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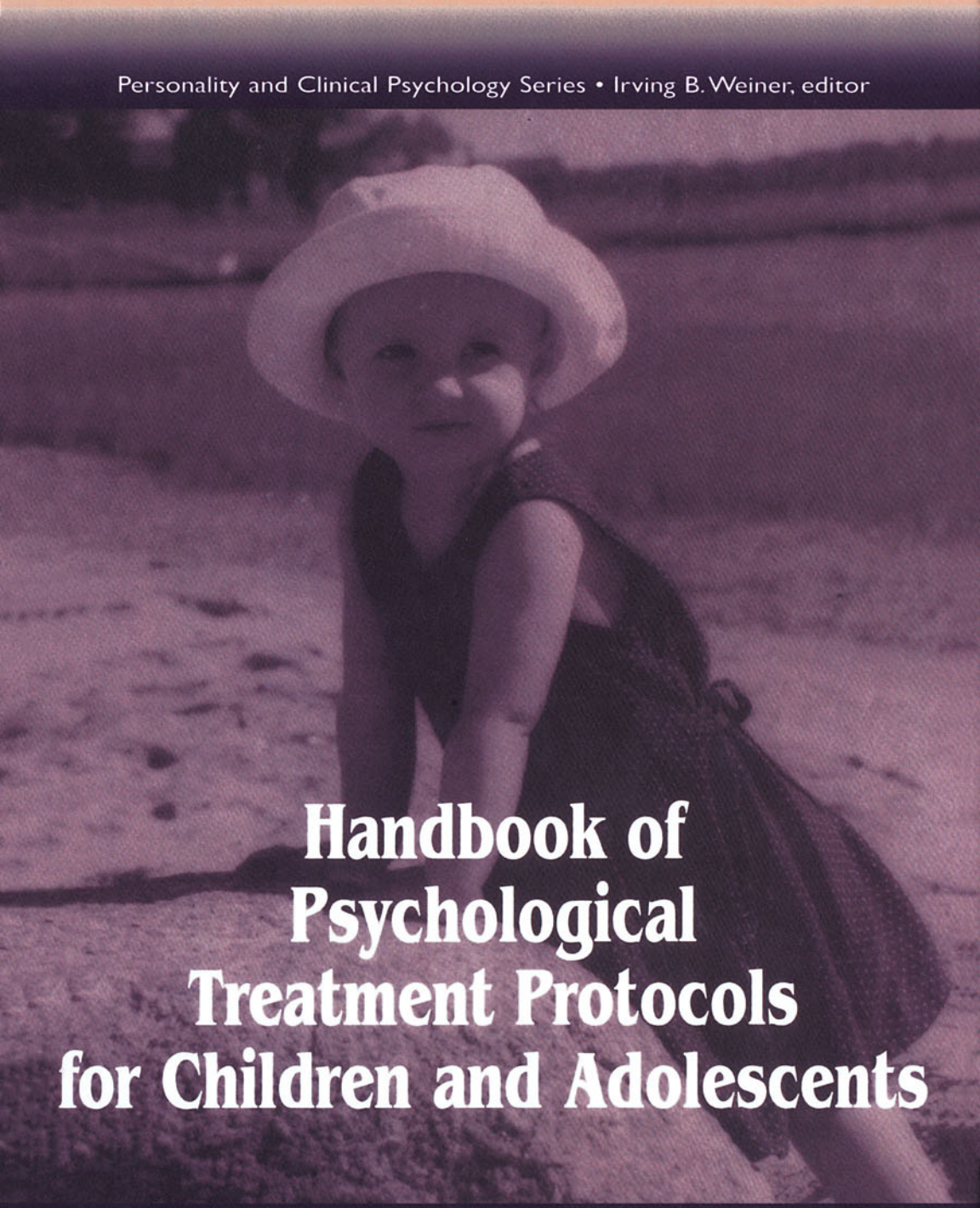

Handbook of Psychological Treatment Protocols for Children and Adolescents

Edited by
Vincent B. Van Hasselt • Michel Hersen

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Contents

Preface

Over the past 10 years, increasingly greater attention has been paid to the assessment and treatment of child and adolescent disorders. This upsurge of activity on both research and clinical fronts is related, in part, to improvements and refinements in diagnostic classifications that are increasingly empirically determined and behaviorally based, and, in part, to the growing realization of the need for heuristic interventions with these populations in order to prevent serious psychological dysftmction in adulthood. However, although innovative and efficacious treatment strategies now exist for these populations, most have been designed and implemented in the context of major research programs or funded research centers targeting childhood disorders, and complete protocols are rarely disseminated or replicated. Moreover, when descriptions are provided, they are typically embedded in the "Methods" section of journal articles or briefly covered within a book chapter.

The *Handbook of Psychological Treatment Protocols for Children and Adolescents* is an attempt to bridge the gap between clinical research and practice. The book is a compendium of current, state-of-the-art treatment manuals designed to facilitate the application of the various treatment methods in clinical contexts. It provides specific instructions on the utilization of approaches combined with relevant case illustrations.

The *Handbook* is divided into three parts. Part I, Introduction, includes a chapter by Ron Acierno and the editors on basic contemporary issues of accountability in treatment. Part II, Treatment of Childhood Disorders and Problems, and Part III, Treatment of Adolescent Disorders and Problems, include 15 detailed treatment manuals for use with a large variety of problems presented by children and adolescents both as outpatients and inpatients. Our goal for each chapter is to provide the reader with sufficient information so that the respective approaches can be replicated. We anticipate considerable interest in this volume from a wide range of mental health professionals, including psychologists, psychiatrists, child development specialists, family counselors, social workers, and their graduate students.

Many individuals have devoted their time and effort to this project. First, we thank our eminent contributors for providing their treatment manuals for publication. Second, we thank Burt G. Bolton for his technical assistance. Finally, we thank Judith Amsel, our friend and editor at Lawrence Erlbaum Associates, for her assistance throughout all phases of this project.

—Vincent B.Van Hasselt

—Michel Hersen

Part I
Introduction

Chapter 1
Accountability

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The development of psychological theory has always depended on efforts to empirically justify its hypothetical constructs and applied practices. But vis-à-vis applied practices, the pressure for justification has become increasingly strong. In the recent past, mandates that psychologists, psychiatrists, and other mental health professionals be accountable for their clinical actions have been issued repeatedly from both within our own ranks (e.g., Eysenck, 1952; Raimy, 1950) and by outside parties such as consumer protection organizations and insurance companies. Calls for accountability have been amplified with the realization that the practical value of psychotherapy is frequently less than had been assumed or implied. Indeed, over 45 years ago, Raimy (1950) pointed out that the basic features of acceptable science, including reliability, internal validity, and predictive validity, were lacking in clinical endeavors: "Psychotherapy is an undefined technique, applied to unspecified problems, with unpredictable outcomes" (p. 93). A primary reason for the decidedly unscientific status of clinical psychology and psychiatry five decades ago can be found in the wide gap that existed at the time (and continues to exist, though it is narrower) between basic research and applied clinical practice. Until Wolpe's (1958) reciprocal inhibition procedure, no psychological treatment had its basis or origins in empirically generated findings. As a result, clinical work proceeded independently of laboratory efforts. Wolpe's procedure was unique in two respects. First, his hypotheses were inductively formed through analysis of experimental data. As such, they contrasted with the hypotheses of contemporaneous psychodynamic theories, which were abstracted from clinical impressions. Second, effects (if not processes) of Wolpe's treatment were predictable and measurable. Declarations of success or failure were made according to operationalized, observable criteria. Thus, for the first time, therapists were able to justify their actions and theories on the basis of data instead of inference. Psychotherapists, like practitioners of other therapeutic sciences (e.g., medicine), were in a position to account for their behavior.

Public awareness of mental health options is greater now than ever before. Additionally, the increased prevalence of large-scale managed care organizations and new practices of selective reimbursement by third-party payers for only those treatments that are deemed necessary and shown to be rapidly effective, create an environment of enforced accountability. Fortunately, practitioners have been able to respond to the challenges of this new environment. Unspecified "psychological issues" and "problems" have been replaced by highly reliable (albeit not yet completely valid) systems of psychopathological classification. Wildly variable treatments with unverified and

unverifiable techniques based largely on "clinical intuition" have yielded to thoroughly operationalized, reproducible interventions, such as those described in this volume. Random and baseless predictions of treatment outcome have been gradually discarded in favor of data from empirical clinical trials that purposefully illustrate efficacy of one treatment over another for different types of patients (Azrin et al., 1994; Robbins, Alessi, & Colfer, 1989).

Disappointingly, research on children has lagged behind that on adults, as has been historically the case in the clinical sciences (Ammerman & Hersen, 1993; Frame & Cooper, 1993). For example, although rates of drug use are again increasing in adolescent and preadolescent populations, only one controlled evaluation of drug abuse treatment with this age group has been reported (Azrin, Donohue, Besalel, Kogan, & Acierno, 1994). Similarly, despite widespread incidence of documented child sexual and physical abuse (Polusny & Follette, 1995), no large-scale treatment outcome studies have addressed this area. In the frequent absence of clear empirical outcome results, what are the guidelines by which child psychologists and psychiatrists are to maintain accountability?

NECESSARY ELEMENTS OF ACCOUNTABILITY

Clinicians treating children must, of course, consider relevant developmental factors, but accountable practice also requires that they *define problems* on the basis of comprehensive and accurate assessment; *select treatments* that have empirically demonstrated efficacy with child populations, where possible; and *consistently and repeatedly monitor patient progress* during, and at the conclusion of treatment. Each one of these efforts is necessary, but not sufficient to maintain accountability.

ASSESSMENT

Comprehensive assessment of psychopathology is a multidimensional and dynamic process that continues throughout a clinician's contact with patients. Moreover, measurement of symptomatology, the traditional focus of most assessment efforts, is appropriately complemented by both delineation of etiological pathways and specification of contextual factors that contribute to the maintenance of a disorder. Unfortunately, almost all psychological assessment research and evaluation of popular diagnostic systems focuses entirely on symptom definition, to the exclusion of maintaining and etiological factors. This focus is problematic if patients with differing psychopathological etiologies in different environments present with identical symptoms requiring dissimilar treatments (e.g., substance abuse in a child of low-income substance abusers vs. substance abuse in a child of high-income nonusers). Indeed, clinical researchers have inappropriately presumed patient homogeneity on the basis of similar symptomatology, thereby confounding effects attributable to treatments under study with those produced as a result of (unspecified) differences in etiology or maintaining factors (Hersen, 1981; Wolpe, 1977). Unfortunately, deficits in psychopathological classification continue to be propagated by the *Diagnostic and Statistical Manual and Mental*

Disorders (DSM-IV). While highly reliable (Williams et al., 1992), this diagnostic system does not adequately address variation in age, etiology, or environmental context within psychopathology classes, such that patients with decidedly different treatment needs receive identical diagnoses. Assessment and experimental control of etiology and maintaining factors, in addition to symptomatology, overcomes this diagnostic superficiality. As mentioned, however, virtually no evaluation of differential treatment effects among symptom subtypes of disorders in children has been done. This chapter provides examples from both the adult and child literature that serve to illustrate the relevance of multidimensional assessment of symptoms, etiology, and maintaining factors to maximizing treatment efficacy and thus achieving accountability.

The overt and readily apparent nature of most child psychopathology (e.g., conduct disorder, separation anxiety) typically elevates symptomatology to a position of primacy in any assessment process. It is important that symptom assessment include data obtained through observation (i.e., behavior), patient and other self-report (i.e., cognition), and, when possible, physiological monitoring (Lang, 1968). Such tripartite assessment facilitates modification and adaption of interventions to specific needs of the patient. Öst, Johansson, and Jerremalm (1982) illustrated this point with their comparison of two treatments for claustrophobia. Following thorough tripartite symptom assessment, 34 patients were classified as either behavioral or physiological fear responders. Half of each group received an intervention designed to affect the physiological component of their anxiety, and the remaining half was given a treatment that addressed behavioral aspects of their disorder. As expected, differential treatment responses were observed, with patients classified as behavioral responders improving to a relatively greater extent with a behavior-focused treatment, and those classified as physiological responders showing greatest gains with a physiological-focused intervention. Note that all patients were similarly diagnosed, hence typical *DSM* classification would not have been sufficient to prescriptively match pathology and treatment. Instead, phenomenological categorization of symptomatology beyond that offered by the *DSM* was necessary to maximize treatment efficacy.

Treatment selection that is purposefully guided by multidimensional assessment of symptoms has also proven to be beneficial in amelioration of other forms of specific phobia. For example, although heart rate and blood pressure elevation are typical and consistent responses in phobic individuals confronted with feared stimuli, psychophysiological assessment reveals that a small subset of patients—specifically, blood phobics—evince heart rate decreases when presented with phobic objects (see Öst, Sterner, & Lindhal, 1984). Therefore, typical treatments for phobics that foster heart rate reduction appear to be inappropriate interventions for blood phobics. Indeed, applied tension, as opposed to applied relaxation, is indicated when treating this disorder.

Similar symptom-based subtypes of depression also exist and have varied treatment requirements (McKnight, Nelson, Hayes, & Jarrett, 1984; Paykel, Prusoff, Klerman, Haskell, & Dimascio, 1973; Wolpe, 1977, 1979, 1990). Specifically, Wolpe (1979) posited that behavioral, subjective, and physiological symptoms of anxiety are present in a large percentage of major depression patients, and the phenomenological experience of this disorder differs greatly from that of depressed individuals who do not suffer from concomitant manifestations of anxiety. Importantly, physiological and behavioral discrimination between anxious and nonanxious depressives has been achieved. For example, individuals with anxious depression evince above-average sedation thresholds

(see Wolpe, 1986), as compared with nonanxious depressives, who demonstrate subaverage sedation thresholds, indicating that qualitative differences exist between these affective disorder subtypes. As was the case in the earlier example with specific phobias, discrimination between these two classes of depression is not possible with the *DSM-IV*. This is somewhat disconcerting in that, it is very likely that these qualitatively different forms of depression require qualitatively different types of treatment. Along these lines, Conti, Placidi, Dell'Osso, Lenzi, and Corsano (1987) reported that nonanxious depressives evinced significant improvement following treatment with antidepressant medication, whereas anxious depressives responded no better to medication than to placebo. As Wolpe (1986, 1990) maintained, interventions that reduce anxiety, as well as enhance affect, are appropriate for these patients. Given the heterogeneity of depressive disorder in adults, it is most certainly the case that children diagnosed as "depressed" also possess dissimilar treatment requirements (Robbins, Alessi, & Colfer, 1989).

Adolescent substance abusers are also benefited by focused assessment of symptoms. For example, Vaglum and Fossheim (1980) found that youth who abused psychedelic drugs responded to a greater extent following individual or family treatment, relative to a confrontational milieu therapy, whereas adolescents who abused opiates or stimulants responded most favorably to confrontational milieu therapy. Consistent with treatment of depressive disorders, assessment of substance abuse symptomatology in excess of that specified by the *DSM-IV often* facilitates positive treatment outcome. Indeed, Cooney, Kadden, Litt, and Getter, (1991) demonstrated that individuals evincing impulsivity, sociopathy, aggressiveness, interpersonally dysfunction, increased negativity, episodic binge drinking, and an external locus of control (classified as "externalizes") responded better to a structured cognitive-behavioral therapy than to an interpersonal based treatment. By contrast, patients demonstrating low dependence and aggressiveness, but relatively elevated anxiety, self-reflection, and an internal locus of control (classified as "internalizers"), improved most with an interpersonally based treatment. Similarly, Kadden, Cooney, Getter, and Litt (1989) found that alcoholics high in global psychopathology (i.e., externalizers) responded better to a structured coping skills program than to interactional group therapy, whereas for patients low in global psychopathology (i.e., internalizers), the reverse was true.

Clearly, accountability in clinical child psychology and psychiatry is enhanced by comprehensive evaluation of behavioral, subjective, and physiological parameters of patient and pathology. That is, thorough multidimensional symptom assessment increases therapeutic precision so that general treatments may be modified and directed to meet specific requirements of individual patients. However, measurement of symptomatology does not sufficiently address all criteria for appropriate treatment selection. Rather, consideration must be given to contextual factors that serve to maintain pathology as well.

Functional assessment of contextual or maintaining factors logically follows symptomatic assessment and serves to reveal the reasons constellations of psychopathological behavior persist. Strongly grounded in learning theory, the assessment of contextual factors involves specification of reinforcement contingencies and identification of discriminant stimuli in the patient's environment that reliably elicit or perpetuate problem behavior. Although specific procedural aspects involved in measurement of contextual factors are determined for the most part by an individual's symptomatic presentation, all assessments must include: specification of antecedents and

consequences of problem behavior, description of the effects of problem behaviors on the patient's significant others (and their responses to these effects), and identification of environmental stimuli that vary with the presence or absence of pathological behavior. Antecedents and consequences of a behavior are clearly relevant areas of consideration when designing an intervention and require little elaboration. Knowledge of the effects of problem behaviors on significant others can be essential in constructing treatment regimens that require active collaboration of family members by assuring that their concerns and needs are also addressed. Finally, delineation of stimuli that vary as a function of target behavior permits identification and manipulation of conditions under which problem behavior is and is not likely to occur. Children are relatively more dependent on others, and hence more reactive to their immediate social environment than adults. Therefore, the measurement of maintaining factors is particularly important when designing or selecting interventions for this population. For example, symptoms of school-specific conduct-disordered behavior in a 13-year-old male who resides with drug abusing and violent parents demand entirely different treatment than an identical conduct-disordered presentation in a 13-year-old male residing with parents with no such overt pathology. For the first child, implementation of powerful school-based contingencies is shortsighted in that they fail to address problems evident in the family unit that most certainly contribute to the maintenance of problem behavior (Henggeler & Borduin, 1990), whereas similar contingency restructuring procedures may be adequate in altering negative behavior in the second child.

Azrin et al. (1996) also demonstrated the usefulness of assessing maintaining factors in their evaluation of two treatments for adolescent drug abuse. In this controlled outcome study, standard supportive counseling was compared to a behaviorally oriented intervention package that was individually tailored to address and alter factors thought to maintain drug use. Specifically, treatment included identification of those stimuli that elicited drug ingestion, followed by skills training to reduce the frequency and magnitude of time spent in the presence of those stimuli. Additionally, existing patterns of contingent reinforcement were clarified and restructured so that drug use resulted in high response cost of previously obtained reinforcement, and abstinence resulted in increased social reinforcement. Importantly, this intervention addressed both contingencies that served to maintain the unwanted operant, as well as conditioned discriminative stimuli that consistently elicited problem behavior. Predictably, subjects receiving the behavioral intervention evinced significantly greater reductions in substance abuse, both at posttreatment and at 9-month follow-up, than patients receiving standard substance abuse counseling.

