Behaviorism in Early Intervention

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A consistent and persistent devaluation and misunderstanding of behaviorism, the behavioral approach, and its application to early childhood special education exists among many professionals in the field. In this article we explore common criticisms of behaviorism and present reactions. In addition, we identify and describe the critical features of the behavioral approach and their similarities to early childhood special education. Finally, we provide examples of the influence and application of the behavioral perspective in early childhood special education. In the conclusion of this discussion, we assert that the behavioral perspective has contributed substantially to improving the lives of young children with developmental delays and disabilities and their families. As such, behaviorism has utility in the design and implementation of early childhood special education services.

In the past few years we have experienced an increasing tendency for early childhood special educators to dismiss summarily the contributions of the behavioral approach to assessment and intervention. The concern we have is *not* related to questioning and debate, which seems most helpful to the discipline, but to an apparent willingness to end debate and question. For some, it appears that behavioral is equated with "bad," "inappropriate," "extreme," "overly complex," and similar descriptors. This is often manifest in statements such as: "I wouldn't adopt this book, it's too behavioral." "This behavioral program is turning children into robots." "This behavioral approach is too simplistic; it's dehumanizing." "We don't allow any behavioral

TECSE 12(1), 121-141 (1992)

procedures here." "This behavioral stuff is nothing more than M&M therapy."

These comments are disturbing on at least three grounds. First, they categorize behavioral approaches along a narrow, homogeneous continuum. Thus, all behavioral procedures are inappropriate, banned, or trivial. We acknowledge that some behavioral procedures may qualify for such ignoble distinction; others certainly do not. Second, the comments are nonempirical. If behavioral procedures and organizational schemes yield less fruitful outcomes than other approaches, then they should be replaced. But what are the alternatives, and where are the comparative data in their favor? Finally, these comments cast aspersion on those who advocate and practice behavioral approaches. Goodwill toward children and families does not reside with any particular orientation toward human behavior or early intervention. Having stated what we think is generally wrong about the summary level of criticism, we explore in more depth the nature of the criticism.

The Inaccuracy of Specific Charges Against Behaviorism

A number of charges have been leveled against the behavioral perspective. Some charges are simply wrong and may reflect a lack of understanding of the basic tenets of behaviorism. Others reflect differences in conceptual or philosophical perspective; behaviorists and nonbehaviorists agree on the basic datum, but disagree on its relative value or importance. Although the particulars may vary among critics, four charges are typical: (a) Behaviorism is a simple stimulus–response (S–R) approach, offering an overly mechanistic model of human behavior; (b) behaviorism offers a world view that overemphasizes the external control of behavior and thus is dehumanizing; (c) behaviorism is too complex and esoteric, without explicit links to problems of application; and (d) behaviorism is limited in its potential application and cannot address the range of "real-world" problems that confront fields like early childhood special education.

In this section, we review these criticisms and offer an alternative view of the extent to which critics are describing true features of the behavioral perspective. We summarize the value (for research, conceptual clarity, and program development) of each feature, highlighting the ways the behavioral perspective may contribute to the ongoing enhancement of early intervention.

Behaviorism Is a Simple S–R Approach

Perhaps the most common criticism of behaviorism is that it is based on a simplistic, mechanistic, stimulus–response model of human behavior. Critics suggest that behavioral models include only an analysis of discriminable environmental events (i.e., stimuli) and features of an individual's behavior (i.e., responses) that occur in close temporal proximity. This charge suggests that behaviorism is *deterministic*, or that a given stimulus always produces a particular response. Given this assumption of determinism, critics argue that the behavioral model *fails to account for* (a) individual differences, (b) the variety of behavior for any individual, and (c) the rich fabric of other factors (e.g., genetics, stage of cognitive development, attachment history, presence or absence of significant life stressors) that influence behavior. In short, critics charge that the behavioral model is too simplistic, failing to reflect the complex and reciprocal influences of history, environment, individual, and behavior.

We assert that these charges are inaccurate and are not legitimate criticisms of behaviorism. Critics often confuse a Pavlovian/Respondent (S–R) model with the operant behavioral model. In the operant paradigm the *S* refers to an antecedent or discriminative stimulus that *sets the occasion* for a behavior. An antecedent becomes a discriminative stimulus (i.e., is empowered to occasion a behavior) when a behavior is consistently reinforced in its presence and not reinforced in its absence. For example, the sound of the doorbell sets the occasion (is the discriminative stimulus) for our opening the door (our response). This is so because the behavior is reinforced. Likewise, we learn (are "conditioned") to respond to our own names and not others, to discuss some topics with some people and not others, and generally to behave differentially and somewhat predictably under differential circumstances (stimulus conditions). Thus, the operant model is far different from the reflex or Pavlovian model wherein behavior is *elicited* or forced by a stimulus (e.g., salivate to a bell). A fundamental distinction is that no new behavior is learned through Pavlovian conditioning; essentially the same response becomes paired with more stimuli (e.g., salivate to a bell, bright light, special signal, etc.). In operant learning, whole new repertoires are shaped by the contingencies that exist between the antecedents and consequences of a behavior (e.g., child learns to say "daddy" in the presence of her father but not of other men). (See Ferster, Culbertson, & Boren, 1975, for an excellent discussion of the basic distinctions between respondent and operant

learning and Neisworth, 1985, for application of operant approaches in early childhood education programs.)

