties of one partner (see overview of domestic violence in Holtzworth-Munroe, Smutzler, Bates, & Sandin, 1997).

Specific *antecedent stimuli* also may acquire discriminative properties. A behavior problem can be elicited by particular persons, words, noises, thoughts, internal physiological stimuli, objects, animals, smells, and locations. These events often function as conditional stimuli because of past associations with unconditional or other conditional stimuli. For example, a bedroom previously associated with sexual assault and hyperventilation previously associated with a panic episode can elicit anxious thoughts and physiological responses.

An important aspect of functional relations is the sequelae to responses—the events following a response. Since the writings of Thorndike, Watson, and Skinner, the behavioral paradigm has emphasized the importance of *response contingencies* for understanding why behavior is more or less likely to occur (see Chapter 2 on history of behavioral assessment). For many clients, the factors that account for the occurrence of a behavior problem, or for the nonoccurrence of a positive alternative to a behavior problem, can be ascribed to the effect of those behaviors on the environment, the consequences of the behavior. The environment can be said to *select* behaviors, because only some behaviors are strengthened by reinforcing consequences in particular contexts (Pierce & Epling, 1999). As noted, the degree to which a response is selected can vary across contexts.

Response contingencies are only one of many potential causal factors for behavior problems (see Chapter 5 on causal models in behavioral assessment). However, an extensive empirical literature documents that many behavior problems—such as self-injurious behaviors, aggression, pain expressions, oppositional behaviors, obsessive and compulsive behaviors, ingestive behaviors, substance use, social avoidance, and medication intake—are affected by their immediate consequences.

#### *A Focus on Contemporaneous Functional Relations*

Many important functional relations for behavior problems are historical. That is, the initial causes of behavior problems are often historical events and learning experiences. The on-

set of eating, anxiety, mood, self-injurious, aggressive, anti-social, and other behavior problems often can be partially attributed to early learning experiences, developmental events, and parent-child interactions (e.g., Turner, 1994, with personality disorders). Historical causal factors are often the focus of traditional psychotherapies.

While acknowledging the importance of historical events (and other causal factors such as intrauterine conditions, early diet and stimulation, and genetic factors) in the development of behavior problems, a behavioral assessment paradigm pays special attention to contemporaneous behavioral, cognitive, and social environmental factors that may be maintaining the behavior problem. These contiguous factors are often the most useful for designing intervention programs. Thus, although a client's depressed mood and social anxiety can be a partial function of early learning and difficult childhood family environments, behavioral assessors are more likely than assessors from other paradigms to emphasize the causal role of contemporaneous self-statements and expectations, conditional responses to environmental stimuli, social interactions, and stress coping strategies.

A contemporaneous focus often leads to greater attention to *moderator variables*, variables that affect the strength of relations between two other variables. For example, we would be interested in the variables (e.g., social supports, cognitive variables) that affect depressed mood responses to early trauma, loss of a job, or physical injury.

Given a focus on contemporaneous behavior and causal variables, a scientific approach to assessment is also important when the focus is on historical events. For example, several studies have noted that the validity and precision of clients' self-reports about the history of such events as substance use, health problems, major life stressors, and episodes of panic and depressed mood can be strengthened with the use of timeline follow-back methods (Sobell & Sobell, 1994). Additionally, there is a growing empirical literature on variables that affect, and ways to enhance, the validity of self-report (Chapter 12; Stone et al., 2000).

### *A Focus on Extended Social Systems*

Although the preceding sections emphasize the importance of immediate contextual factors, antecedent stimuli, and response contingencies, many factors that affect behavior problems are less contiguous and immediate and often involve events that affect persons in the client's social environment (Mash & Terdal, 1997). For example, the ability of a parent to respond appropriately to an oppositional child might be affected by financial worries, the need to spend large amounts of time at work, conflicts between the parent and other chil-

dren in the family, marital conflict and distress, and health problems. Also, how staff members on a psychiatric inpatient unit interact with patients might be affected by hospital administration policies, conflicts among staff members on the unit, patient-staff ratios, and factors affecting the staff member outside of work.