Meichenbaum, Gilmore, and Fedoravicius (1971) provided further evidence for the utility of complementing symptom measurement with assessment of contextual factors in their study of two treatments for public-speaking fears. In this experiment, pretreatment assessment included characterization of public-speaking anxiety in terms of fear specificity. That is, individuals were evaluated according to whether their fears were confined to public-speaking situations (i.e., elicited by a narrow range of stimuli), or were generalized responses to a variety of social contexts (e.g., elicited by a wide range of stimuli). Subjects were then treated by either a cognitively oriented intervention involving training to attend to and alter inappropriate self-verbalizations during anxiety-producing situations (i.e., a treatment aimed at addressing factors responsible for maintaining anxiety across a variety of social situations) or by standard desensitization

(i.e., a technique that intentionally confines its therapeutic focus to only those stimuli deemed relevant to the problem at hand). Predictably, patients evincing generalized interpersonal performance anxiety responded best to the cognitive intervention. By contrast, subjects with fears maintained by specific public-speaking stimuli improved most with the desensitization treatment. Note that the cognitively oriented intervention was more readily applied to overcome a wide variety of discriminitive stimuli that elicited anxiety in individuals with generalized fears: desensitization treatment was adequate to ameliorate anxiety in those patients with a limited number of well-defined fear triggers.

As mentioned, thorough assessment of maintaining or contextual factors requires that attention be directed to both the associative and instrumental aspects of the environment. Importantly though, assessment must not end with maintaining factors. Rather, identification of etiological pathways potentially enhances treatment outcome and is thus a requisite component in accountable practice (Wolpe, 1986).

A large number of contemporary psychological and pharmacological treatments produce highly focalized and specific effects. Choice among them must be preceded by precise and well-conceptualized diagnosis. Such diagnosis requires etiological assessment that compliments measurement of symptoms and delineation of maintaining factors (Agras, 1987; Eifert, Evans, & McKendrick, 1990; Hersen, 1981; Wolpe, 1986). Fortunately, etiological assessment is regularly undertaken in applied clinical settings, where clinicians appear to recognize the inherent value of identifying "how" as well as "what" characteristics of their patient's psychopathology. By contrast, researchers conducting treatment outcome studies have largely ignored the contributions of etiology to treatment response. Hence, experimental conditions in these studies are composed of heterogeneous groups of subjects and intervention effects are confounded by etiological differences across individuals. The relevance of etiological assessment to accountable practice is best illustrated by the existing literature on the treatment of affective disorders. Most attention has been focused on differentiating endogenous (the *DSM-IV uses* the term *melancholic*) from nonendogenous depression, with the assumption that somatic interventions (e.g., medication, electroconvulsive therapy) are most effective with endogenous depressives, whereas psychological interventions (e.g., interpersonal therapy) yield greatest improvement with nonendogenous depressives. A limited number of controlled studies has been performed that supports the endogenous/nonendogenous distinction, and has yielded several methods by which to make this differential diagnosis. No technique, however, has been found to be completely reliable or valid.

The dexamethasone suppression test (DST) is the best known (and debated) method by which to discriminate endogenous from nonendogenous depression. Nonsuppression of the DST is indicative of the endogenous subtype of depression (Chadhury, Valdiya, & Agustine, 1989; Robbins, et al., 1989; Zimmerman, Coryell, & Black, 1990). Symptom correlates of DST non-suppression and endogenous depression include early or middle morning insomnia, worsened mood in the morning, reduced appetitive and psychomotor activity, and low anxiety (Robins, Block, & Peselow, 1989; Wolpe, 1979). By contrast, high anxiety is strongly associated with DST suppression or nonendogenous depression. A second objective means of identifying depressive etiology is the sedation threshold, or the level of sodium amobarbital required to produce certain nonresponding effects in patients. Qualitative differences in responding of endogenous and nonendogenous depressives have been demonstrated on this test, with the former group displaying lower

than average sedation thresholds and the latter group evincing higher than average thresholds. Moreover, differential treatment response among these affective disorder subgroups has been observed. For example, Robbins, Alessi et al. (1989) treated 38 depressed adolescents with a psychosocial intervention and found that only 47% responded. Nonresponders were then treated by a combined package of tricyclic antidepressants and psychotherapy, which produced a 92% improvement rate. Importantly, nonsuppression on the DST (endogenous depression) was associated with reduced effectiveness of psychosocial treatment. Differential treatment responses among these etiological subgroups were also observed by Raskin and Crook (1976), who noted that antidepressant medication and placebo were equally effective for nonendogenous depressives, whereas endogenous depressives responded only to active medication. Though seemingly simplistic, *DSM-IV* makes no provision for such affective disorder subclassification.

Usefulness of etiological assessment has also been established with anxiety disorders. Along these lines, Öst (1985) noted that phobic patients whose fears were determined to have been acquired through conditioning were more responsive to counterconditioning or extinction-based treatments than to cognitive restructuring. Furthermore, Trower, Yardley, Bryant, and Shaw (1978) reported that social phobics with skills deficits showed greatest outcome following skills training, whereas similarly diagnosed patients with no skills deficits responded equally well to skills training or systematic desensitization. An interesting etiological subtype of nonfearful panic disorder has been described by Russell, Kushner, Beitmen, & Bartels (1991). Diagnostic markers implicating atypical panic were evident, as indicated by the fact that 100% of these nonfearful panickers evinced attacks during lactate infusion challenges, and none demonstrated this response to placebo infusion challenges. Moreover, all patients reported at least a 75% reduction in symptomatology following treatment by imipramine or clonazepam, a rate of improvement exceeding that regularly observed in fearful panickers receiving these treatments (see Mavissakalian, Michelson, & Dealy, 1983). The unusual uniform response of nonfearful panickers to both lactate and placebo challenges, and to antipanic medication, in addition to the notable lack of fear during attacks provide support for the validity of this, non-*DSM-IV* defined, etiological subtype.

Overall, these examples demonstrate the potential usefulness of extending assessment beyond that specified by the *DSM* to include consideration of etiology so that treatment selection may be refined and accountability thus maintained. Verification of psychopathological origins is even more imperative when treating children, who are more likely to present with identical symptom clusters that do not remit with identical treatments.

SELECTION OF TREATMENTS WITH EMPIRICAL SUPPORT

Selection of an empirically validated treatment in favor of interventions lacking such validation is the second criterion of accountable practice (Garfield, 1987; Wilson, 1984; Wolpe, 1990). This requirement is an accepted and obvious component of medical practice, but it has only recently been addressed by governing boards of psychologists, psychiatrists, and mental health practitioners. For example, the American Psychological

Association (APA) Committee on Professional Standards (1987) Practice Guideline 1.5 stated that "all providers of psychological services attempt to maintain and apply current knowledge of scientific and professional developments that are clinically related to the services they render" (p. 715). In keeping with this point, the Task Force on the Practice and Dissemination of Psychological Procedures (September 1993) recommended that "APA site visit teams make training in empirically validated treatments a criterion for APA accreditation" (p. 8). Unfortunately, many providers of mental health treatment do not approach their work in a scientific manner. That is, a majority of clinicians fail to contribute to, or even keep abreast of, current research in their area (Cohen, 1979). Importantly, clinicians who select an intervention that lacks empirical validation over one with such support are potentially responsible for exacerbating patient suffering and costs. In a very powerful comment on this state of affairs, Rush (1993) declared that "there is a wide variation in actual practice [that]…is generally believed to reflect unnecessary diversity of practice procedures that raise the cost of care and result in sub-optimal outcomes" (p. 484). Obviously, selection of treatments with empirical support is a requirement of accountable practice.

CONSISTENT MONITORING OF PATIENT PROGRESS

The final criterion of accountable practice is repeated assessment of patient progress during treatment. Such assessment should be conducted in a manner that permits accurate and timely modification of intervention procedures, thus resulting in maximized improvement and minimized suffering. The American Psychological Association (1987) has also addressed this topic under Practice Guideline 3.3, stating simply that "there are periodic, systematic, and effective evaluations of psychological services" (p. 719). Moreover, as Smith (1989) noted, "Accountability requires that appliedpsychologists provide data concerning their effectiveness" (p. 169). At the very least, clinicians should employ some form of outcome assessment to both justify and guide their work. However, causal inferences supported in a manner beyond that provided by simple case report is preferable and unobtrusively accomplished. Barlow and Hersen (1984) and Barlow, Hayes, and Nelson (1984) provided excellent guides for clinicians attempting to implement moderately controlled, single-case clinical research strategies in their applied practice. Moreover, the *Journal of Consulting and Clinical Psychology* (Vol. 61, No. 3) has devoted a special issue to demonstrating applicability of single-case designs to clinical process research. Additionally, in the empirical realm, single-case designs have several advantages over standard group experiments. This is because single case, or small N research, generally involves extensive specification of subject and pathology along parameters (i.e., symptoms, etiology, maintaining factors) outlined earlier. By contrast, group designs necessarily disregard most individual subject and pathology characteristics. That is, single-case designs permit emphasis through specificity—rather than nullification through aggregation—of potentially relevant symptomatic, contextual, and etiological factors that affect treatment outcome. This focus can then be useful to consumers of research in refining future interventions with similar patients. Of course, one controlled single-case study cannot serve as the bass for future treatment selection, and as is the case with group experimental designs, replication is necessary to both establish the reliability of an effect, and delineate situations under which noted effects do and do not occur.

CONCLUSION

In the current climate of accountability, justification of therapeutically directed behavior is of paramount importance. Indeed, specialized subgroups of clinical psychologists (see Anderson, 1992; Beck & Haaga, 1992; Bishop & Trembley, 1987; Burchard & Schaefer, 1992; Cross, 1985; Furedy & Shulhan, 1987; Garfield, 1987; Smith, 1989), the American Psychological Association, other groups of mental health professionals, third-party payers, and the general consumer have all called for practitioners to provide data to support what it is they do. This pressure over all has been beneficial for a field in which practitioners have escaped basic scrutiny for so long. Whereas the use of unproven treatment constitutes malpractice in medicine, it has been commonplace in the mental health profession. Nowadays, however, therapists are no longer free to choose that treatment that best "suits them." Instead, their selection of therapeutic interventions must be guided by empirical knowledge, and they must pay attention to three specific issues. First, a comprehensive assessment of maintaining factors and etiology, in addition to symptomatology, must be made to prescriptively match patient and pathology to treatment. Second, those procedures that have been shown to effect change under controlled conditions must be selected over those lacking such empirical validation. Third, patient progress during treatment must be monitored through repeated and specific evaluations. General procedural aspects of each of these processes have been outlined previously and specified more fully elsewhere (e.g., Bellack & Hersen, 1988; Wolpe, 1990).

The courses of treatment offered in this volume have been constructed and revised through empirical evaluation of their efficacy. They represent the most specialized interventions available for the problems addressed. As a result of their specificity, however, their effects are typically circumscribed. Therefore, it is probable that multiple treatments will be applicable and appropriate for a particular patient. Moreover, despite their highly structured format, these interventions are not intended to be used with all children in an identical manner, and modification may be required for some individuals. Of course, such procedural adaptions are justifiable if they are performed in response to data gathered during a multidimensional assessment and accompanied by repeated controlled evaluations of their efficacy.

REFERENCES

Agras, W.S. (1987). So where do we go from here? *Behavior Therapy, 18,* 203–217.

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC: American Psychiatric Association.

American Psychological Association Committee on Professional Standards. (1987). General guidelines for providers of psychological services. *American Psychologist, 42,* 712–723.

Ammerman, R.T., & Hersen, M. (1993). Developmental and longitudinal perspectives on behavior therapy. In R.T. Ammerman & M.Hersen (Eds.), *Handbook of behavior therapy with children and adults: A developmental and longitudinal perspective* (pp. 3–10). Needham Heights, MA: Allyn & Bacon.

Anderson, D. (1992). A case for standards of counseling practice. *Journal of Counseling andDevelopment,* 77, 22–26.

Azrin, N.H., Acierno, R., Kogan, E.S., Donohue, B., Besalel, V., & McMahon, P. (1996). Follow-up results of supportive versus behavioral therapy for illicit drug use. *Behaviour Research and Therapy, 34,* 41–46.

Azrin, N.H., Donohue, B., Besalel, V., Kogan, E., Aciemo, R. (1994). Youth drug abuse treatment: A controlled outcome study. *Journal of Child and adolescent Drug Abuse,* 3, 1–16

Azrin, N.H., McMahon, P., Donohue, B., Besalel, V., Lapinski, K., Kogan, E., Acierno, R., & Galloway, E. (1994). Behavior therapy for drug abuse: A controlled treatment-outcome study. *Behaviour Research and Therapy, 32,* 857–866.

Barlow, D.H., Hayes, S. C., & Nelson, R.O. (1984). *The scientist practioner: Research and accountability in clinical and educational settings.* New York: Pergamon.

Barlow, D.H., & Hersen, M. (1984). *Single case experimental designs: Strategies for studying behavior change* (2nd ed.). New York: Pergamon.

Beck, A.T., & Haaga, D.A. (1992). The future of cognitive therapy. *Psychotherapy, 29,*34–38.

Bellack, A.S., & Hersen, M. (1988). *Behavioral assessment: A practical handbook* (3rd. ed.). New York: Pergamon.

Bishop, J.B., & Trembley, E.L. (1987). Counseling centers and accountability: Immovable, objects, irresistible forces. *Journal of Counseling and Development, 65,*491–494

Burchard, J.D., & Schaefer, M.C. (1992). Improving accountability in a service delivery system in children's mental health. *Clinical Psychology Review, 12,* 867–882.

Chadhury, S., Valdiya, P.S., & Augustine, M. (1989). The dexamethasone suppression test in endogenous depression. *Indian Journal of Psychiatry, 31,* 296–300.

Cohen, L.H. (1979). The research readership and information source reliance of clinical psychologists. *Professional Psychology, 10,* 780–786.

Conti, L., Placidi, G.R., Dell'Osso, L., Lenzi, A., & Cassano, G.B. (1987). Therapeutic response in subtypes of major depression. *New Trends in Experimental and Clinical Psychiatry, 3,*101–107.

Cooney, N.L., Kadden, R.M., Litt, M.D., & Getter, H. (1991). Matching alcoholics to coping skills or interactional therapies: Two year follow up results. *Journal of Consulting and Clinical Psychology, 59,* 598–601.

Cross, D.G. (1985). The age of accountability: The next phase for family therapy. *Australian and NewZealand Journal of Family Therapy, 6,* 129–135.

Eifert, G.H., Evans, I.M., & McKendrick, V.G. (1990). Matching treatments to client problems not diagnostic labels: A case for paradigmatic behavior therapy. *Journal of Behavior Therapy and Experimental Psychiatry, 21,* 163–172.

Eysenck, H.J. (1952). The effects of psychotherapy: An evaluation. *Journal of Consulting Psychology, 16,* 319–324.

Frame, C.L., & Cooper, D.K. (1993). Major depression in children. In R.T.Ammerman & M.Hersen (Eds.), *Handbook of behavior therapy with children and adults: A developmental and longitudinal perspective* (pp. 59–72). Needham Heights, MA: Allyn & Bacon.

Furedy, J.J., & Shulhan, D. (1987). Specific versus placebo effects in biofeedback: Some brief back to basics considerations. *Biofeedback and Self Regulation, 12,* 211–215.

Garfield, S.L. (1987). Towards a scientifically oriented eclecticism. *Scandinavian Journal of Behaviour Therapy, 16,* 95–109.

Henggeler, S., & Borduin, M.J. (1990). *Family therapy and beyond: A multi-systemic approach to treating the behavior problems of children and adolescents.* Pacific Grove, CA: Brooks/Cole.

Hersen, M. (1981). Complex problems require complex solutions. *Behavior Therapy, 12,* 15–29.

Kadden, R.M., Cooney, N.L., Getter, H., & Litt, M.D. (1989). Matching alcoholics to coping skills or interactional therapies: Posttreatment results. *Journal of Consulting and Clinical Psychology, 57,* 698–704.

Lang, P.J. (1968). Fear reduction and fear behavior: Problems in treating a construct. In J.M.Shlien (Ed.), *Research in psychotherapy* (Vol. 3). Washington, DC: American Psychological Association.

Mavissakalian, M., Michelson, L. & Dealy, R.S. (1983). Pharmacological treatment of agoraphobia: Imipramine versus imipramine with programmed practice. *British Journal of Psychiatry, 143,* 348–355.

McKnight, D., Nelson, R., Hayes, S., & Jarrett, R. (1984). Importance of treating individually assessed response classes of depression. *Behavior Therapy, 15,* 315–335.

Meichenbaum, D., Gilmore, J., & Fedoravicius, A. (1971). Group insight versus group desensitization in treating speech anxiety. *Journal of Consulting and Clinical Psychology, 36,*410–421.

Öst, L.G. (1985). Ways of acquiring phobias and outcome of behavioral treatment. *Behaviour Research and Therapy, 23,* 683–689.

Öst, L.G., Johansson, J., & Jerremalm, A. (1982). Individual response patterns and the effects of different behavioral methods in the treatment of claustrophobia. *Behaviour Research and Therapy, 20,*445–560.

Öst, L.G., Sterner, U., & Lindhal, I.L. (1984). Physiological responses in blood phobics. *Behaviour Research and Therapy, 22,* 109–117.

Paykel, E.S., Prusoff, B.A., Klerman, G.L., Haskell, D., & Dimascio, A. (1973). Clinical response to amitriptyline among depressed women. *Journal of Nervous and Mental Disease, 156,*149–165.

Polusny, M., & Follette, V.M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical liturature. *Applied and Preventive Psychology, 4,* 143–166.

Raimy, V.C. (Ed.). (1950). *Training in clinical psychology (Boulder Conference).* Englewood Cliffs, NJ: PrenticeHall.

Raskin, A., & Crook, T.H. (1976). The endogenous-neurotic distinction as a predictor of response to antidepressant drugs. *Psychological Medicine, 6,* 59–70.

Robins, D.R., Alessi, N.E., & Colfer, M.V. (1989). Treatment of adolescent with major depression: Implications of the DST and the melancholic subtype. *Journal of Affective Disorders, 17,* 99–104.

Robins, C.J., Block, P., & Peselow, E.D. (1989). Specificity of symptoms in RDC endogenous depression. *Journal of Affective Disorders, 16,* 243–248.

Rush, A.J. (1993). Clinical practice guidelines: Good news, no news, or bad news? *Archives of General Psychiatry, 50,* 483–490.

Russell, J.L., Kushner, M.G., Beiiman, B.D., & Bartels, K.M. (1991). Non-fearful panic disorder in neurology patients validated by lactate challenge. *American Journal of Psychiatry, 148,* 361–364.

Smith, R.E. (1989). Applied sport psychology in an age of accountability. Second annual conference of the Association for the Advancement of Applied Sport Psychology. *Journal of Applied Sport Psychology, 1,* 166–180.

Task Force on Promotion and Dissemination of Psychological Procedures. (1993, September 15). A report to the American Psychological Association, Division 12 Board.

Trower, P. Yardley, K., Bryant, B., & Shaw, P. (1978)The treatment of social failure: A comparison of anxiety reduction and skills acquisition procedures for two social problems. *Behavior Modiflcation, 2,* 41–60.

Vaglum, P., & Fossheim, I. (1980). Differential treatment of young abusers: A quasi-experimental study of a "therapeutic community" in a psychiatric hospital. *Journal of Drug Issues, 10,* 505–516.

Williams, J.B., Gibbon, M., First, M.B., Spitzer, R.L., Davies, M., Borus, J., Howes, M.J., Kane, J., Pope, H.G., Rounsaville, B., & Wittchen, H. (1992). The structured clinical interview for *DSM-IU-R* (SCID): II. Multi-site test-retest reliability. *Archives of General Psychiatry, 49,* 630–636.

Wilson, G.T. (1984). Clinical issues and strategies in the practice of behavior therapy. *Annual Review of Behavior Therapy Theory and Practice, 9,* 309–343.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition.* Stanford, CA: Stanford University Press.

Wolpe, J. (1977). Inadequate behavior analysis: The Achilles heel of outcome research in behavior therapy. *Journal of Behavior Therapy and Experimental Psychiatry, 8,* 1–3.

Wolpe, J. (1979). The experimental model and treatment of neurotic depression. *Behaviour Research and Therapy. 17,* 555–565.

Wolpe, J. (1986). The positive diagnosis of neurotic depression as an etiological category. *Comprehensive Psychiatry, 27,* 449–460.

Wolpe, J. (1990). *The practice of behavior therapy* (4th ed.). Elmsford, NY: Pergamon.

Zimmerman, M., Coryell, W.H., & Black, D.W. (1990). Variability in the application of contemporary diagnostic criteria: Endogenous depression as an example. *American Journal of Psychiatry, 147,* 1173–1179.

Part II
Treatment of Childhood Disorders and Problems

Chapter 2

Mental Retardation

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DESCRIPTION OF THE DISORDER

The diagnostic criteria and definition of mental retardation have met with much controversy over the past two decades. This has been the result, in large part, because of the varied professional groups involved in shaping the definition of mental retardation, the criteria used for the definition, and the diagnostic criteria of mental retardation. Two primary diagnostic systems that have set forth criteria for mental retardation include the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; APA, 1994) and *Mental Retardation: Definition, Classification, and Systems of Support* (AAMD, 1992). Both classification systems list below-average cognitive functioning as the fundamental feature of mental retardation. In addition, impairment in adaptive functioning in skill areas—such as communication, self-care, social skills, leisure and work, and personal safety (AAMD, 1992; APA, 1994)—is necessary to make the diagnosis. A third criteria is the onset of mental retardation before age 18.

Four degrees of mental retardation are used to designate severity of impairment in *DSM-IV* (*APA,* 1994). For each level, a corresponding IQ range is assigned. The *DSM- IV* lists *Mild* (IQ level of 50–55 to approximately 70), *Moderate* (IQ level of 35–40 to 50–55), *Severe* (20–25 to 35–40), and *Profound* (IQ level below 20 to 25) mental retardation. Mental Retardation, Severity Unspecified is also used in *DSM-IV* in cases where mental retardation is strongly suspected, but the administration of appropriate assessments has not yet been conducted.

These levels or degrees of mental retardation give some predictive value with regard to expected competencies and in planning for appropriate educational and habilitative services. The mild category describes the largest number of individuals with mental retardation. It is generally accepted that these persons are capable of achieving nearly full independence with appropriate instruction and support. Within the moderate range, it is expected that some level of supervision and assistance in the community will be necessary. Individuals functioning in the severe to profound range of mental retardation is generally require life-long care, though there may be mastery of some self-care, survival skills, and communication. It should be underscored that the achievements of individuals may vary considerably within all levels of mental retardation.

BEHAVIOR AND EMOTIONAL DISORDERS IN CHILDREN/ADOLESCENTS WITH MENTAL RETARDATION

An estimated 15% to 57% of children with mental retardation and other developmental disabilities exhibit behavioral or emotional disturbance (Beitchman, Nair, Clegg,

Ferguson, & Patel, 1986; Eaton & Menolascino, 1982; Gillberg, Persson, Grufman, & Themner, 1986). The presence of these behavioral and emotional problems can be one of the greatest obstacles to the normalization and education of those persons with developmental disabilities. Severe behavioral problems not only pose a significant risk to life, health, and property, but may disrupt or disable normal family function and interfere with participation in habilitative activities. The presence of behavioral problems in individuals with mental retardation and other developmental disabilities greatly influences the level of restrictiveness of educational placement (Singer & Irwin, 1987), and in later years, is associated with placement decisions and placement failures in living arrangements (Lakin, Hill, Hauber, Bruininks, & Heal, 1983; Vitello, Atthowe, & Cadwell, 1983).

For purposes of this chapter, behavioral and emotional problems refer to behavioral excesses, behavioral deficits, and atypical behaviors and emotional responses that significantly interfere with educational, therapeutic, and socialization opportunities, or that significantly interfere with normal family functioning. The following are descriptions of the most dangerous and commonly interfering behavioral and emotional problems in children and adolescents with mental retardation used in this chapter.

Aggression

Aggression has been widely defined as behavior that injures or irritates another person (Eron, 1987). Difficulty in operationalizing the concept of "intention to harm" typically results in a definition describing the child's actual overt behavior and includes hitting, kicking, biting, shoving, poking, pinching, and throwing objects. Aggression in individuals with mental retardation has been acknowledged as a maladaptive behavior that is likely to interfere with management and optimal functioning (Fovel, Lash, Barron, & Roberts, 1989; Gast & Wolery, 1987; Matson & Gorman-Smith, 1986).

Property Destruction

The destroying of property is an often-identified maladaptive behavior in individuals with mental retardation. Property destruction was identified in 24% of residents with mental retardation (Foveletal., 1989).

Self-Injury

Self-injurious behavior (SIB) refers to chronic, repetitive actions that have the potential to result in physical injury to the self. Examples of self-injury include self-striking, headbanging, self-scratching, self-biting, eyepoking, and rumination (Bauer, Shea, & Gaines, 1988). The severity of resulting injuries may range from bruising to retinal detachment, loss of conscious-ness, or in some cases, death. Potentially injurious responses, such as headbanging, have been observed in normally developing children under age 4 (e.g., Delissovoy, 1961; Kravitz & Boehm, 1971), but prospective descriptions of onset and the developmental course of self-injury have not been reported in the literature. The etiology of self-injury has generated hypotheses and findings to

support both environmental (e.g., Carr & Durand, 1985, Carr, Levin, McConnachie, Carlson, Kemp, & Smith, 1994) and biological (e.g., Cataldo & Harris, 1982; Sandman, 1988) influences.

Stereotypies/Self-Stimulatory Behavior

The primary feature of behaviors falling under this rubric is repetitive motor movements that appear nonpurposeful and nonfunctional. Typical topographies include hand flapping, hand and finger posturing, body rocking, eye gazing, and repetitive vocalizations. The *DSM-IV* classification for these behavior is Stereotypic Movement Disorder. For a diagnosis to be made, the stereotypical behaviors must significantly interfere with other activities of living. Like self-injury, many hypotheses have been proposed about the etiology of stereotypical behaviors. These involve a homeostatic viewpoint and a learned, operant view (see Guess & Carr, 1991). In the former, self-stimulatory behaviors are assumed to decrease or increase stimulation to a level of arousal of some optimally set homeostatic state. An operant explanation explains stereotypies as learned behaviors maintained by environmental contingencies.

Pica

Pica, the repeated ingestion of inedible or nonnutritive substances, is a behavior disorder more often seen in individuals with mental retardation. Although occasional pica behavior is considered developmentally normal in infants, it is deemed pathological when the behavior persists beyond the age of 12 to 18 months (Baltrop, 1966). Pica has been observed frequently in institutionalized children and adults with mental retardation. Prevalence estimates have ranged from 25.8% (Danford & Huber, 1982) to approximately 9% in a more recent survey (McAlpine & Singh, 1986). These rates, although quite disparate, are nonetheless alarming given the serious, even life-threatening, health and medical consequences of pica. The potential effects of pica in children are very serious. Pica has been associated with lead poisoning (Cataldo, Finney, Madden, & Russo, 1983), which may result in irreversible neurological impairment and in rare cases death. Intestinal blockage, intestinal perforation (Ausman, Ball, & Alexander, 1974), and intestinal parasites (Foxx & Martin, 1975) have all been associated with pica behavior. Most commonly ingested items included paper and cloth, cigarettes and cigarette butts, metal or plastic objects, plaster crumbs and paint chips, hair, and feces (McAlpine & Singh, 1986).

Oppositional/Noncompliant Behavior

Compliance refers to obedience to adult requests (Parpal & Maccoby, 1985), acceptance of adult requests in teaching situations (Rocissano, Slade, & Lynch, 1987), and cooperation of adult suggestions and requests (Schaffer & Crook, 1980). When children fail to follow most caregiver or teacher instructions and rules (given they are capable of hearing, comprehending and performing the tasks involved) they are said to be noncompliant. When such behavior interferes with the functioning of the child or family, it becomes a clinical concern and is the most common reason for referral of normally

developing children for mental health services (Forehand, 1977). In individuals with mental retardation and other developmental disorders, noncompliant and oppositional behaviors are common and often disruptive to habilitative services (Thompson, 1984; Walker, 1993). Noncompliant behaviors, in fact, have been noted to be one of the most frequently occurring referral concerns in clients with mental retardation with problem behaviors (e.g., Fidura, Lindsey, & Walker, 1987).

Attention Deficits/Hyperactivity

Attention deficit hyperactivity disorder (ADHD) afflicts 3% to 5% of school-age children (Barkley, 1990) and is characterized by behavioral symptoms that include hyperactivity, impulsivity, and inattention in normally developing children. Although prevalence of these symptoms associated with the psychiatric diagnosis of ADHD in children and adolescents with mental retardation is less clear, these behaviors are recognized as a significant problems in this population (Cullinan, Gadow, & Epstein, 1987).

Tantrums

Tantrums are outbursts of behavior as an expression of anger, irritability, or frustration. Behaviors commonly exhibited during temper tantrums include crying, whining, falling to the floor, thrashing, kicking, throwing things, aggression, and self-injurious behavior (e.g., Bunyan, 1987; Hart, Bax, & Jenkins, 1984; Lovaas, 1987). Temper tantrums vary in duration both between and within individuals and may occur anywhere from a few minutes to over a hour at a time (Bunyan, 1987). Tantrums are reportedly more common among children withphysical and developmental disabilities than in normally developing children (Bax, 1985; Beitchman, 1985); they are associated with recurrent illnesses in 2-year-olds, but not in older children who presumably have better communication skills (Hart et al., 1984).

Feeding/Mealtime Problems

Although feeding problems are commonplace in young children, there is a much higher incidence of chronic feeding and mealtime problems in children with mental retardation and other developmental disabilities (Palmer & Horn, 1978; Perske, Clifton, McClean, & Stein, 1977; Stimbert, Minor, & McCoy, 1977). Types of feeding problems most frequently described in the literature include food refusal, food selectivity, inadequate amount of food intake, inappropriate mealtime behaviors, and lack of adequate development in self-feeding skills (Berkowitz, Sherry, & Davis, 1971; Palmer & Horn, 1978; Palmer, Thompson, & Linscheid, 1977).

Elimination/Toileting Problems

Elimination and toileting problems in children and adolescents with mental retardation are quite common (Azrin & Foxx, 1971; Foxx & Azrin, 1973). *Enuresis* is the repeated urination in inappropriate places (in clothes, in the bed). Enuresis is usually specified as either primary and secondary. *Primary enuresis* is used when urinary continence has

never been obtained and *secondary enuresis* refers to incontinence after a period of continence. *Encopresis* is the defecation of feces in inappropriate places. Again, the qualification of primary and secondary is used to designated whether training had occurred in the past.

Sleep and Bedtime Problems

Sleep problems appear to be quite frequent in children with mental retardation. Indeed, the number of children with mental retardation reported to have sleep problems has ranged from 34% (Clements, Wing, & Dunn, 1986) to over 80% (Barlett, Rooney, & Spedding, 1985). In a more recent longitudinal study, Quine (1991) found some type of sleep problem in children with mental handicaps. Sleep problems identified have included difficulty in going to bed, difficulty in settling and falling asleep, and difficulty remaining asleep. These sleep problems may lead to the child's poor daytime performance (Quine, 1991). An association between the daytime behaviors of self-injury and aggression has been suggested in children with mental retardation (Clements et al., 1986)

It should be strongly emphasized that whereas problematic behaviors have been described separately, it is often the case that behavior problems co-occur in the same individual with mental retardation. Hence, assessment practices should be comprehensive in determining the presence of *all* problematic behaviors.

ASSESSMENT METHODS

Diagnosis of Mental Retardation

Overall intellectual or cognitive functioning is assessed by the administration of standardized intelligence tests. A few commonly used intelligence tests employed with mentally retarded children include the Wechsler Preschool and Primary Scale of Intelligence—Revised (Wechsler, 1989) and Wechsler Intelligence Scale for Children (3rd ed., Wechsler, 1991); the Stanford-Binet Intelligence Scale (Thorndike, Hagen, & Sattler, 1986), McCarthy Scales of Children's Abilities (McCarthy, 1972), and the Bayley Scales of Infant Development-Second Edition (2nd ed., Bayley, 1993). In conjunction with the administration of an individual cognitive measure, an adaptive behavior instrument is also necessary. These include such tools as the AAMR Adaptive Behavior Scales-Revised (Lambert, Leland, & Nihira, 1992) and the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984). Additional instruments are often administered in conducting a comprehensive battery in the assessment of children to formulate the diagnosis of mental retardation. Typically, these involve the use of measures of academic achievement and other supplemental instruments to determine other specific abilities and weaknesses. For complete discussions on the assessment practices in the diagnosis of mental retardation, refer to Salvia and Ysseldyke (1985), Sattler (1988), and Anastasi (1988).

Behavior/Emotional Problems in Children/Adolescents With Mental Retardation

The development of appropriate assessment tools and practices of behavioral and emotional problems in children and adolescents with mental retardation lags far behind those for their normally developing counterparts. Nonetheless, recent interest in the valid and reliable assessment of behavioral problems in persons with mental retardation has greatly advanced and improved current practices (see reviews by Aman, 1991; Singh, Sood, Sonenklar, & Ellis, 1991). The empirical assessment of specific behavior and emotional problems should accomplish the following: describe the extent of the behaviors, identify the dimensions of the problematic behaviors, delineate variables associated with maladaptive behavior responding, determine the function or motivation of the behaviors in the child's environment, and direct treatment choices. For purpose of discussion, assessment methods are categorized as: interviews, informant behavior rating tools, self-report instruments, and direct observation methods. Also, most current assessment strategies incorporate multimethods and multisources in evaluating childhood behavior and emotional disorders.

Behavioral Interview

An intake interview is an initial step of the assessment process. The purpose of this interview is to gather specific information concerning behavior problems exhibited and the behaviors that will be a focus of behavioral treatment. In addition to obtaining an operational definition of "target" behaviors, eliciting possible information about possible antecedents and consequences of the problematic behaviors serves to initiate hypothesis formulation about the environmental influences of the behaviors. This information is also helpful in suggesting additional behavioral assessment procedures that will be most sensitive in measuring identified behavior problems. Other commonly obtained information during a behavioral intake interview is the trend of the behavior problems, and previous remedial approaches that have been carried out.

Informant Behavior Rating Scales

To supplement an interview, parents, other caregivers, and educators are often asked to complete behavior rating scales. Until recently, no standardized, psychometrically sound measures were developed specifically for individuals with mental retardation. For children and adolescents within the mild range of mental retardation, the use of behavior rating scales developed for normally developing children has proven useful. Commonly employed instruments include the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991), The Preschool Behavior Questionnaire (Behar & Stringfield, 1974), and the Conners' Rating Scales (teacher and parent versions) (Conners, 1989). However, these measures may be inappropriate and insensitive in the assessment of children and adolescents with more severe levels of mental retardation. A recent adaption of the CBCL is the Developmental Behavior Checklist (DBC; Einfeld & Tonge, 1989). Similar in format to the CBCL, the DBC includes items more specific to those children with mental retardation and other disabilities. The six subscales on this measure are labeled disruptive, self-absorbed, language deviance, anxiety, autistic relating, and antisocial.

One of the first psychometrically sound instruments developed solely for persons with mental retardation is the Aberrant Behavior Checklist (ABC; Aman & Singh, 1986). The five subscales on this measure are: irritability/agitation/crying; lethargy/social withdrawal; stereotypic behavior; hyperactivity/noncompliance; and inappropriate speech. The *Behavior Problem Inventory* (Rojahn, 1989) is another rating scale developed for use with individuals with mental retardation. It is narrow in scope in that it assesses only self-injurious behaviors, aggression, and stereotypical behaviors, but has specific utility in determining topographies and frequency of these behaviors. Moreover, the majority of the adaptive behavior instruments mentioned previously have a subdomain devoted to problematic or maladaptive behaviors that interfere with other areas of functioning. Although these rating tools may be helpful in initially determining problematic behaviors that warrant treatment, and may be sensitive to treatment change, they are not useful in hypothesizing the function of maladaptive behaviors in the child's repertoire.