The principle here is that any factor that affects the functional relations relevant for a client's behavior problem can serve as an important causal factor for that behavior problem. Anything that affects a parent's response to his or her child, a teacher's response to children in the classroom, a spouse's response to his or her partner, and a staff member's response to patients can be important causal variables in a chain ending in the behavior problem of the child, spouse, and patient. The obvious implication is that assessment strategies must broadly focus on extended social systems. For example, it may be a mistake to implement a parent-training program for a parent who is facing severe life stressors or who shows signs of major affective disorder without first addressing these treatment outcome moderators. These factors are likely to be part of a complex causal matrix, and it may be difficult for the parent to follow treatment program requirements.

### **The Dynamic Nature of Behavior Problems, Causal Variables, and Functional Relations**

A substantive literature documents the dynamic nature of many behavior problems and many events that affect them (see overviews in Collins & Horn, 1991; Haynes, 1992). Mood, oppositional behaviors, delusions, substance use, weight, blood pressure, autistic behaviors, infant feeding problems, and marital distress are just a few of the behavior problems that change, sometimes rapidly, over time. Also, many factors that affect clients' behaviors can change—for example, the behavior of clients' partners, parents, and children; the frequency or intensity of daily hassles; the behavior of staff members, supervisors, and teachers; the frequency or duration of exposure to life stressors and conditioned aversive stimuli; demands to perform feared behaviors; injuries and illnesses; and medication effects. Further, therapeutic interventions can produce change, both in behavior problems and in causal variables.

Complicating the task of measuring dynamic variables is dyssynchrony across dimensions and modes (e.g., cognitive, behavioral, physiological) of behavior problems and causal variables. The dimensions of behavior and causal events can change differentially across time. For example, the frequency, intensity, and duration of panic episodes can change differentially over time and as a function of treatment (see overview of panic in Baillie & Rapee, 2002; Baker, Patterson, &

Barlow, 2002). Additional cognitive, behavioral, and emotional facets of behavior problems can change in dyssynchronous fashion. Also, the life stressors encountered by a client can change in intensity, frequency, and/or duration (see discussion in Bandura, 1982).

### **Idiographic Nature of Behavior Problems and Causal Variables**

The behavioral assessment paradigm emphasizes the idiographic nature of behavior problems and causal factors (Cone, 1986; Haynes & O'Brien, 2000; Nelson-Gray, 1996; Pervin, 1984). Not only can the form, dimensions, and time course of behavior problems and their causal variables differ across time and contexts, they can differ across persons. We know that the specific symptoms associated with depression, oppositional, and other behavior problems often differ across persons with the same diagnosis (Hersen & Porzelius, 2002). Further, the factors that affect a behavior problem can also differ across persons (Goldberger & Breznitz, 1993). The causal importance of automatic negative thoughts and social skills deficits can differ across persons with the same affective disorder. As discussed in the next sections (also see Chapter 24), behavioral assessment often includes both nomothetic and idiographic strategies, and clinical inferences are often based on a combination of nomothetic and idiographic information and measures.

### **Behavioral Assessment and Psychological Paradigms**

We have outlined the close association between behavioral assessment and elements of behavior therapy and the behavioral paradigm. However, as suggested earlier, a scientific approach to psychological assessment is not tied to a particular theoretical paradigm. An approach to assessment that emphasizes the derivation of precise and minimally inferential measures, measures that are sensitive to changes across time and contexts, measures subjected to validation appropriate for their application, inferences based on multiple sources of information, and measures that address potential causal factors for behavior problems and treatment outcome is relevant whatever the assessors' ideas about the nature of behavior and its causes.