Self-Report Instruments

Again, for those children and adolescents falling into the mild range of mental retardation, commonly used self-report instruments may be employed as part of multisource, multimethod assessment. Administration of self-informant tools such as the Child Depression Inventory (Kovacs, 1981), Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978), and SelfReport Depression Questionnaire (Reynolds, 1989) have all been used with children and adolescents with mental retardation and may have value in the assessment process where an affective or anxiety disorder is suspected. The Psychopathology Instrument for Mentally Retarded Adolescents (Matson, 1988) has a self-report version appropriate for use with adolescents with mild and possibly moderate mental retardation. These self-report measures may supplement other assessments by providing insight to the individuals' internal states and perceptions about their problems.

Direct Observation

Direct behavioral observation has been the hallmark of behavioral assessment of disorders in childhood and in mental retardation. Behavioral observations may be classified as *naturalistic* and *analogue.* Naturalistic observations are those conducted in the child's environment. Analogue observations are those carried via simulations of some real-life situation. Common examples of naturalistic observations include observing a child in a the classroom or on a playground. Although these observations may provide valuable descriptive information regarding a child's problematic behavior, a functional analysis of the child's behavior may be conducted by evaluating behavioral antecedents and consequences.

The goal of a functional analysis is to identify environmental variables and stimuli that may be maintaining or controlling certain behavioral problems. Whereas applied behavior analysis has long adhered to the identification of antecedents and consequences of behavior (Baer, Wolf, & Risley, 1968), the technology of functional analysis has been greatly enhanced in recent years (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Iwata, Vollmer, & Zarcone, 1990; Touchette, McDonald, & Langer, 1985). The essence of functional assessment observations is the systematic manipulation of variables in an

analogue setting in order to develop hypotheses regarding the function of the behavior problem for that particular child or adolescent. The following are commonly used assessment conditions and procedures.

Social Attention. Following Iwata et al. (1982), this condition is designed to approximate a type of reinforcement contingency that may maintain an aberrant behavior. In the natural environment, many of the target behaviors already discussed usually attract much attention from caregivers, teachers, and peers. Verbal attention and expressions of pain and discomfort on the part of the parent may inadvertently maintain the behavior as a form of positive reinforcement.

Demand. This session is designed to assess whether any of the target behaviors are maintained by negative reinforcement as a result of being allowed to escape or avoid demand situations (Iwata et al., 1982). Typically, in this condition, appropriate demands or requests are issued; the child is allowed to escape these contingent on the target behavior(s) of interest.

Toy Play. This session serves as a control procedure for the presence of the parent, availability of potentially stimulating materials, absence of demands, delivery of social approval for appropriate behavior, and lack of attention to target behaviors (Iwata et al., 1982).

Alone. This analogue condition serves to assess whether a behavior is maintained by automatic reinforcement (Iwata et al., 1982). In these sessions, the child is left in a room without stimulation/activities and receives no attention. Numerous variations of these procedures have been described in the literature. Despite the promise of conducting functional analogue observations, there are shortcomings and risks involved. Obvious disadvantages involve the time commitment and needed manpower. Moreover, there is the risk of introducing a new contingency for the function of that behavior (Iwata et al., 1990). Finally, these procedures may lack sensitivity for behaviors that are being maintained by multiple, complex variables (Iwata et al., 1990). For these reasons, applying functional analysis principles in conducting naturalistic observations may be desirable. For example, in addition to simply recording the frequency and topography of aggressive behaviors, the recording of antecedent and consequent events may reveal patterns over time in order to develop hypotheses regarding the function a particular behavior. An example of an Antecedent-Behavior-Consequence Data Form used to record information about target behaviors is provided in Fig. 2.1.

More naturalistic analogue observations might also be conducted, such as observing parent-child interactions during free play, during clean-up, and mealtime, in a clinical setting. This type of observation allows for "controlled" but more naturalistic observations. Other types of analogue observations have included those with baited items to systematically assess a target behavior such as pica, fireplay, and other types of inappropriate and dangerous play. In these observations, stimuli or bait is placed in a room to assess the function of these behaviors, but in a safe environment.

TREATMENT/TRAINING PROCEDURES

Treatment approaches for behavior and emotional problems in children and adolescents have been derived primarily from the field of applied behavior analysis. An overview of

applied behavior analysis is presented followed by specific treatment and training procedures. To avoid redundancy, general procedures are discussed, and their use with specific problem behaviors will be highlighted. It should be underscored here that it is often the case that treatment is usually composed of several different components and procedures. Finally, use of each procedure with specific target problems is examined with special attention directed to issues related to that problem.

Name_____

Date_____

Frequency Data Sheet

	Behavior	Behavior	Behavior	Behavior	Behavior	Staff Initials
Time						
Time						
Time						
Time						

Target Behavior Definitions

1._____- _____

2._____- _____

3._____- _____

Record with the following

Mark a "1" for each occurrence of the behavior

FIG.2.1. An antecedent-behavior-consequence data form.

Applied Behavior Analysis

As discussed previously, assessment and treatment of behavior problems in children and adolescents with mental retardation have relied heavily on procedures developed from applied behavior analysis. The last 25 years have brought a burgeoning of evaluative efforts to better refine behavioral treatments (Favell & Reid, 1988). Recently, there have been many promising developments in the innovative behavioral treatments for behavior problems in children and adolescents with mental retardation. These approaches are alternatives or adjuncts to an earlier reliance on consequence management strategies which often involved the use of mild punish-ments and the contingent presentation of aversive stimuli. Although it is not the intention to provide an in-depth discussion here of the controversy surrounding the use of aversives and punishment procedures with the developmentally disabled (for representative reviews, see Evans & Meyer, 1985; Horneretal, 1990; Lavigna & Donnellan, 1986; Matson & Taras, 1989; Mulick, 1990), there is a strong movement toward the use of other, alternative approaches to promote behavior change.

The least intrusive methods along with alternative approaches that are typically multicomponent strategies are reviewed first. Closely tied to the development of many of these alternative treatments has been the enhanced behavioral assessment methods that now include the functional analysis procedures described earlier. Interventions may be developed that are based on hypotheses derived from the functional analysis. The use of punishment procedures is then addressed.

Selecting Reinforcers

Key to the effective use of reinforcement is an assessment of reinforcers for a particular individual. A common manner in conducting an assessment of reinforcers is to either question the children or adolescents and their caregivers about preferred items or activities. The completion of a reinforcer inventory is also a customary approach. More sophisticated approaches to reinforcement assessment have been described in Mason, McGee, Farmer-Dougan, and Risley (1989) and Pace, Ivancic, Edwards, Iwata, and Page (1985). These have involved the systematic presentation of numerous stimuli (potential reinforcers) and the assessment of the individual's response (i.e., approach or avoidance). A stimuli is labeled a potential reinforcer if the children or adolescents consistently approach it. At an even finer level of selecting reinforcers, the contingent presentation of various stimuli after an already occurring behavior in the children or adolescents is conducted. For example, the comparative reinforcing value of bubbles versus a rattle may be made by determining which of two behaviors (a wave vs. a smile) increases after the potential reinforcers are introduced contingent on chosen target behaviors.

Use of Positive Reinforcement

Based on the assumption of accurate reinforcement choices, the rate of presenting reinforcement contingent on a behavior to be increased should be based on current rate of the behavior. In treating behavior problems, it may be the case that a continuous reinforcement schedule is initially used. For example, the child is reinforced for every

worksheet completed. When compliance is consistently obtained, the schedule is faded slowly and systematically so that maybe every 3 to 5 worksheets are completed before reinforcement is provided. Whereas the final goal is to provide a reinforcement schedule consistent with the child's natural environment, straining the reinforcement schedule too quickly is likely to result in the lack of behavioral maintenance. Use of an array of reinforcers has also been suggested (Charlop, Kurtz, & Casey, 1990; Dyer, 1987).

Contingency Management Systems

Reinforcement systems, often referred to as *token economies,* contingency *management systems,* and *point systems,* have been successfully implemented to improve various types of behaviors with children and adolescents in numerous settings (Kistner, Hammer, D.Wolfe, Rothblum, & Drabman, 1982; V.V.Wolfe, Boyd, & D.A.Wolfe, 1983). The mainstay of the these motivational systems is the delivery of tokens, points, or "stars" contingent on discrete, observable behavior. Accumulated tokens or points may be "cashed in" at a later time for tangible reinforcers or privileges. Loss of points, a response cost, is commonly included in the program for which points are removed contingent on specific, problematic behaviors (e.g., aggression). The point ratio should be set to maximize learning of contingencies operating and to ensure some success soon after implementation. For younger children, use of "stars" or stickers in lieu of points or tokens is the norm. For children of lower developmental levels, more frequent "cash in"times may be necessary. Since the earlier reports, design and implementation of token economies (e.g., point systems, star cards) have been widely instituted in schools and homes for the treatment of problematic behaviors in normally developing children, and children and adolescents with mental retardation. An example of a simple "star card" that is appropriate for use with children with mental retardation is provided in Fig. 2.2. The rate of the delivery of stars may be varied (e.g., every 3–5 minutes) and more boxes may be added to the card before the child earns the back-up reinforcer.

Differential Reinforcement Schedules

Differential reinforcement of other behaviors (DRO) is the less intrusive reductive method that has proven to be effective in decreasing maladaptive behaviors that include aggression and self-injury (Frankel, Moss, Schofield, & Simmons, 1976; Wong, Floyd, Innocent, & Woolsey, 1991), disruptive classroom behavior (Deitz, 1977), and inattentive behavior (Luiselli, Colozzi, & OToole, 1980). Variations of this procedure have also been successful, such as differential reinforcement of incompatible behaviors (DRI) and differential reinforcement of low rates (DRL). To illustrate, a DRI schedule was used to treat pica where the incompatible behavior was gum chewing (Donnelly & Olczak, 1990).

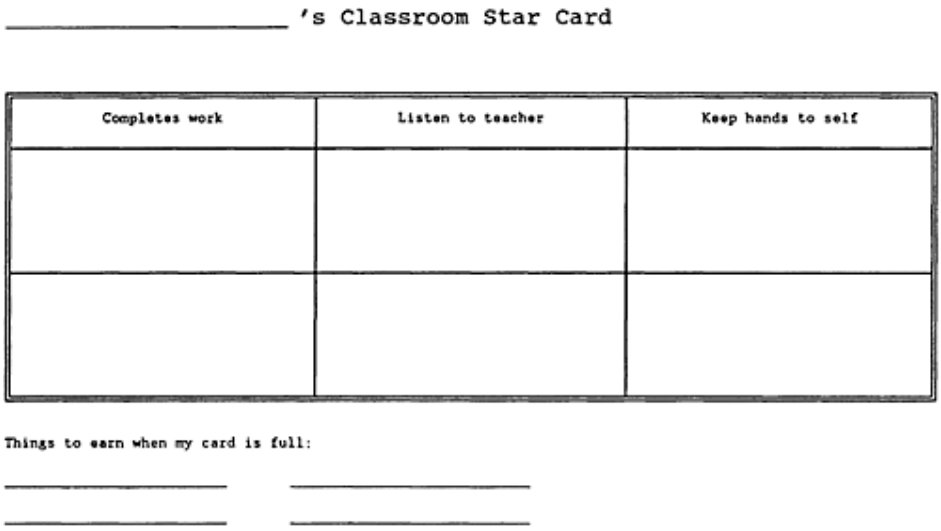

FIG. 2.2. A star card.

Differential reinforcement schedules may be *whole interval,* or *momentary.* Whole interval DRO refers to the delivery reinforcement for the occurrence of "other" behaviors for the full duration of the time interval (e.g., 2 minutes). If delivery of reinforcement is provided when an "other" behavior (and not the target behavior) is occurring at the end of the time interval (e.g., at the second minute), this is referred to as momentary DRO (Sulzer-Azaroff & Mayer, 1991). Although Repp, Barton, and Brulle (1983) demonstrated the superior effect of whole interval differential reinforcement, this may be difficult to implement consistently on an inpatient unit. Of interest is that momentary differential reinforcement has been shown to be more effective if preceded by a whole interval approach (Barton, Brulle, & Repp, 1986). Hence, it may be advisable to first consider a whole interval approach but quickly revise to a momentary approach once acceptable decreases in the target behavior have been observed. Another consideration in using differential reinforcement is the rate or schedule that reinforcers will be delivered. This rate should be individualized and based on the frequency of appropriate and inappropriate behaviors observed during baseline with an initial, obtainable goal set. Examples of "other" or "incompatible" behaviors should be made explicit so that appropriate behaviors are reinforced. A timer is often used to implement a DRO schedule. As progress is made, reinforcement should be systematically faded to more closely approximate the schedule that will realistically be applied in the child's natural environment.

Extinction

Extinction refers to the withholding of reinforcement of a behavior that has previously been reinforced. The effectiveness of extinction in reducing or eliminating a problematic behavior is clearlydocumented (Brown & Elliot, 1965; Rincover, 1978; Williams, 1959;

M.M.Wolf, Risely, & Meese, 1964). Extinction is rarely used in isolation and is most commonly implemented in conjunction with a differential reinforcement schedule. These methods taken together are often referred to as *systematic attention/planned ignoring.* Behaviors to be placed on extinction should be those that are nonharmful to others, can be consistently ignored, and where there is strong evidence from assessment results that the behavior is motivated and has been maintained by attention. Those responsible in the implementation should be reminded of the likelihood of an extinction "burst" before the target behavior decreases. Parents, educators, and other paraprofessionals commonly interpret the use of extinction as "not doing anything," and consequently a continued emphasis that extinction is a legitimate behavioral treatment for some target behaviors may be necessary. If extinction does not result in reduction in the target behavior, the therapist responsible for the development of behavioral treatment should closely observe the implementation to ensure that inadvertent attention is not being given to the child in response to the behavior.

Response Interruption/Blocking

This procedure precludes the maladaptive behavior response from occurring or interrupts the behavior when it begins to occur. The interruption or blocking may entail a physical block of another person (standing in front of a peer to block aggression), physical shadowing the person's arms and hands (e.g., interrupt hand biting, hairpulling), or using some other device to block the response (e.g., use of a foam pad to block headbanging against a hard surface). Response interruption or blocking should be considered when it is inappropriate to place a behavior on extinction but the behavior does not warrant treatment with more intrusive procedures.

Antecedent Management Strategies

Antecedent management strategies refer to approaches that alter the environment either by modifying it or by adding antecedents that decrease the probability that the behavior problem will occur (Horner et al., 1990). Antecedent strategies that have resulted in decreased behavior problems have included such manipulations as providing more preferred toys in the child's environment (Madden, Russo, & Cataldo, 1980); teaching children to play with toys (Santarcangelo, Dyer, & Luce, 1987); changes to a daily, routine schedule (Brown, 1991); allowing children to have a choice in both task and reinforcer selection; varying presentation of tasks and requests (Dyer, Dunlap, Winterling, 1990; Horner, Day, Sprague, O'Brien, & Heathfield, 1991; Winterling, Dunlap, & O'Neill, 1987); and redesigning the physical environment (Duker & Rasing, 1989). Another interesting antecedent approach is the use of physical exercise. Several single case studies have demonstrated a decrease in maladaptive behaviors in response to participation in an aerobic exercise program (Baumeister & MacLean, 1984; Kern, Koegel, Dyer, Blew, & Fenton, 1982; McGimsey & Favell, 1988). Although the specific exercise programs and the target subjects have varied, treated behaviors included stereotypies, self-injury, aggression, and negative vocalization. Similarly, participation in relaxation training has been successful in decreasing problematic behaviors in individuals with mental retardation (Calamari, Geist, & Shahbazian, 1987; McPhail & Chamove,

1989). A useful resource for conducting relaxation training with children and adolescent with mental retardation is provided by Cautela and Groden (1978).

This area is quite promising, although to date, strategies falling into this category have included small numbers with less severe behaviors than are likely to be seen in treating many children and adolescents with mental retardation. Whereas a first step in approaching all maladaptive problems should include considering altering antecedents that might at least add to the likelihood of the occurrence of the behavior, this will probably be in conjunction with other treatments. To summarize, antecedent considerations should include level of stimulation (overstimulation and understimulation may contribute to problem behaviors), physiological status (hunger, fatigue, physical illness), structural and environmental factors, introduction of choice in the routine, and adherence to daily routine.

Functional Equivalence Training

The premise of treatments that fall under this domain is the functional replacement of the aberrant behavior with a socially appropriate behavior. In other words, the goal of treatment is to teach an alternative, more adaptive behavior that will serve the same function for the individual. The most common use of this approach has been the teaching of a communicative behavior (verbal or manual sign) to request a preferred activity, to end an activity, or to obtain assistance or attention (Carr& Durand, 1985; Durand& Carr, 1991; Horner, Sprague, O'Brien, & Heathfield, 1990). The teaching of a replacement behavior is thought to be effective because this alternative behavior is less effortful and more efficient in achieving the same goal (Horner & Day, 1991). This approach has been successful in the treatment of aggression, self-injury, and destructive behaviors. Steps in using treatment based on this paradigm are outlined here:

1. Following a functional assessment and a determination of the function of the problem behavior, a replacement behavior is chosen.
2. On the premise that the behavior serves to escape a demand, a replacement behavior may be teaching the child or adolescent to sign “finish.” If the behavior is determined to be used to gain the attention of a preferred teacher’s aide, teaching the child to say “help please” would be an appropriate replacement behavior.
3. The training of these replacement behaviors may initially take place out of the setting where the problem behavior is likely to occur.
4. Once the children or adolescents have in their repertoire the chosen replacement behavior, it will be exhibited in the target setting by either prompting the children to use it while placing the maladaptive behavior on extinction or blocking the maladaptive behavior.
5. When the children are consistently using the replacement behavior in lieu of the maladaptive behavior, the addition of requests (in the case of a demand situation), or increasing delay for a response (in the case of receiving assistance), these should systematically be added with reinforcement for the absence of the maladaptive behavior and/or compliance with the demand. (For a more thorough discussion of treatment options and procedures using these interventions, see Carr et al., 1994.)

Discrimination/Rule Training

The premise of discrimination training in treating problem behaviors is that an inappropriate behavioral response is occurring in the presence of a particular set of stimuli. Variations of discrimination training have been used in the treatment of pica, firesetting, and other dangerous behaviors, whereby different discriminations are taught (i.e., what stimuli to touch and not to touch, what stimuli to put in the mouth and not put in the mouth) and then an appropriate behavior response is reinforced. Specific examples are discussed in the individual behaviors section later in the chapter.

PUNISHMENT PROCEDURES

Timeout

A commonly employed behavioral intervention is timeout from positive reinforcement. This mild punishment procedure has been successfully used to reduce an array of behaviors from mild to extremely severe behavior problems (Bostow & Bailey, 1969; Mace, Page, Ivancic, & O'Brien, 1986), despite ongoing controversy over its use (Foxx & Shapiro, 1978). There are several variations of timeout that have been carried out, ranging from the least restrictive (nonexclusionary timeout) to more restrictive (exclusionary) to the most restrictive (seclusionary timeout). Nonexclusionary timeout refers to moving children away from a group or situation, although they remain in view of the group or activity (Porterfield, Herbert-Jackson, & Risely, 1976). A variation of this form of time out was used by Foxx and Shapiro (1978). In their investigation, children with ribbons in a classroom received edible reinforcers. Contingent on misbehavior, a child's ribbon was removed and the delivery of reinforcement was withheld. This nonexclusionary timeout procedure drastically reduced classroom behavior problems. Variations of this procedure include "time in" bows, baseball hats, and special "jewelry" to apply the same principles.

Use of exclusionary time out includes removal of the child to an area, such as a timeout room (Wilson, Robertson, Herlong, & Haynes, 1979; M.M.Wolf, Risely, Johnson, Harris, & Allen, 1967) or a corner (Olson & Roberts, 1987), away from the group. However, caution should be used when deciding on such a treatment procedure. A functional analysis of the behavior should have demonstrated that the child's behavior is not motivated by escape (i.e., the desire to get out of the situation or demand). Otherwise, timeout could be reinforcing and therefore increase the behavior it is intended to decrease. Parameters in the use of a seclusionary timeout should be clearly delineated to prevent it being abused. Operational definitions of the behavioral response(s) for use of seclusionary timeout and length of time secluded should be clearly specified.

Restitution Overcorrection

This punishment technique has been extensively used to suppress numerous maladaptive behaviors, including pica (Foxx & Martin, 1975; Singh & Bakker, 1984), aggression, and disruption (Ollendick & Matson, 1978). Contingent on the target behavior, the individual is required to "overcorrect" the effects of the behavior and also may include the practice of an appropriate behavior. In developing an overcorrection procedure for a particular

behavior, Foxx (1982) advised that it must be related to the target behavior. Moreover, it needs to be implemented swiftly. A fuller account of the use of overcorrection is provided by Azrin and Besalel (1980).

As with all other behavioral procedures, overcorrection procedural steps should be clearly delineated in a behavioral protocol. In training parents and staff, modeling of the overcorrection procedure is essential in ensuring the integrity of the procedure. It should be remembered that rarely should overcorrection be used in isolation. If overcorrection is necessary for behavioral change, reinforcement procedures to strengthen other behaviors should be implemented simultaneously.

Positive Practice Overcorrection

In implementing this intervention procedure, the child or adolescent is required to engage in a behavior, often repeatedly, which is incompatible with the target behavior. Positive reinforcement is provided for compliance to complete the steps of the positive practice procedure.

Negative Practice

In this less-often-used reductive behavior procedure, the child or adolescent is instructed to engage repeatedly in the identified maladaptive behavior. Obviously, the behavior to be repeated should not be dangerous in any way.

Contingent Exercise

Similar to overcorrection, contingent exercise is a mild punishment procedure in which the patient is asked to perform a specified physically effortful exercise contingent on occurrence of the target behavior. This procedure has been effective in reducing verbal and aggressive behaviors in children diagnosed as seriously emotionally disturbed (Luce, Delquadri, & Hall, 1980).

Behavioral Physical Restraint

As evident from the name, this procedure involves the brief restraint or immobilization of a patient's limbs (e.g., hands held to the side or on flat surface) or body for a prespecified time period contingent on the occurrence of the target behavior. Use of a physical restraint procedure has been effective in decreasing pica (Bucher, Reykdal, & Albin, 1976), tantrums (Swerissen & Carruthers, 1987), and self-injury (Favell, McGimsey, & Jones, 1978).

Use of Aversive Stimuli

The contingent presentation of an aversive stimulus as a punisher of a specified behavior as a treatment has raised many ethical and humanitarian issues, particularly in children and individuals with developmental disabilities (see LaVigna & Donnellan, 1986; Matson & DiLorenzo, 1984; Matson & Taras, 1989). Nonetheless, empirical data show that such

approaches may be effective in reducing or suppressing severe behavior problems. Some aversive stimuli that have been applied contingently include water mist (Dorsey, Iwata, Ong, & McSween, 1980), aromatic ammonia (Baumeister & Baumeister, 1978; Rojahn, McGonigle, Curcio, & Dixon, 1987), lemon juice (Sajwaj, Libet, & Agras, 1974), and contingent electrical shock (Foxx, McMorrow, Bittle, & Bechtel, 1986; Linscheid, Iwata, Ricketts, Williams, & Griffin, 1990). Subjects in these studies were either mentally retarded or psychotic (Tate & Baroff, 1966) and evinced severe behavior problems. It is not the intention of this chapter to promote in any way the use of aversive stimuli. However, given the equivocal view among experts in the field, the use of these procedures deserves mention.

Despite the fact that aversive treatment is never a first choice or used in isolation, its use may be appropriate in certain situations and under certain conditions. These include: documentation that the maladaptive behavior is a serious threat to others or the child; minimal effect of other treatments that have been consistently tried; the behavior precludes the child from participating in activities essential for development; and the child is being managed only by the use of either chemical or physical restraint (see Foxx, Plaska, & Bittle, 1986; Martin, 1975). The chapter strongly advocates the recommendation by Lovaas and Favell (1987) that such techniques be implemented only under the supervision of a trained and experienced professional in the use of aversives. Similarly, procedural safeguards (see Matson & Kazdin, 1981) should be closely adhered to, and informed consent should be obtained.

OTHER TREATMENT APPROACHES TO BE CONSIDERED

Self-Control/Self-Regulation/Self-Management Training

Procedures falling under this category share behavioral components but are unique in the focus on more reliance on internal control versus external controls. These procedures assume some level of self-awareness and ability to self-observe. *Self-control techniques,* as described for children, typically incorporate any or all of the following components: self-monitoring, self-instruction training, cognitive modeling, role playing, self-evaluation, and self-reinforcement (Kendall, 1984; Meichenbaum & Goodman, 1971).

Self-monitoring simply refers to the monitoring of one's own behavior. Despite the reactive nature of self-monitoring, this strategy should be considered as an option when children or adolescents with mental retardation have the ability to observe their own behavior and have a means of communication to record this.

The impetus and rationale for *self-instructional training* evolved from the work of Luria (1961), who proposed three stages by which behavior comes under the control of covert speech. Briefly stated, this theory asserts a developmental sequence by which behavior is initially governed by the speech of others; however, after employing overt speech as a behavior regulator, covert speech assumes a self-control function. Hence, the assumption is that children and adolescents with mental retardation and who present with such behaviors as aggression, overactivity, and distractibility, may lack verbal mediation skills or use verbal mediation in an ineffective manner. The goal of self-instructional

training is thus to either teach verbal mediation skills or to remediate faulty existing covert speech. The typical sequential steps for the self-instructional procedure include the following: therapist models task performance while talking out loud—Cognitive Modeling; child performs the task while instructing himself out loud—Overt Self-Guidance; therapist models task performance while whispering to himself—Faded Overt Modeling; child performs the task while whispering to himself—Faded Overt Self-Guidance; therapist performs the task using covert self-instruction with pauses and behavioral gestures of thinking (e.g., stroking chin, raising eyes toward ceiling)—Covert Modeling; the child performs the task using covert self-instruction—Covert Self-Instruction (Kendall & Finch, 1978; Meichenbaum & Goodman, 1971). The specific content of the self-instruction typically includes a problem identification statement, a problem approach statement, a statement to focus attention, and a self-evaluation and reinforcement statement when applicable (Kendall & Braswell, 1982; Kendall & Finch, 1978).

Burgio, Whitman, and Johnson (1980) successfully used this type of sequence to increase on-task behavior in five children with mental retardation. In training the use of self-instruction steps, social reinforcement was issued contingent on correct responding. An added component of the training provided in this study was the use of a "distraction-inoculator" procedure whereby extraneous stimuli where introduced, and the subjects were trained to ignore distractions by making self-statements. Again, necessary prerequisite skills must be assessed in individual children before embarking on this type of treatment approach.

Special Treatment Considerations for Behavior Problems

Aggression/Propcrty *Destruction.* The severity and intensity of aggression and property destruction must be taken into consideration when developing treatment. For aggression or property destruction that is only mild and exhibited by a younger, smaller child, a very different approach might be taken than when treating aggression in large adolescents with a long-standing history of intense aggressive behaviors. In both cases, a functional assessment should be conducted before making treatment decisions.

Self-Injury. As with aggression and property destruction, the approach with self-injurious behaviors is dependent on several variables, including the intensity, the potential for damage or injury, the different topographies of the self-injurious, and, of course, the assessment function of the behavior(s). As mentioned earlier, the training of a communicative response to replace the self-injurious behavior has resulted in impressive decreases in this maladaptive behavior. When the self-injury is determined to be maintained by negative reinforcement (used to escape or avoid a task or situation), the training of a replacement behavior may be saying "I done," or manual signing "finish." Choice of the replacement behavior should be made based on the child's cognitive and language skills. Similarly, if the self-injury is being maintained by social attention, teaching the child to gain attention by another means would be an effective treatment choice. Again, this could be to verbalize a brief statement, use of a manual sign, or shaking a bell. Allowing a child to escape a particular situation or gain attention immediately may not be accepted by parents and other caregivers. Hence, it should be explained that once decreases in self-injury are consistently noted, either demands will be

added before escape is allowed, or there will be a delay in time before attention is delivered. The use of functional communication training is likely to be most effective when a component of other treatment approaches. This could include a differential reinforcement for incompatible behavior (i.e., reinforcing using the hands to complete a prevocational task in lieu of hand-biting). When self-injury remains severe despite the use of alternative approaches, employment of a punishment procedure is a consideration. This may involve the use of a brief hand restraint contingent on engaging in hand-biting.

A special consideration in the treatment of self-injury is the use of protective devices such as helmets, arm splints, and protective gloves. Although protective equipment may be indicated in some cases of children with self-injury, extreme caution is warranted in their use for several reasons. First, in some cases where protective equipment prevents one self-injurious response, the result is that the child engages in another more serious or difficult to treat behavior. Second, the child may become dependent on the device in the absence of learning an alternative behavior. Finally, the wearing of protective equipment is stigmatizing. For the therapist treating a child with severe, long-standing self-injurious behavior, eliciting consultation from a colleague with expertise in this area is strongly advised.

Stereotypical/Self-Stimulatory Behavior. The decision to treat stereotypical behavior should be carefully deliberated. When the decision is made to treat stereotypes due to their disruptive nature, a functional assessment of possible environmental contingencies contributing to the behaviors is needed. As discussed earlier, it highly probable that the behavior is motivated by internal variables. Hence, typical treatment approaches may be antecedent approaches (maintaining certain level of stimulation) while choosing other appropriate functionally derived treatments if the self-stimulatory behaviors are also maintained by other factors (such as social attention).

Pica. Treatment choices should be made after assessing the function of pica behavior. Once medical causes have been ruled out, and hunger is not a factor, a first line of intervention is the antecedent management strategy of ensuring the appropriate level of stimulation (Madden et al., 1980). A differential reinforcement schedule for the absence of pica behavior should also be an initial treatment consideration. If in fact, the child or adolescent appears not to discriminate food items from those that are inedible, some form of discrimination training is required. In children and adolescents with mild mental retardation, this may simply be conducting teaching trials of what you do not put in your mouth. When the children respond correctly, they should be reinforced. For lower functioning children, the teaching of a different discrimination rule may be warranted. (e.g., teaching them to eat only from a certain place). A detailed illustration of this type of training is provided later in Case Illustration 2.

Oppositional/Noncompliant Behavior. Methods for increasing compliance include reinforcing compliance, issuing the request a second time with an additional prompt for noncompliance after the first request, and then imposing a consequence if the child fails to comply (Forehand & McMahon, 1981; Parrish, Cataldo, Kolko, Neef, & Egel, 1986). The consequence for noncompliance could be a timeout procedure or the use of physical prompting to gain compliance. This sequence of steps is often collectively referred to as *compliance training.* Interspersing commands or requests that are likely to be followed with those less likely to be followed has also been demonstrated to increase the overall rate of compliance. In combination, the use of a contingency management system whereby specific daily tasks and chores are reinforced for their completion may be implemented.

Attention Deficits/Hyperactivity. Children and adolescents who meet criteria for Attention Deficit Hyperactivity Disorder (APA, 1994) present with a number of behavioral features that may be the focus of nonpharmacological treatment. Typically contingency management systems (token economies, point systems) have been utilized to reinforce on-task behaviors, work completion, and work accuracy. These reinforcement systems may also target other behavioral problems in children with attention problems and high activity level, including noncompliance and aggression. Measures to decrease extraneous stimuli that might be distracting should be an antecedent approach to be considered. Similarly, use of a structured, consistent routine is a common strategy with ADHD symptoms.

Tantrums. The constellation of tantrum behaviors are most often treated with a combination of a differential reinforcement schedule of other, appropriate behaviors and extinction of the tantrum itself. In prescribing the use of extinction or "planned ignoring," as part of a treatment strategy to decrease the frequency and duration of tantrums, those adults responsible for implementing treatment should be well apprised of the likelihood of the "extinction burst." Another approach has been to use negative practice, in which the child is instructed to engage in tantrumming behaviors at scheduled times (citations).

Feeding/Mealtime Problems. The employment of an array of behavior procedures have been successfully employed to treat mild to severe feeding and mealtime problems. Most treatments have again involved multiple elements with the use of positive reinforcement of some target eating response. For food refusal and food selectivity, the reinforcement of the acceptance of food in general or of select food types or textures is a typical starting point in treatment. Specifically, reinforcement is contingent on the acceptance and swallowing of the target food item. This may be in combination with the extinction of disruptive mealtime behavior. For children whose food intake is inadequate, the reinforcement of a specific amount of food is appropriate. This "clean plate" contingency may be devised whereby the child receives reinforcement initially for eating all food on a plate with only small portions. The amount of food may gradually be increased until an appropriate meal is consumed before the delivery of reinforcement. Punishment procedures, such as overcorrection, may be a consequence of inappropriate mealtime behaviors (i.e., throwing food, throwing utensils) whereby the child is made to correct the environment.

Elimination/Toileting Problems. Common first line strategies for addressing toileting problems have been the implementation of a consistent toileting schedule (e.g., every 30 minutes) along with the use of positive reinforcement for successful voids and bowel movements. A simple restitution or overcorrection procedure may also be used. This typically involves having the child participate in all or a portion of the cleaning following an enuretic or encopretic incident. When these interventions are unsuccessful, and for individuals that are more resistent to the common steps in toilet training, Foxx and Azrin (1973) described intensive bladder and toilet training procedures. These procedures involve the following training sequence: giving as much liquid as the child or adolescent will take, having the child sit on the toilet soon after the liquid intake, having the child sit on the toilet for an extended period of time, conducting dry pants checks every 5 minutes with reinforcement delivered for dry pants, and delivering reinforcement for both staying dry in between toileting and for successful voids and bowel movements. Use of overcorrection for accidents might also be added to treatment. Depending on the age and

skills of the child, this might involve placing responsibility for cleaning up, washing out soiled clothes, and other aspects of cleaning with the child.

Sleep and Bedtime Problems. Despite the wide acknowledgment that sleep problems are quite common in children with mental retardation, few intervention studies have been conducted. For bedtime problems, general treatment recommendations include: establishing consistent bedtime routine, using reinforcement for appropriate behavior, and systematically using extinction for behavior problems (e.g., tantrums, crying). A "graduated" extinction procedure has been successfully used to treat bedtime tantrums (Adams & Rickert, 1989). In this adapted use of extinction, the parent enters the bedroom of the child to ensure the child's safety on a regular schedule (e.g., every 10 minutes) and interacts with the child minimally. Hence, the adult's attention is not contingent on the child's behavior but on the time interval. An innovative approach used on four children with profound mental retardation and severe sleep problems (e.g., delay sleep onset, night waking, early morning waking, and disruptive bedtime behaviors) involved: setting a bedtime based on information about when the children fell asleep, and removing the children from the bed for 1 hour if they had not fallen asleep within 15 minutes (Piazza & Fisher, 1991). If the children fell asleep, their bedtime was made 30 minutes earlier the next night. Conversely, the child was put to bed 30 minutes later if sleep onset did not occur within the 15 minute time period.

MAINTENANCE AND GENERALIZATION STRATEGIES

The issues of maintenance and generalization of behavioral change to different settings have proven problematic in individuals with mental retardation. Because of the failure for change to generalize beyond the treatment setting, and with the specific change agent in that setting, maintenance in real-world settings may be jeopardized. Whereas clinical researchers initially directed minimal attention to the problem of maintenance, the essential need in programming for the maintenance and generalization is well accepted. Specific strategies to promote maintenance and generalization have been suggested. These include systematic fading of reinforcement to a schedule that is more likely to be maintained, use of reinforcers readily available in the child environment, utilization of multiple trainers in the implementation of treatment procedures, training in multiple settings in which treatment is implemented, use of a functional equivalence approach whenever possible, and employment of self-control or self-management procedures to decrease reliance on external control whenever appropriate.

PROBLEMS IN IMPLEMENTATION

As may be apparent from the discussion of the aforementioned interventions, treatment of many behavior problems in children and adolescents with mental retardation involves considerable individual time to train particular responses. Hence, accessing the necessary intensive services may be problematic or altogether unrealistic, depending on available resources and supports.

Moreover, a unique factor in the treatment of children and adolescents is that it is often the parent(s) who is targeted as the change agent. This is even more so the case when

treating behavior problems in children and adolescents with mental retardation. In many cases, children and adolescents with mental retardation may reside in an alternative placement (group home, residential setting) where the change agent may also be staff members. Consequently, treatment involves training caregivers in the previous procedures for implementation in their respective settings. Training parents, staff, and teachers brings about special problems and considerations. First, therapists, are essentially training someone else to be a therapist. The following suggestions are offered for providing parent and staff training:

1. Develop operational definitions of each target behavior to be treated to ensure all adults responsible for treatment are addressing the same behavior problem (e.g., What does "aggression" entail for a particular child?).
2. Adults should be trained in the use of a data/record keeping system in order to evaluate the effectiveness of the treatment procedures.
3. The acceptability of the treatment protocols should be determined in order to promote compliance. This may be done informally by inquiring about the adult's reactions to a suggested procedure. There are also treatment acceptability measures (see Kazdin, 1980; Miltenberger, Suda, Lennox, & Lindeman, 1991) that may be helpful in assessing views of different behavior procedures.
4. Direct observation of the implementation of the procedures should be a priority. This may be achieved while conducting in vivo observations. Role playing may also have value in determining competency in implementing specific procedures.