One reason behavioral assessment is not tied to a particular theoretical paradigm is that there exists no generally accepted paradigm in psychology. The theoretical nature of the discipline of psychology has changed little since Staats's 1983 book *Psychology's Crisis of Disunity: Philosophy and Methods for a Unified Science*. Staats pointed out that psychology is a relatively young science that is riddled with competing

and often redundant and simplistic theories of a particular complex behavior. Integrative theories are difficult to publish in a preparadigmatic science. He also pointed out that research guided by one particular theory is often ignored rather than integrated with research guided by concurrent or subsequent theories. The field of psychology lacks integration also in the sense that theories often introduce new terms that are constructs that have already been defined but labeled differently in prior theories. For example, the behavioral competencies of self-monitoring, self-evaluation, and self-reinforcement have been referred to in the literature as self-control, self-regulation, and self-management, among other terms.

Thus the behavioral assessor is faced with a myriad of theoretically proposed and sometimes redundant empirically supported causal factors for any particular problem behavior. For example, a recent book in a series published under the auspices of the Association for the Advancement of Behavior Therapy (AABT), *Practitioner's Guide to Empirically Based Measures of Depression* (Nezu, Ronan, Meadows, & McClure, 2000) reviews the psychometric status of 52 assessment devices for depression and 42 assessment devices for potential causal variables of depression. The measures in this *Guide* are amenable to behavioral assessment and include observational, self-report, and psychophysiological techniques that can be applied repeatedly at little cost. Yet the clinician and researcher are faced with selecting which measures are relevant to assess depression and potential causal factors under a particular context with a particular individual. The selection of measures would most likely be guided by the degree to which the assessor is influenced by the empirical support of particular theories of depression, such as cognitive (Beck, 1967), radical behavioral (Ferster, 1973), social skills (Lewinsohn, 1974), learned helplessness (Abramson, Seligman, & Teasdale, 1978), self-control (Rehm, 1977), or paradigmatic behavioral (Heiby & Staats, 1990). Therefore, one challenge for all behavioral assessors is to be familiar with the empirical status of potential causal variables for a disorder. While the *Guides* being developed by the AABT are a great step forward in helping to identify available behavioral assessment tools, the discipline has yet to develop a zeitgeist that encourages integrative, empirically supported theories of problem behaviors to assist in the selection of targeted causal and outcome variables.

### **FUTURE DIRECTIONS OF BEHAVIORAL ASSESSMENT**

As indicated earlier, approaches to assessment typically not classified as behavioral are often referred to as nonbehav-

ioral, and there is an overlap between these approaches to assessment. Nonbehavioral approaches are also referred to as traditional, even though, as pointed out earlier, assessment devices used by the predecessors of psychology and the early psychologists are what we now call behavioral. A more philosophical than scientific epistemology often characterizes what is generally referred to as traditional assessment. Some of these traditional methods evolved from theories that posit untestable hypotheses (e.g., psychodynamic). Other traditional methods evolved from trait theories that posit stability in behavior across situations and time. Many traditional methods of assessment (e.g., projective techniques, personality inventories, and intelligence tests) lead to highly inferential information. Interpretation of the results to address practical questions, such as what situational and behavioral deficiencies should be the targets of treatment, requires theoretical inferences that may or may not be empirically supported.

Traditional assessment also often occurs only for diagnostic, prognostic, and treatment outcome purposes. Interpretation of the results generally is based largely on instruments designed to identify whether behavioral disorders are present. The episodic nature of the assessment precludes feedback about the effect of intervention techniques on different targets of treatment (e.g., modification of self-control skills and attributional style to alleviate depression). When dealing with behaviors that have been shown to be somewhat stable (e.g., performance on intelligence tests), infrequent assessment can be justified in terms of cost-efficiency and incremental validity. When dealing with unstable dysfunctional behaviors with varying causal factors over time, however, infrequent and diagnosis-oriented assessment fails to provide feedback for correction of the targets of the intervention and the type of intervention. Strosahl and Robinson's Chapter 22 in this volume notes that managed care companies have come to require assessment throughout treatment in order to justify continuation of reimbursement for services. Repeatedly administering most traditional assessment techniques, such as an inkblot test, would not provide the type of information required by managed care companies (e.g., behavioral changes directly related to adaptive functioning).