CASE ILLUSTRATION

The two cases discussed illustrate the treatment of a young child with mild mental retardation and an older adolescent with profound mental retardation.

Case 1

Edward was a 9-year-old male diagnosed with mild mental retardation and cerebral palsy. Although ambulatory, Edward relied on the use of a wheelchair for distances of any length. Edward was admitted to a behaviorally oriented psychiatric inpatient unit for aggression, tantrums, and noncompliance. Functional assessments indicated that Edward's aggression and tantrums were motivated by escape/negative reinforcement (i.e., the removal of a peer from the area around his wheelchair, and in academic demand situations when he was fatigued). A functionally equivalent response was trained whereby Edward was taught to hold up a stop sign with a bell attached when he wanted a peer to be removed from his space and when he wished to cease an academic activity. The bell was used so that those adults present would become quickly aware of Edward when he held up the stop sign. This procedure was deemed effective based on the decrease in effort on Edward's part in communicating given his labored, inarticulate speech. Use of functional equivalence training was in combination with a "star card" system in which Edward received stars for the completion of work, absence of aggression, and following adult requests. Additionally, the interspersal of academic tasks

to minimize fatigue and frustration resulted in increased compliance and a concomitant decrease in inappropriate behaviors.

Case 2

Walt was a 15-year-old male with diagnoses of profound mental retardation, pica, and Class II plumbism (severe lead poisoning). Walt had three prior hospitalizations for lead poisoning. X-rays provided evidence that Walt had consumed staples, paperclips, and paint chips. Though essentially nonverbal, Walt used several manual signs appropriately, including "eat," "drink," and "toilet."

Observations of Walt's baseline rates of pica were made in three settings in the hospital (dining room, group activity room, and alone in an individual therapy room) under analogue conditions (settings were baited with "pica items"). Walt engaged in pica behaviors 35% of interval during baseline. The treatment package involved reinforcement, discrimination training, functional equivalence training, and punishment components. Walt was taught to eat only food from a placemat, taught to sign "eat" to have more food, reinforced for eating from the placemat, and punished for putting any other inedible or inappropriate food items in his mouth. Hence, the discriminative stimulus to eat was the placemat and Walt was also provided with a functional equivalent response to gain access to what he wanted (more food). Verbal praise was provided contingent on eating from the placemat and the use of a face-wipe was the punishment implemented contingent on pica behavior. As shown in Fig. 2.3, the multicomponent treatment package resulted in substantial decreases in pica behavior.

Maintenance of treatment effects promoted by providing Walt's parents, siblings, and school staff with simple written descriptions and demonstrations of the treatment procedures. During follow-up visits, decreases in the home and school were maintained.

CONCLUSIONS

Children and adolescents with mental retardation by definition present with intellectual and adaptive behavior deficits of varying degrees. Behavior and emotional disorders in these individuals are two to five times that of their normally developing peers (Matson & Frame,

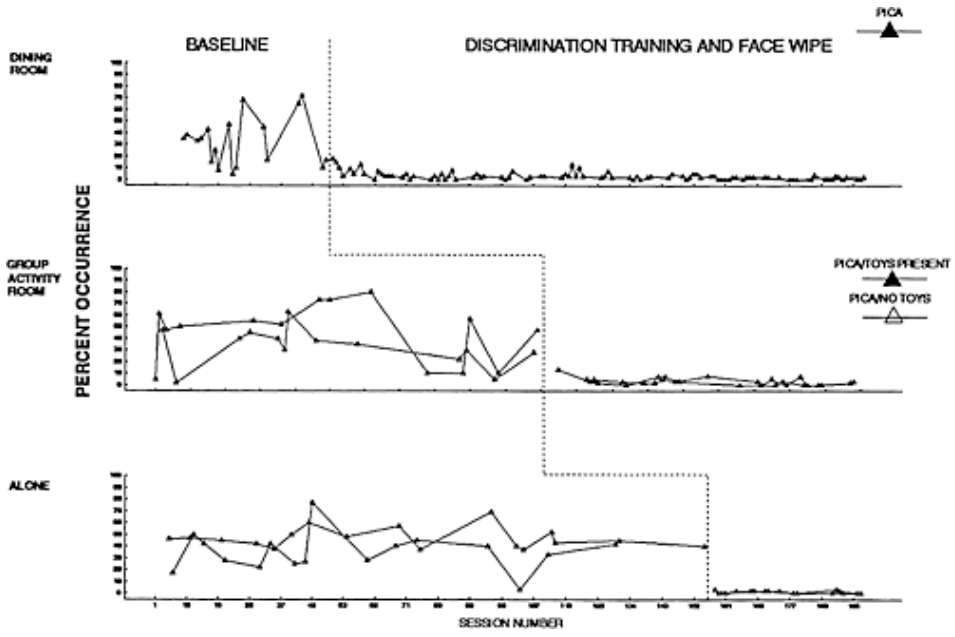

FIG. 2.3. Percentage occurence of pica for Case 1 across setting. From Johnson, Hunt, and Siebert (1994). Copyright 1994 by Sage Publications. Reprinted with permission,

1986). Problematic behaviors described have been successfully treated with interventions primarily derived from the field of applied behavior analysis. Treating children and adolescents with mental retardation (and concomitant with behavior and emotional problems) can prove to be challenging and rewarding. Decreases in behavioral excesses (aggression, tantrums) with simultaneous increases in behavioral deficits (elimination problems) may lead to improvement in adaptive behavior, greater participation in integrative community activities, and improved family functioning.

Treatment approaches are likely to include multiple components with behavioral treatment protocols addressing more than one problem. Treatment should be approached in a systematic fashion to include a functional assessment of target behavior problems and inclusion of all significant caregivers. In developing and implementing treatment protocols, the acceptability of treatments by those actually implementing them (parents, group home staff) should be determined. Moreover, an evaluation plan to clearly determine the effects of the treatment protocols should be developed. Only with ongoing assessment can the achievement of treatment goals be evaluated. Conversely, the lack of treatment response should then lead to modification in treatments being implemented.

REFERENCES

Achenbach, T.M., & Edelbrock, C.S. (1991). *The Child Behavior Checklist.* Burlington: University of Vermont Department of Psychiatry.

Adams, L.A., & Rickert, V.I. (1989). Reducingbedtime tantrums: Comparison between positive routines and graduated extinction. *Pediatrics, 84,* 756–761.

Aman, M.G. (1991). *Assessing psychopathology and behavior problems in persons with mental retardation: A review of available instruments.* Rockville, MD: U. S. Department of Health and Human Services.

Aman, M.G., & Singh, N.N. (1986). *Aberrant Behavior Checklist: Manual.* East Aurora, NY: Slosson Educational Publications.

American Association on Mental Retardation. (Eds.). (1992). Diagnosis and systems of support. *Mental retardation: Definition, classification. and systems of support* (9th ed., pp. 23–34). Washington, DC: American Association on Mental Retardation.

American Psychiatric Association. (Eds.). (1994). Mental retardation. *In Diagnostic and statistical manual of mental disorders* (4th ed., pp. 39–46). Washington, DC: Author.

Anastasi, A. (1988). *Psychological testing* (6th ed.). New York: MacMillian.

Ausman, J., Ball, T.S., & Alexander, D. (1974). Behavior therapy of pica with a profoundly retarded adolescent. *Mental Retardation,* Dec., 16–18.

Azrin, N.H., & Besalel, V.A. (1980). *How to use overcorrection.* Lawrence, KS: H & H Enterprises.

Azrin, N.H., & Foxx, R.M.A. (1971). A rapid method of toilet training the institutionalized retarded. *Journal of Applied Behavior Analysis, 4,* 89–99.

Baer, D.M., Wolf, M.M., & Risley, T.R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1,*91–97.

Baltrop, D. (1966). The prevalence of pica. *American Journal of Diseases in Children, 112,* 116–123.

Barkley, R.A. (1990). A critique of current diagnostic criteria for attention deficit hyperactivity disorder: Clinical and research implications. *Journal of Developmental and Behavioral Pediatrics, 11,* 343–352.

Barlett, L.B., Rooney, V., & Spedding, S. (1985). Nocturnal difficulties in a population of mentally handicapped children. *British Journal of Mental Subnormality, 31,* 54–59.

Barton, L.E., Brulle, A.R., & Repp, A.C. (1986). Maintenance of therapeutic change by momentary DRO. *Journal of Applied Behavior Analysis, 19,* 277–282.

Bauer, A.M., Shea, T.M., & Gaines, H. (1998). A primer on self-injury. *Education and Treatment of Children, 11,* 157–165.

Baumeister, A.A., & Baumeister, A.A. (1978). A suppression of repetitive self-injurious behavior by contingent inhalation of aromatic ammonia. *Journal of Autism and Childhood Schizophrenia, 8,* 71–77.

Baumeister, A.A., & Maclean, W.E. (1984). Deceleration of self-injurious responding by exercise. *Applied Research in Mental Retardation,* 5, 385–393.

Bax, M. (1985). Crying: A clinical overview. In B.M.Lester & C.F.Z. Boukydis (Eds.), *Infant crying* (pp. 241–348). New York: Plenum.

Bayley, N. (1993). *Bayley Scales of Infant Development* (2nd ed.). San Antonio: Psychological Corporation.

Behar, L., & Stringfield, S. (1974). *Preschool Behavior Questionnaire.* Durhum, NC: LINC Press.

Beitchman, J.H. (1985). Therapeutic considerations with the language impaired preschool child. *Canadian Journal of Psychiatry, 30,* 609–611.

Beitchman, J.H., Nair, R., Clegg, M., Ferguson, B., & Patel, P.G. (1986). Prevalence of psychiatric disorder in children with speech and language disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 25,* 528–535.

Berkowitz, S., Sherry, P.J., & Davis, B.A. (1971). Teaching self-feeding skills to profound retardates using reinforcement and fading procedures. *Behavior Therapy,* 2, 62–67.

Bostow, D.E., & Bailey, J.B. (1969). Modification of severe disruptive and aggressive behavior using brief timeout and reinforcement procedures. *Journal of Applied Behavior Analysis, 2,* 31–37.

Brown, F. (1991). Creative daily scheduling: A nonintrusive approach to challenging behaviors in community residences. *Journal of the Association for Persons with Severe Handicaps, 16,* 871–889.

Brown, P., & Elliot, R. (1965). Control of aggression in a nursery school class. *Journal of Experimental Child Psychology, 2.* 103–107.

Bucher, B., Reykdal, B., & Albin, J. (1976). Brief physical restraint to control pica in retarded children. *Journal of Behavior Therapy and Experimental Psychiatry, 7,* 137–140.

Bunyan, A. (1987). "Help, I can't cope with my child"—A behavioral approach to the treatment of a conduct disordered child within the natural homesetting. *British Journal of Social Work,* 77, 237–256.

Burgio, L.D., Whitman, T.L., & Johnson, M.R. (1980). A self-instructional package for increasing attending behavior in educable mentally retarded children. *Journal of Applied Behavior Analysis,* 73, 443–459.

Calamari, J.E., Geist, G.O., & Shahbazian, M.J. (1987). Evaluation of multiple component relaxation training with developmentally disabled persons. *Research in Developmental Disabilities, 8,* 55–70.

Carr, E.G., & Durand, V.M. (1985). Reducing behavioral problems through functional communication training. *Journal of Applied Behavior Analysis, 18,* 11–126.

Carr, E.G., Levin, L., McConnachie, G., Carlson, J.I., Kemp, D.C, & Smith, C.E. (1994). *Communicationbased intervention for problem behavior: A user's guide for producing positive change.* Baltimore: Paul H. Brookes.

Cataldo, M.F., Finney, J.W., Madden, N.A., & Russo, D.C. (1983). Behavioral approaches to lead ingestion. In J.J.Chisolm & D.M.O'Hoara (Eds.), *Lead absorption in children: Management, clinical & environmental aspects* (pp. 103–111). Baltimore, MD: Urban & Schwarzenberg.

Cataldo, M.F., & Harris, J. (1982). The biological basis for self-injury in the mentally retarded. *Analysis of Intervention in Developmental Disabilities,* 2, 21–39.

Cautela, J.R., & Groden, J. (1978). *Relaxation: A comprehensive manual for adults. children, and children with special needs.* Champaign, II: Research Press.

Charlop, M.H., Kurtz, P.F., & Casey, F.G. (1990). Using aberrant behaviors as reinforcers for autistic children. *Journal of Applied Behavior Analysis,* 23, 163–181.

Clements, J., Wing, L., & Dunn, G. (1986). Sleep problems in handicapped children: A preliminary study. *Journal of Child Psychology and Psychiatry,* 27, 399–407.

Conners, C.K. (1989). *Conners' Rating Scales manual* New York: Multi-Health Systems.

Cullinan, D., Gadow, K.D., & Epstein, M.H. (1987). Psychotropic drug treatment among learning-disabled, educable mentally retarded, and seriously emotionally disturbed students. *Journal of Abnormal Child Psychology,* 75, 469–477.

Danford, D.E., & Huber, A.M. (1982). Pica among mentally retarded adults. *Journal on Mental Deficiency, 87,* 141–146.

Deitz, S.M. (1977). An analysis of programming DRL schedules in educational settings. *Behavior Research and Therapy, 75,* 103–111.

Delissovoy, B. (1961). Head banging in early childhood: A study of incidence. *Journal of Pediatrics, 58,* 803–805.

Donnelly, D.R., & Oizcak, P.V. (1990). The effect of differential reinforcement of incompatible behaviors (DRI) on pica for cigarettes in persons with intellectual disability. *Behavior Modification, 14,* 81–96.

Dorsey, M.F., Iwata, B.A., Ong, P., & McSween, T.E. (1980). Treatment of self-injurious behavior using a water mist: Initial response suppression and generalization. *Journal of Applied Behavior Analysis, 13,* 343–353.

Duker, P.C., & Rasing, E. (1989). Effects of redesigning the physical environment on self-stimulation and on-task behavior in three autistic-type developmentally disabled individuals. *Journal of Autism and Developmental Disorders, 19,* 449–460.

Durand, V.M., & Carr, E.G. (1991). Functional communication training to reduce challenging behavior: Maintenance and application in new settings. *Journal of Applied Behavior Analysis, 24,*251–261.

Dyer, K. (1987). The competition of autistic stereotyped behavior with usual and specially assessed reinforcers. *Research in Developmental Disabilities, 8,* 607–626.

Dyer, K., Dunlap, G., & Winterling, V. (1990). Effects of choice making on the serious problem behaviors of students with severe handicaps. *Journal of Applied Behavior Analysis, 23,* 515–524.

Eaton, L., & Menolascino, F. (1982). Psychiatric disorders in the mentally retarded: Types, problems and challenges. *American Journal of Psychiatry, 139,* 1297–1303.

Einfeld, S., & Tonge, B.J. (1989). *Developmental Behavior Checklist (DBC)*. Sydney, Australia: University of Sydney.

Eron, L.D. (1987). The development of aggressive behavior from the perspective of a developing behaviorism. *American Psychologist, 42,* 435–442.

Evans, I.M., & Meyer, L.H. (1985). *An educative approach to behavior problems: A practical decision model for interventions with severely handicapped learners.* Baltimore: Paul H.Brookes.

Favell, J.E., McGimsey, J.F., & Jones, M.L. (1978). The use of physical restraint in the treatment of self-injury and as positive reinforcement. *Journal of Applied Behavior Analysis, 11*. 137–140.

Favell, J.E., & Reid, D.H. (1988). Generalizing and maintaining improvements in problem behavior. In R.H.Homer, G.Dunlap, & R.L.Koegel (Eds.), *Generalization and maintenance: Lifestyle changes in applied setting* (pp. 171–196). Baltimore: Paul H.Brookes.

Fidura, J.G., Lindsey, E.R., & Walker, G.R. (1987). A special behavior unit for treatment of behavior problems of persons who are mentally retarded. *Mental Retardation, 25,* 107–111.

Forehand, R. (1977). Child noncompliance to parental requests: Behavioral analysis and treatment. In M.Hersen, R. M., Eisler, & P.M.Miller (Eds.), *Progress in behavior modification* (Vol. 5, pp. 111–147). New York: Academic Press.

Forehand, R., & McMahon, R. (1981). *Helping the noncompliant child: A clinician's guide to parent training.* New York: Guilford.

Fovel, J.T., Lash, P.S., Barron, D.A., Jr., & Roberts, M.S. (1989). A survey of self-restraint, self-injury, and other maladaptive behaviors in an institutionalized population. *Research in Developmental Disabilities, 16,* 377–382.

Foxx, R.M. (1982). *Decreasing behaviors of severely retarded and autistic persons.* Champaign, IL: Research Press.

Foxx, R.M., & Azrin, N.H. (1973). *Toilet training the retarded: A rapid program for day and nighttime independent toileting.* Champaign, IL: Research Press.

Foxx, R.M., & Martin, E.D. (1975). Treatment of scavenging behavior (coprophagy and pica) by overcorrection. *Behavior Research and Therapy, 13,* 153–162.

Foxx, R.M., McMorrow, M.J., Bittle, R.G., & Bechtel, D.R. (1986). The successful treatment of a dually-diagnosed deaf man's aggression with a program that included contingent electric shock. *Behavior Therapy, 17,* 170–186.

Foxx, R.M., Plaska, T.G., & Bittle, R.G. (1986). Guidelines for the use of contingent electric shock to treat aberrant behavior. *Progress in Behavior Modification, 20,* 1–34.

Foxx, R.M., & Shapiro, S.T. (1978). The timeout ribbon: A nonexclusionary timeout procedure. *Joumal of Applied Behavior Analysis. 11,* 125–136.

Frankel, F., Moss, D., Schofield, S., & Sinunons, J.Q. (1976). Case study: Use of differential reinforcement to suppress self-injurious and aggressive behavior. *Psychological Reports, 39,* 843–849.

Gast, D.L., & Wolery, M. (1987). Severe maladaptive behaviors. In M.E.Snell (Ed.), *Systematic instruction of persons with severe handicaps* (3rd ed., pp. 300–332). Columbus: Merrill.

Gillberg, C., Persson, E., Grufinan, M., & Themner, U. (1986). Psychiatric disorders in mildly and severely mentally retarded urban children and adolescents: Epidemiological aspects. *British Journal of Psychiatry, 149,* 68–74.

Guess, D., & Carr, E. (1991). Emergence and maintenance of stereotypy and self-injury. *American Journal on Mental Retardation, 96,* 299–319.

Hart, H., Bax, M., & Jenkins, S. (1984). Health and behavior in preschool children. *Child Care Health and Development, 10,* 1–16.

Horner, R.H., & Day, H.M. (1991). The effects of response efficiency on functionally equivalent competing behaviors. *Journal of Applied Behavior Analysis, 24,* 719–732.

Horner, R.H., Day, M., Sprague, J., O'Brien, M., & Heathfield, L.T. (1991). Interspersed requests: A nonaversive procedure for reducing aggression and self-injury during instruction. *Journal of Applied Behavior Analysis, 24,* 265–278.

Horner, R.H., Dunlap, G., Koegel, R.L., Carr, E.G., Sailor, W., Anderson, J., Albin, R.W., & O'Neill, R. (1990). Toward a technology of "nonaversive" behavioral support. *Journal of the Association for Persons with Severe Handicaps, 15,* 91–97.

Horner, R.H., Sprague, J.R., O'Brien, M., & Heathfield, L.T. (1990). The role of response efficiency in the reduction of problem behaviors through functional equivalence training: A case study. *The Journal of the Association for Persons with Severe Handicaps, 15,* 91–97.

Iwata, B.A., Dorsey, M.F., Slifer, J.K., Bauman, K.E., & Richman, G.S. (1982). Toward a functional analysis of self-injury. *Analysis and Intervention in Developmental Disabilities, 2,* 3–20.

Iwata, B.A., Vollmer, T.R., & Zarcone, J.R. (1990). The experimental functional analysis of behavior disorders: Methodology, application, and limitations. In A.C.Repp & N.N.Singh (Eds.), *Perspectives on the use of nonaversive and aversive interventions for persons with developmental disabilities* (pp. 302–330). Sycamore, IL: Sycamore Publishing.

Johnson, C.R., Hunt, F.M., & Siebert, M.J. (1994). Discrimination training in the treatment of pica and food scavenging. *Behavior Modification, 18,* p. 212.

Kazdin, A.E. (1980). Acceptability of time out from reinforcement procedures for disruptive child behavior. *Behavior Therapy, 17,* 329–344.

Kendall, P.C. (1984). Cognitive-behavioral self-control therapy for children. *Journal of Child Psychology and Psychiatry, 25,* 173–179.

Kendall, P.C., & Braswell, L. (1982). Cognitive-behavioral self-control therapy for children: A components analysis. *Journal of Consulting and Clinical Psychology, 50,* 672–689.

Kendall, P.C., & Finch, A.J. (1978). A cognitive-behavioral treatment for impulsivity: A group comparison study. *Journal of Consulting and Clinical Psychology, 46,* 110–118.

Kern, L., Koegel, R.L., Dyer, K., Blew, P.A., & Fenton, L.R. (1982). The effects of physical exercise on self-stimulation and appropriate responding in autistic children. *Journal of Autism and Developmental Disorders, 72,* 399–419.

Kistner, J., Hammer, D., Wolfe, D., Rothblum, E., & Drabman, R.S. (1982). Teacher popularity and contrast effects in a classroom token economy. *Journal of Applied Behavior Analysis, 15,* 85–96.

Kovacs, M. (1981). Rating scales to assess depression in school-age children. *Acta Paedopsychiatry, 46,* 305–315.

Kravitz, H., & Boehm, J. (1971). Rhythmic habit patterns in infancy: Their sequence, age of onset, and frequency. *Child Development, 42,* 399–413.

Lakin, K.C., Hill, B.K., Hauber, F.A., Bruininks, R.H., & Heal, L.W. (1983). New admissions and readmissions to a national sample of public residential facilities. *American Journal of Mental Deflciency, 88,* 13–20.

Lambert, N., Leland, H., & Nihira, K. (1992). *AAMR Adaptive Behavior Scales—School* (2nd ed.). San Antonio: The Psychological Corporation.

LaVigna, G.W., & Donnellan, A.M. (1986). *Alternatives to punishment: Solving behavior problems with non-aversive strategies.* New York: Irvington.

Linscheid, T.R., Iwata, B.A., Ricketts, R.W., Williams, D.E., & Griffm, J.C. (1990). Clinical evaluation of the self-injurious behavior inhibiting system (SIBIS). *Journal of Applied Behavior Analysis, 23,* 53–78.

Lovaas, O.I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology, 55,* 3–9.

Lovaas, O.I., & Favell, J. (1987). Protection for clients undergoing aversive/restrictive interventions. *Education and Treatment of Children, 10,* 311–325.

Luce, S.C., Delquadri, J., & Hall, R.V. (1980). Contingent exercise: A mild but powerful procedure for suppressing inappropriate verbal and aggressive behavior. *Journal of Applied Behavior Analysis, 13,* 583–594.

Luiselli, J.K., Colozzi, G.A., & O'Toole, K.M. (1980). Programming response maintenance of differential reinforcement effects. *Child Behavior Therapy, 2,* 65–73.

Luria, A.R. (1961). *The role of speech in the regulation of normal and abnormal behaviors.* New York: Liveright.

Mace, R.C., Page, T.J., Ivancic, M.T., & O'Brien, S. (1986). Effectiveness of brief time-out with and without contingent delay: A comparative analysis. *Journal of Applied Behavior Analysis, 19,* 79–86.

Madden, N.A., Russo, D.C., & Cataldo, M.F. (1980). Behavioral treatment of pica in children with lead poisoning. *Child Behavior Therapy, 2,* 67–81.

Martin, R. (Ed.). (1975). *Legal challenges to behavior modification: Trends in schools, corrections and mental health.* Champaign, IL: Research Press.

Mason, S., McGee, G., Farmer-Dougan, V. & Risley, T. (1989). A practical strategy for ongoing reinforcer assessment. *Journal of Applied Behavior Analysis, 22,* 171–179.

Matson, J.L. (1988). *The PIMRA manual.* Orland Park, IL: Intemational Diagnostic Systems.

Matson, J.L., & DiLorenzo, T.M. (1984). *Punishment and its alternatives: A new perspective for behavior modification* (Vol. 13). New York: Springer.

Matson, J.L., & Frame, C.L. (1986). *Psychopathology among mentally retarded children and adolescents* (Vol. 6). Beverly Hills: Sage.

Matson, J.L., & Gorman-Smith, D. (1986). A review of treatment research for aggressive and disruptive behavior in the mentally retarded. *Applied Research in Mental Retardation, 7,* 95–103.

Matson, J.L., & Kazdin, A.E. (1981). Punishment in behavior modification: Pragmatic ethical and legal issues. *Clinical Psychology Review, 1.* 197–210.

Matson, J.L., & Taras, M.E. (1989). A 20 year review of punishment and alternative methods to treat problem behaviors in developmentally delayed persons. *Research in Developmental Disabilities, 10,* 85–104.

McApline, C., & Singh, M.M. (1986). Pica in institutionalized mentally retarded persons. *Journal of Mental Deficiency Research, 30,* 171–178.

McCarthy, D. (1972). *McCarthy Scales of Children's Abilities.* San Antonio: The Psychological Corporation.

McGimsey, J.F., & Favell, J.E. (1988). The effects of increased physical exercise on disruptive behavior in retarded persons. *Journal of Autism and Developmental Disorders, 18,* 167–179.

McPhail, C.H., & Chamove, A.S. (1989). Relaxation reduces disruption in mentally handicapped adults. *Journal of Mental Deficiency Research, 33,* 399–406.

Meichenbaum, D., & Goodman, J. (1971). Training impulsive children to talk to themselves: A means of developing self control. *Journal of Abnormal Psychology,* 115–126.

Miltenberger, R.G., Suda, K.T., Lennox, D.B., & Lindeman, D.P. (1991). Assessing the acceptability of behavioral treatments to persons with mental retardation. *American Journal on Mental Retardation, 96,* 291–298.

Mulick, J.A. (1990). The ideology and science of punishment in mental retardation. *American Journal on Mental Retardation, 95,* 142–156.

Ollendick, T.H., & Matson, J.L. (1978). Over correction: An overview. *Behavior Therapy, 9,* 830–842.

Olson, R.L., & Roberts, M.W. (1987). Alternative treatments for sibling aggression. *Behavior Therapy. 18,* 243–250.

Pace, G.M., Ivancic, M.T., Edwards, G.L., Iwata, B., & Page, T.J. (1985). Assessment of stimulus preference and reinforcer value with profoundly retarded individuals. *Journal of Applied Behavior Analysis, 18,* 249–254.

Palmer, S., & Horn, S. (1978). Feeding problems in children. In S.Palmer & S.Evall (Eds.), *Pediatric nutrition in developmental disorders* (pp. 107–272). Springfield, IL: Thomas.

Palmer, S., Thompson, R.J., & Linscheid, T.R. (1975). Applied behavior analysis in the treatment of childhood feeding problems. *Developmental Medicine and Child Neurology, 17,* 333–339.

Parpal, M., & Maccoby, E.E. (1985). Maternal responsiveness and subsequent child compliance. *Child Development, 56,* 1326–1334.

Parrish, J.M., Cataldo, M.F., Kolko, D.J., Neef, N.A., & Egel, A.L. (1986). Experimental analysis of response covariation among compliant and inappropriate behaviors. *Journal of Applied Behavior Analysis. 19.* 241–254.

Perske, R., Clifton, A., McClean, B.M., & Stein, J.I. (Eds.). (1977). *Meal times for severely and profoundly handicapped persons: New concepts and attitudes.* Baltimore: University Park Press.

Piazza, C.C., & Fisher, W. (1991). A faded bedtime with response cost protocol for treatment of multiple sleep problems in children. *Journal of Applied Behavior Analysis, 24,* 129–140.

Porterfield, J.K., Herbert-Jackson, E., & Risley, T.R. (1976). Contingent observation: An effective and acceptable procedure for reducing disruptive behavior of young children in a group setting. *Journal of Applied Behavior Analysis, 9,* 55–64.

Quine, L. (1991). Sleep problems in children with mental handicap. *Journal of Mental Deficiency Research, 35,* 269–290.

Repp, A.C., Barton, L.E., & Brulle, A.R. (1983). A comparison of two procedures for programming the differential reinforcement of other behaviors. *Journal of Applied Behavior Analysis, 16,* 435–445.

Reynolds, C.R., & Richman, B.O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6,* 271–280.

Reynolds, W.M. (1989). *Self-Report Depression Questionnaire (SRDQ).* University of Wisconsin-Madison.

Rincover, A. (1978). Sensory extinction: A procedure for eliminating self-stimulatory behavior in psychotic children. *Journal of Abnormal Child Psychology, 6,* 299–310.

Rocissano, L., Slade, A., & Lynch, V. (1987). Dyadic synchrony and toddler compliance. *Developmental Psychology, 23,* 698–794.

Rojahn, J. (1989). *The Behavior Problems Inventory.* Nisonger Center for Mental Retardation and Developmental Disabilities, Ohio State University.

Rojahn, J., McGonigle, J.J., Curcio, C., & Dixon, M.J. (1987). Suppression of pica by water mist and aromatic ammonia: A comparative analysis. *Behavior Modiflcation, 11,* 65–74.

Sajwaj, T., Libert, J., & Agras, S. (1974). Lemon-juice therapy: The control of life-threatening rumination in a 6-month-old infant. *Journal of Applied Behavior Analysis, 1,* 557–563.

Salvia, J., & Ysseldyke, J.E. (1985). *Assessment in special and remedial education* (3rd ed.). Boston: Houghton Mifflin.

Sandman, C.A. (1988). B-endorphine disregulation in autistic and self-injurious behavior: A neurodevelopmental hypothesis. *Synapse, 2,* 193–199.

Santarcangelo, S., Dyer, K., & Luce, S.C. (1987). Generalized reduction of disruptive behavior in unsupervised settings through specific toy training. *JASH, 12,* 281–289.

Sattler, J.M. (Ed.). (1988). Assessment of mental retardation and giftedness. In S.M.Sattler (Ed.), *Assessment of children* (pp. 646–685). San Diego: Author.

Schaffer, H.R., & Crook, C.K. (1980). Child compliance and maternal control techniques. *Child Development, 16,* 54–61.

Singer, G. & Irwin, L. (1987). Human rights review of intrusive behaviors for students with severe handicaps. *Exceptional Children, 54,* 46–52.

Singh, N.N., & Bakker, L.W. (1984). Suppression of pica by overcorrection and physical restraint: A comparative analysis. *Journal of Autism and Developmental Disorders, 14,* 331–341.

Singh, N.N., Sood, A., Sonenklar, N., & Ellis, C.R.(1991). Assessment and diagnosis of mental illness in persons with mental retardation: Methods and measures. *Behavior Modification, 15,* 419–443.

Sparrow, S.S., Balla, D.A., & Cicchetti, D.V. (1984). *Vinel and Adaptive Behavior Scales.* Circle Pines, MN: American Guidance Service.

Stimbert, V.E., Minor, J.W., & McCoy, J.F. (1977). Intensive feeding training with retarded children. *Behavior Modification, 1, 517–529.*

Sulzer-Azaroff, B., & Mayer, G. (1991). Behavior analysis for lasting change. Chicago: Holt, Rinehart, & Winston.

Swerissen, H., & Carruthers, J. (1987). The use of a physical restraint procedure to reduce a severely intellectually disabled child's tantrums. *Behavior-Change, 4,* 34–38.

Tate, B.G., & Baroff, G.S. (1966). Aversive conditioning of self-injurious behavior in a psychotic boy. *Behavior Research and Therapy, 4,* 281–287.

Thompson, R.J. (1984). Behavior problems in developmentally disabled children. *Advances in Developmental and Behavioral Pediatrics, 5,* 265–330.

Thorndike, R.L., Hagen, E.P., & Sattler, J.M. (1986). *Stanford-Binet Intelligence Scale* (4th ed.). San Antonio: The Psychological Corporation.

Touchette, P.E., MacDonald, R.G., & Langer, S.N. (1985). A scatter plot for identifying stimulus control of problem behavior. *Journal of Applied Behavior Analysis, 18,* 343–351.

Vitello, S.J., Atthowe, J.M., & Cadwell, J. (1983). Determinants of community placement of institutionalized mentally retarded persons. *American Journal of Mental Deficiency, 87,* 539–545.

Walker, G.R. (1993). Noncompliant behavior of people with mental retardation. *Research in Developmental Disabilities, 14*, 87–105.

Wechsler, D. (1989). *Wechsler Preschool and Primary Scale of Intelligence-Revised.* San Antonio: The Psychological Corporation.

Wechsler, D. (1991). *Wechsler Intelligence Scale for Children* (3rd ed.). San Antonio: The Psychological Corporation.

Williams, C.D. (1959). The elimination of tantrum behavior by extinction procedures. *Journal of Abnormal and Social Psychology, 59,* 269.

Wilson, C.C., Robertson, S.J., Herlong, L.H., & Haynes, S.N. (1979). Vicarious effects of time-out in the modification of aggression in the classroom. *Behavior Modification, 3,* 97–111.

Winterling, V., Dunlap, G., & O'Neill, R.E. (1987). The influence of task variation on the aberrant behaviors of autistic students. *Education and Treatment of Children, 70,* 105–119.

Wolf, M.M., Risley, T.R., Johnson, M., Harris, F., & Allen, E. (1967). Application of operant conditioning procedures to the behavior problems of an autistic child, a follow-up extension. *Behavior Research and Therapy, 5,* 103–112.

Wolf, M.M., Risley, T.R., & Meese, H. (1964). Application of operant conditioning procedures to the behavior problems of an autistic child. *Behavior Research and Therapy, 1,* 305–312.

Wolfe, V.V., Boyd, L.A., & Wolfe, D.A. (1983). Teacher cooperative play to behavior-problem preschool children. *Education and Treatment of Children, 6,* 1–9.

Wong S.E., Floyd, J., Innocent, A.J., & Woolsey, J.E. (1991). Applying a DRO schedule and compliance training to reduce aggressive and self-injurious behavior in an autistic man: A case report. *Journal of Behavior Therapy and Experimental Psychiatry, 22,* 299–304.

Chapter 3
Autism

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DESCRIPTION OF THE DISORDER

For individuals unfamiliar with Autistic Disorder, the word *autism* often generates a picture of an isolated child, sitting in a corner rocking back and forth for hours. People often say they think of children "off in their own world," or "kids who are really good with numbers." In reality, children with autism are a very diverse group with a range of interests and abilities. Because of advancements in treatment models and early intervention techniques, it is rare to see a child with autism simply sitting and rocking for hours. Although there has been a substantial amount of research into the nature of autism, many aspects of the disorder remain a mystery. Although children with autism typically avoid social interaction, some children with autism appear to enjoy interacting with family members. Their interaction might be considered unusual, but it is an attempt to socialize. So, before beginning a description of the disorder, picture children who do not understand their place in the social world rather than rocking in the corner.

DSM-IV

The *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV;* 4th ed.; American Psychiatric Association, 1994) describes a set of disorders called Pervasive Developmental Disorders, or disorders that affect all areas of a child's ability to function in the world. The particular label used depends on the severity of the characteristics in that particular child as well as age of onset of the symptoms. Many researchers and clinicians think of pervasive developmental disorders as being a spectrum of disorders along which a child can be diagnosed. A label of Autistic Disorder often represents the most severe end of the spectrum. Autism is a disorder comprised of a constellation of symptoms a child can manifest at different levels of severity. Additionally, there is no "test" for autism or any of the other pervasive developmental disorders. Parents, therefore, are often left frustrated by the various labels applied to their child by different professionals. The characteristics of the disorder as discussed here can be present in varying degrees.

Autism is a pervasive developmental disorder; consequently, it affects all areas of a child's functioning. Further, in order to receive a diagnosis of autism, a child must manifest these impairments before age 3. The three areas of development most profoundly affected are, reciprocal social interaction skills, language and communication skills, and the presence of stereotyped behaviors or interests. For ease of presentation,

each of these areas is discussed separately. Note that these areas of functioning interact, and impairment in one area can exacerbate difficulties in another.