Traditional assessment techniques not only provide little feedback on the ongoing effectiveness of an intervention, most are very time-consuming and expensive. Their cost-efficiency and utility in establishing quality assurance are being questioned by both scientist-practitioners and the health care industry (Hayes, Barlow, and Nelson-Gray, 1999). These authors argue that behavioral assessment techniques are more justifiable than most traditional ones in both applied research and program evaluation/treatment outcome settings. Their

analysis of the culture of accountability and guidelines for the use of psychological assessment reflect the values of behavioral assessment, including the accompanying ethical standards. They point out the need to justify the use of any expensive assessment device, be it traditional (e.g., intelligence test) or modern behavioral (e.g., naturalistic outpatient observations). If Hayes and colleagues are correct, the context for a broader acceptance of behavioral assessment may be evolving as Mash and Hunsley conclude in the final chapter of this volume.

The evolution of behavioral assessment, as mentioned earlier, is a rediscovery of the precise measurement emphasized when psychology was a subspecialty of physiology and physics (Boring, 1950). For example, responding to color in an inkblot at the beginning of the science of psychology was viewed as a measure of color perception. With the influence of theories focusing on hypothetical constructs in the early and mid-twentieth century, responding to color in an inkblot came to be viewed by some psychologists as a measure of emotional expression and mood disorders. Even if responding to the color in an inkblot were to correspond with emotional expression, one would still not be informed as to the nature of the expression, such as type (e.g., anger, anxiety, sadness, euphoria), duration (e.g., episodic or chronic), intensity (e.g., happy or manic), or situational specificity. One also would not be informed regarding the causal and maintenance factors for the emotional expression.

Within behavioral assessment, if one wants to measure an emotion, such as anxiety, the approach would be much more direct and situation specific—such as asking the person to rate the degree to which he or she feels tense, observing approach and avoidance behavior, and measuring heart rate. Variables associated with anxiety that are targets for intervention also would be assessed, such as assertiveness in confronting others or the basic instrumental skills needed to carry out a necessary task that is being avoided. In addition, because anxiety, like many behaviors, may be exhibited differently over time and across situations, the assessment would be conducted to consider these dynamic aspects. Causal, maintenance, and outcome indices would be collected throughout any intervention so adjustments can be made based on objective feedback and the outcome can be documented.

The emphasis of behavioral assessment on the collection of precise idiographic time-series data for unstable behavior is in keeping with current advancements in the natural and life sciences, namely chaos theory or nonlinear dynamic modeling (Haynes, 1995; Haynes, Blaine, & Meyer, 1995; Heiby, 1995a, 1995b). Nonlinear dynamical modeling of time-series data can identify a deterministic temporal structure of a behavior that is not captured by statistics based on

the general linear model and that is difficult to ascertain by visual inspection of time-series graphics. Simulated data suggest chaotic affective disorders persevere in such a way that they may respond best to interventions applied before clinical levels are exhibited (Huber, Braun, & Krieg, 1999, 2000, 2001). Some research has shown that the prediction of episodes of bipolar disorder can be improved by considering the nonlinear deterministic structure of the time-series assessment of the symptoms (e.g., Gottschalk, Bauer, & Whybrow, 1995). Only a behavioral assessment can provide the type of time-sensitive data required for chaos theory testing.

It is common practice in the natural and life sciences to collect precise time-series data, and these sciences have benefited from the application of nonlinear dynamical modeling (e.g., Glass and Mackey, 1988). In contrast, psychology has been slow to develop chaos theory testing (Barton, 1994; Heath, 2000), perhaps partly because behavioral assessment does not yet dominate the discipline. Advances in computer software have made it more likely that future behavioral assessment research and applications will consider both linear and nonlinear temporal characteristics of problem behaviors and maintenance factors.