Social Interaction Skills. This characteristic seems to be one of the most noticeable to laypersons and strangers. Often, children with autism do not fully engage with others, do not give eye contact, and opt for solitary play. This is especially apparent to individuals who do not know the child well, as the child may avoid contact with and/or ignore them. Children with autism typically do not develop reciprocal friendships with their peers (Rutter, 1978). This may be because they seem to lack the ability to express social and emotional reciprocity. Their responses to social initiations, especially those from other children, are often inappropriate. Inappropriate responding may include ignoring the other child or becoming upset. The child with autism has difficulty engaging in the complex task of interactive play, games, and make believe (e.g., Thorp, Stahmer, & Schreibman, 1995).

Children with autism seem to show some social interaction skills with familiar individuals, although these skills are still well below what would be expected for their age and ability level, or tend to be somewhat atypical. It seems that the more familiar or predictable an individual is, the easier it is for the child with autism to attempt some type of interaction. The interaction itself may be labored and not altogether appropriate, but the child will try to engage with others on some level. Therefore, it is the task of the teacher or treatment provider to build on these spontaneous attempts at interaction to expand the skills of the child with autism to include more appropriate types of interactions with increasing numbers of individuals.

Communication Skills. Approximately half of all people with autism will never develop functional spoken language (Rutter, 1978). Those children with autism who do speak have severely delayed language development and poor communication skills (e.g., Ricks & Wing, 1977; Rutter, 1978). One of the characteristics that distinguishes autism from a language delay is the lack of attempts to compensate for the language impairment by using other forms of communication such as gesture (e.g., Rutter, 1978). Even with intervention, many of the children learn to use only single words or very simple sentences. Once words are learned, moving beyond simple labeling is often difficult. The children must be taught to use sentences, answer questions, and to talk about things that are not immediately present. These more abstract aspects of language may never be mastered by most individuals with autism. In those individuals that do learn to use complex language, conversation remains literal and concrete in most cases (e.g., Rutter, 1978). They converse about particular topics of interest to themselves, ignore the conversational needs of others, and have difficulty carrying on lengthy conversations.

Language difficulties tend to persist throughout the person's adult life and interact with the social deficits to make social situations that involve language skills (as most do) extremely difficult. Moreover, skills that require both language and social interaction abilities are impaired. One example of this is make believe, or social-imitative play. Most children with autism tend to have severe deficits in play skills (see Jarrold, Boucher, & Smith, 1993, for review). Although they may have the language ability, their play often remains repetitive, or manipulative, and rarely becomes symbolic or interactive without extensive intervention.

Stereotyped Behaviors and Interests. Stereotyped behaviors can range from repetitive spinning of the wheels on a toy car or wanting all the books in the house lined up in a certain order, to only being willing to discuss one topic of conversation. Other examples

of this behavior include resistance to change in routine of any type, including changing the furniture or using a new route to the grocery store. Severe stereotyped behavior can affect both social and language skills.

Stereotyped behaviors may also be used as a way to perform difficult skills. For example, children with autism have great difficulty with complex types of play, such as playing "house" or pretending to be a "firefighter" (see Thorp et al., 1995). However, numerous parents have reported anecdotally that their children will act out entire movies, and in fact attempt to engage others in this "game." Because the movie is unchanging and predictable, it may be easier for the child with autism to understand, unlike the complex play scenes observed when other children play. Although odd, this can provide a foundation for a treatment provider to begin teaching more appropriate skills.

ASSESSMENT METHODS

The development of any effective behavioral treatment plan depends on accurate, comprehensive, and appropriate assessment as an integral part of the process. Because parent training is typically incorporated as an important part of a child's treatment, it is advisable to obtain two types of information: assessment of relevant child variables and assessment of relevant parent and family variables.

Child Measures

Measures of child behavior are important for the identification of important behavioral targets for treatment as well as for evaluation of treatment effects. The Autism Diagnostic Interview-Revised (ADI-R; Lord, Rutter, & Le Couteur, 1994) is a semi-structured interview for caregivers (usually parents) of children for whom autism or pervasive developmental disorder is a potential diagnosis. This instrument is helpful not only for diagnostic purposes but may assist in the identification and description of important target behaviors.

It is also useful to measure the child's level of intellectual functioning. Many standardized instruments lend themselves to this purpose, including the Stanford-Binet (4th ed.), which is a standardized assessment that yields both a verbal and a performance scale.

Measures of children's social adaptation provide an index of their level of functioning relative to their social environment. One very useful measure is the Vineland Adaptive Behavior Scales (Sparrow, Balla, & Cicchetti, 1984), which is a standardized measure yielding scores relating to socialization, communication, daily living skills, an adaptive behavior composite, and level of maladaptive behavior. This measure reflects the children's competence and independence in their social environment.

Another useful assessment is a behavioral measure consisting of a structured or semi-structured situation in which the children are observed in a naturalistic play setting (e.g., a room with toys) and presented with "challenges" that allow for direct observation of the children's behavior in a variety of situations. For example, the children are observed with a therapist and with an unfamiliar adult to assess their behavior independent of their parents. Also, the children can be observed during social overtures

of adults, in the absence of such overtures, and when language demands are made. These sessions are typically videotaped. Later analysis and scoring of multiple responses provide for quantitative description of the degree to which specified behaviors are present or absent in a free-play setting (e.g., Lovaas, R.L.Koegel, Simmons, & Long, 1973). Typically, four behaviors characteristic of autism are scored, including self-stimulation, inappropriate play, poor social nonverbal behavior (e.g., response to requests, imitating), and tantrums or crying.

It is also very important to obtain measures allowing for determination of the child's level of language development. Again, both standardized and behavioral assessments are useful. Appropriate standardized measures include the Peabody Picture Vocabulary Test (L.M.Dunn & L.M.Dunn, 1981), which provides a measure of the child's receptive language level; the Expressive One Word Picture Vocabulary Test (Gardner, 1990), which provides a measure of the child's expressive language level; and the Assessment of Children's Language Comprehension (Foster, Giddan, & Stark, 1973), which provides an in-depth analysis of the child's level of generalized language development with respect to population norms.

For a behavioral measure, the naturalistic setting and situations described previously can be scored according to several categories of verbal behavior. These may include appropriate imitation of speech of others, answers to questions presented by others, spontaneous speech, and other appropriate speech. It is also important to assess the presence of inappropriate speech (e.g., echolalia, neologisms, idiosyncratic language).

Parent and Family Measures

As noted earlier, assessment of family environment and interaction may be quite informative in the design of parent training programs. Information on how families budget their time over a day provides useful information regarding the effects of the child on the family and the general burden on the parents. One example is the 24-Hour Time Activity Diary (e.g., R.A.Berk & S. F.Berk, 1979), in which the parents write down all activities in which they engaged (except when away at work, etc.), how long the activity lasted, who was with them, and how they feel about the activity. This measure yields important information regarding the amount of leisure time, teaching time, custodial care, and so forth that the parents engage in on a typical day. The measure is also sensitive to changes in how parents alter the structure of their time as a function of parent training and child behavior change (R.L.Koegel, Schreibman, Britten, Burke, & O'Neill, 1982).

Another informative behavioral assessment is a home observation where the family is observed in semi- or unstructured interactions. Such observations can be scored in vivo or videotaped for later scoring. Behaviors and interactions of interest can then be scored for analysis.

Standardized assessments can also be very useful and informative. The Questionnaire on Resources and Stress (QRS; Holroyd, 1974) is a paper-and-pencil, true-false item questionnaire designed to measure variables pertinent to families with handicapped family members and provides information regarding specific areas of stress experienced by the parents. The Family Environment Scale (FES; Moos, 1974) is a pencil-and-paper assessment providing information about the atmosphere in the entire family.

It is likely that parental attitudes toward childrearing may affect parent training. For example, parents' attitudes may affect choice of target behaviors, utilization of specific

techniques, or expectation of success. The Ideas About Parenting Instrument (C.P.Cowan et al., 1985) measures attitude along three subscales: authoritarian control, child centeredness, and permissive-protectiveness.

TREATMENT PROCEDURES

Optimal treatment procedures for children with autism are typically multidimensional. Because autism is a pervasive developmental disorder, many areas need to be considered when designing treatment strategies. In addition, because those with autism comprise a heterogeneous group, interventions must be individualized. Some variables that must be taken into consideration when individualizing treatment include the child's functioning level, age, environment, and specifics of the behaviors to be treated. In addition, because research indicates that parent training is a very effective treatment method for children with autism (R.L.Koegel et al., 1982), parent and family characteristics must also be considered when designing an intervention.

The child's verbal ability, nonverbal IQ, motor skills, social skills, and disruptive behavior need to be taken into account when designing a treatment package. In addition, parent variables—such as stress level, motivation to implement treatment procedures, desire for independence in their child, and parental expectations for the child—should be considered. In most cases, parents will be an integral part of the interventions, so they need to be comfortable with the strategies used. Finally, teachers often wish to use intervention strategies in the classroom setting. Schools may have limitations on the types of interventions they can implement, available resources, and trained treatment providers. Each of these factors is important to the success of treatment. This prescriptive approach can often eliminate problems with implementation of the intervention.

Several different types of treatment programs are outlined here. These treatment strategies are not mutually exclusive. In fact, the most effective intervention program combines appropriate elements of various treatment strategies. Each treatment description will include information about the particular child and environmental characteristics for which that intervention works best. Strategies for individualizing treatment packages are also discussed.

Discrete Trial Training (DTT)

This type of treatment strategy was one of the first successful interventions to be used with individuals with autism. Although the field has moved beyond simple discrete trial training (DTT) to strategies that enhance generalization and maintenance, as well as those that are more appropriate to the natural environment, DTT is a useful part of the entire treatment package. This type of intervention strategy is typically used in conjunction with, or as a precursor to, the strategies discussed next.

This intervention focuses on training specific individual target behaviors. Examples of target behaviors could include learning the word "red," learning to answer the question "What's your name?", or toilet training (which would be further broken down into component steps). This type of training has been found to be especially useful for learning new behaviors,

for behaviors the child would not choose to learn, and for behaviors whose natural consequences are of no positive or negative interest to the child. Toilet training is a good example of a behavior with natural consequences that may have no impact if a child does not mind wearing a wet diaper and is not motivated by social praise.

The first step in this type of intervention is to identify the target behavior (see Lovaas, 1981, for a complete description of this training technique). An example of a target behavior may be identifying circles. In the next step, the instruction is presented to the child. Important aspects of this step include ensuring the child is attending before giving the instruction, and then making the instruction clear, concise, task-relevant, and consistent across trials. Prompts are often used to evoke a correct response from the child. An example of a direct prompt for learning to identify circles might be to help the child point to the picture of the circle. Prompts can be faded as the child learns. That is, once the child can point to the circle correctly when the instructor is pointing to it, the instructor might move the finger away from the picture, then fade it out completely.

Techniques such as *chaining* can also be used to break down the target behavior into small steps. Each successive approximation of the target behavior is then rewarded until the child can respond correctly. For example, when working on getting dressed, the child might first be rewarded for just putting on a shirt, then for a shirt and socks, and so on until the child has learned to dress completely. Each individual step is practiced and rewarded until it is mastered, at which time the child begins to learn the next step in the sequence.

Instructors also learn to provide appropriate consequences for behaviors. Positive reinforcement should be given immediately after a correct response. Reinforcers should be chosen based on the child's interests and changed frequently to ensure that the child remains motivated. It is also important that the child receive no reward for incorrect responses. Consequences should be clear, effective, and contingent on the behavior of the child.

Again, this type of training is particularly useful for acquisition of new skills. After a skill has been mastered, one of the other treatment strategies discussed here may be more appropriate for generalization and maintenance of the behavior change.

Pivotal Response Training (PRT)

One of the difficulties found with the use of DTT was that the children often failed to generalize their newly learned skills to new materials or situations (Stokes & Baer, 1977). That is, a child might learn to say "car" in response to a certain picture of a car, but would not make that same response in the presence of a real car, or a different picture of a car. In addition, DTT is often time consuming to use in teaching complex tasks such as language. Finally, children with autism did not seem to be motivated to perform the behaviors being taught to them. They did not seem to enjoy the repetition of the training, or the actual tasks involved. In order to remedy some of these difficulties, researchers developed a treatment program called Pivotal Response Training (PRT; R.L.Koegel, Schreibman, Good, Cerniglia, Murphy & L. Koegel, 1989).

The focus of treatment in this program is to increase *pivotal* components of responses such as motivation and responsivity to multiple cues. This treatment facilitates

generalized behavioral change rather than focusing on individual behaviors (R.L.Koegel, O'Dell, & L.K.Koegel, 1987). When a child's motivation to participate in treatment is increased, the child is more likely to learn from the treatment procedures. Included in the process of PRT are specific steps designed to increase a child's motivation to perform in the learning environment and in generalization environments as well. PRT is implemented in the child's natural environment, which helps to facilitate generalization of newly learned skills. Another advantage is that treatment can be administered continuously throughout the child's day and across many environments.

There are two primary focus areas in PRT: *motivation* and *responsivity.* The first component includes increasing a child's motivation to learn. Lack of motivation is often a problem when teaching children with autism (see Schreibman, 1988). Traditional treatment programs often inadvertently work to decrease a child's motivation to learn through allowing repeated failure, using repetitive tasks, and utilizing complete adult control. PRT attempts to increase motivation in children with autism by including the following components in teaching situations: utilizing functional response-reinforcer relationships (R.L.Koegel & Williams, 1980; Williams, R.L. Koegel & Egel, 1981), reinforcing attempts at appropriate responding (R.L.Koegel & Egel, 1979; R.L.Koegel, O'Dell, & Dunlap, 1988), frequent variation of task and stimulus materials (Dunlap, 1984; Dunlap & R.L.Koegel, 1980), use of multiple examples (Stokes & Baer, 1977), allowing the child to choose the activity (Dunlap & R.L.Koegel, 1980; R.L.Koegel, Dyer, & Bell, 1987), and interspersing maintenance tasks the child has already mastered (Dunlap, 1984). These techniques allow a child to be successful and in control of the learning situation. Research indicates that these techniques used in combination with turn taking (Lieven, 1976) and the use of natural consequences (Bloom & Lahey, 1978) increase language use and generalization in children with autism.

Responsivity to multiple cues in the environment is also an important component of Pivotal Response Training. Research has indicated that children with autism often respond to a restricted set of cues in the environment (e.g., Lovaas, R.L.Koegel, & Schreibman, 1979). This occurs in teaching situations (Rincover & Koegel, 1975), as well as in social arenas (Pierce, Glad, & Schreibman, 1997). An example might be a child with autism who recognizes his father only when his father is wearing his glasses. The glasses are an irrelevant cue the child has chosen to use in recognizing his father. However, this will not be very useful if his father purchases contact lenses. This overselective attention to irrelevant cues leads to difficulty when learning new skills, generalizing learned behaviors, and interacting in complex social situations. Remediating this attentional deficit can have widespread effects on learning (e.g., Schreibman, Charlop, & Koegel, 1982). Pivotal Response Training addresses this issue by programming responsivity to multiple cues into the teaching procedures and requiring children to respond to a wider range of cues or components. Teaching interactions that include multiple cues require the child to attend to two or more aspects of a stimulus item. For example, instead of asking a child to "put on a sweater," a parent might ask a child to "put on your new blue sweater." In this way, the child must distinguish the new blue sweater from an old blue sweater, a red sweater, a blue t-shirt, and so forth.

Increasing both motivation and responsivity comprise Pivotal Response Training that has been successfully used to increase language skills (R.L.Koegel, O'Dell, & L.K.Koegel, 1987), play skills (Stahmer, 1995; Thorp et al., 1995) and interaction (Pierce & Schreibman, 1995) in children with autism. Pivotal Response Training includes the following steps:

1. The instruction must be clear, appropriate to the task, uninterrupted, and the child must be attending to the therapist or task.
2. Maintenance tasks (tasks the child has already mastered) need to be interspersed frequently.
3. Multiple cues must be presented if appropriate to the child's developmental level.
4. The child needs to be given a significant role in choosing the stimulus items.
5. Rewards need to be immediate, contingent, uninterrupted, and effective.
6. Direct reinforcers (reinforcers related to the task) need to be used the majority of the time.
7. The therapist should take turns with the child to allow for natural interaction and to provide multiple exemplars.
8. Rewards should be contingent on correct responses or attempts (see R.L.Koegel et al., 1989, for a complete description of the training technique).

This method can be used to target a wide array of tasks. Typically, parents and teachers are concerned about language development, so a verbal response is required from the child before consequences are administered. This method is particularly useful in the natural environment. For example, if children wish to watch television, they can be required to ask at a level appropriate to their ability. Depending on the child's developmental level, this may mean saying "May I watch television please," "TV, Mom," "tel," or a manual sign. In each case, the child is choosing the stimulus and is reinforced directly with access to the item. This encourages the use of language in the natural environment and increases generalization. Parents, siblings, and peers of children with autism have successfully mastered PRT (Laski, Charlop, & Schreibman, 1988; Oke, 1993; Pierce & Schreibman, 1995).

In addition, other social skills, such as play and interaction, have been successfully taught using PRT. Children with autism who had appropriate language ability (2.5 years) successfully learned to engage in spontaneous, creative, symbolic, and sociodramatic play (Stahmer, 1995; Thorp et al., 1995). Interaction skills have been taught to children with autism in schools using peer tutors as trainers (Pierce & Schreibman, 1995). Research is currently being conducted to assess the particular characteristics of families, children, and behaviors that will be most facilitated through the use of PRT. Preliminary information indicates that this type of training is useful for children of most ages and functioning levels. However, if a child does not verbalize at all, initial DTT training for increasing verbalizations might be suggested. Additionally, for children with extremely good verbal ability, self-management training (discussed later) may be more appropriate for altering verbal idiosyncrasies such as topic preservation. PRT is particularly useful for behaviors that are social or communicative and with behaviors that have reinforcing natural consequences. Although PRT has been successfully taught to families with extremely variable characteristics, family characteristics that seem to predict superior performance include a parenting style that allows the child some shared control in the learning situation. Parents who have a high need for structure and control may have more difficulty with this type of training. In general, PRT is recommended for use in structured and unstructured settings; for teaching skills such as language, interactions, and play; as well for generalization of skills acquired in other teaching formats (e.g., DTT).