Haynes and O'Brien (2000) provided some survey data regarding the use of behavioral versus projective assessment devices in treatment outcome studies published in the *Journal of Consulting and Clinical Psychology* between 1968 and 1996. They found projective techniques were not used in articles published since 1980. The most common device was narrow-band behavioral self-report questionnaires. Other common outcome measures were behavioral observation, self-monitoring, and psychophysiological indexes. This survey suggests that in research settings there is evidence that clinical scientists are less likely to use traditional assessment devices and are more likely to use behavioral ones.

Although it is unknown how often traditional and behavioral assessment devices are used in direct service settings, the findings of Piotrowski and Zalewski (1993)—indicating that clinicians are commonly trained in traditional methods—suggests that they most likely use those methods in practice. At least one survey of clinical psychologists indicated that the most frequently used tests are broadband personality questionnaires and projectives (Watkins, Campbell, Niebering, & Hallmark, 1995). One of the more popular psychological assessment graduate textbooks dedicates one chapter to behavioral assessment and eight chapters to traditional, non-behavioral assessment approaches, although the author does acknowledge that the future of psychological assessment will more likely reflect the tenets of behavioral assessment owing to the requirements of managed care to demonstrate the cost-effectiveness of psychological evaluations and relate the eval-

uations to treatment strategies and outcome (Groth-Marnat, 1997). Given that behavioral devices and approaches to assessment seem to have greater scientific support and veridicality with the health care industry and research granting agencies, it seems critical to offer continuing education opportunities to clinicians trained primarily in traditional approaches to assessment.

Retooling clinicians should facilitate their survival in practice settings (Hayes et al., 1999; Chapter 22). But this retooling must also consider the realities of applied work. Perhaps another reason behavioral assessment is not equivalent to psychological assessment is that the tenets and techniques can involve more effort on the part of the clinician. It is far easier to sit a client in a room with a projective test, broadband personality inventory, and intelligence test kept in a file drawer than it is to conduct a case conceptualization, select and obtain multiple methods of assessing a variety of causal and outcome variables, and apply the assessment on an ongoing basis. Development of a case conceptualization may be facilitated in the future when a scientific approach to psychological assessment is legitimately tied to a particular theoretical paradigm.

Discovering available behavioral assessment techniques also has not been easy for clinicians or researchers. Obtaining references to these techniques has been facilitated by Hersen and Bellack's (2002) *Dictionary of Behavioral Assessment Techniques*. This dictionary provides a brief summary of the purposes and psychometric status of 285 behavioral assessment techniques. The techniques include observational, psychophysiological, and self-report measures of situational factors, potential causal variables, and behavioral problems. Obtaining the actual measurement devices has been facilitated by two volumes of *Measures for Clinical Practice* by Fischer and Corcoran (1994a, 1994b). The first volume reproduces instruments designed for couples, families, and children, while the second volume reproduces instruments designed for adults. While Fischer and Corcoran do not explicitly espouse a behavioral approach to assessment, most of the instruments they elected to reproduce are designed to assess highly specific behavioral problems and maintenance variables and are conducive to ongoing assessment. As indicated earlier, obtaining behavioral assessment devices also has been facilitated by a series of practitioner's guides to empirically supported measures published under the auspices of the Association for the Advancement of Behavior Therapy (Antony, Orsillo, & Roemer, 2001; Nezu et al., 2000). Hopefully, this volume on *Behavioral Assessment* will provide further continuing education for clinicians who are not familiar with the assets of behavioral assessment, inspire their application, and promote their further development.

## NOTE

1. A functional relation is any relation between events that can be described as an equation. It often takes the form of significant correlations, *F* statistics, conditional probabilities, chi-squares, or graphical displays of differential means and trends. Some functional relations also are presumed to be causal, in that changes in one variable will lead to changes in the other.

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## 18 Introduction to Behavioral Assessment

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