Conceptually and empirically, behaviorism is a science of probability and a means of understanding how we can change the odds that a particular event will occur (or not occur) now and in the future. Indeed, powerful behavioral interventions with preschoolers fail to show a deterministic S–R relationship. If we examine peer-mediated interventions for social interaction (Odom & Strain, 1984) or time-delay procedures used for instruction (Wolery, Holcombe, et al., in press), we find children's behavior is quite variable, changing from minute to minute and day to day. The variability is reasonable, expected, and may be an asset to the child.

Further, behavioral educators and psychologists do not focus only on stimuli and responses closely associated in time (as is the case with true S–R models). Numerous investigations have assessed the effects of a broad range of historical, socioeconomic, ecological, and behavioral variables on the behavior of individual children (e.g., Carta, Sainato, & Greenwood, 1988; Odom, Peterson, McConnell, & Ostrosky, 1990). This research illustrates the extent to which behavioral principles can be applied to the analysis of both contemporaneous and historical factors that affect an individual's behavior at any one point in time.

In some of his last writings, B.F. Skinner spoke directly and eloquently regarding the importance of variation in an individual's patterns of behavior and responses to specific stimuli, and argued for a complete analysis of both genetic, cultural, and experiential variables (Skinner, 1990). To summarize his thoughts, behavior that is determined by a limited range of stimuli, that can be acquired only by direct experience, and that never varies in its occurrence or form is *not* likely to be behavior that helps an individual—or a culture—grow and adapt. And if adaptive behavior is multidetermined, probabilistic, and varied, a science of human behavior must be able to describe and account for these factors. Indeed, behaviorism is one such model.

Behaviorism Overemphasizes External Control of Human Behavior

This charge suggests that behavioral approaches employ a view that emphasizes the controlling influences of external or environmental factors on individuals' behavior. Critics state it discounts individuals'

ability to control their own behavior. Extreme versions of this charge assert that behaviorism denies the existence of "internal events" like thoughts, feelings, emotions, attributions, and fears, focusing only on environmental variables that elicit and reinforce specific behaviors.

Fundamentally, this charge is accurate, but only to a point. Behavioral approaches *do* emphasize the role of external variables (e.g., setting events, discriminative stimulus, reinforcers, and punishers) in the shaping of an individual's behavior; typically, internal factors like intelligence, creativity, or moral development are seen as hypothetical constructs or epiphenomena that can be explained more adequately by accounting for an individual's genetic makeup and experiences or learning history. The behavioral model suggests that the environment—or, specifically, an individual's history of reinforcement—is largely responsible for shaping and governing an individual's behavior.

This does not mean, however, that behaviorists accept the implication that the model is dehumanizing. First, it is not true that behaviorism rejects all "internal events" (Neuringer, 1991). Thoughts, feelings, and emotions are real and influence individuals' behavior. However, behaviorists assume that internal events are *behaviors* (Skinner, 1953); that like any other, more observable, behavior (e.g., initiating social interaction, talking, constructing buildings with blocks), thoughts, feelings, or other internal events are learned through interaction with others and the environment.

Moreover, behaviorists assert that a focus on the influence of external variables offers a functional view of individuals. Many theorists (e.g., Bijou & Baer, 1978; Bronfenbrenner, 1977; Samaroff, 1986) agree that, to some extent, interactions with the environment guide our development. From early infancy, behaviors develop that give us access to food, warmth, love, and affiliation; over time, these behaviors elaborate to accommodate other reinforcers and to encompass familial and cultural norms. By ultimately linking behavioral development to external variables, behaviorism offers an organized and complete model for understanding the ways individuals survive, grow, and become instrumental in their interactions with the physical and social environment.

This environmental view is essentially optimistic; it suggests that (except for gross genetic factors) all individuals possess roughly equal potential. Our society includes individuals who do not acquire essential developmental competencies, fail to make adequate adjustment to school, succeed at lower levels in vocational settings, and experience

little happiness as adults; unfortunately, these poor outcomes are often associated with factors like disability, race, and socioeconomic status. Rather than assuming these individuals lack some essential internal characteristics, behaviorists assume that the poor outcomes originate in the ways the environment and experience shaped individuals' current behavior. Once these environmental and experiential factors are identified, we can design prevention and intervention programs to improve the outcomes for individuals who should, on every other basis, have opportunities for good development, success, and adjustment. Thus, the emphasis on external control in the behavioral approach is not dehumanizing; rather, it offers a conceptual model that celebrates the possibilities for *each* individual.

A closely related criticism of behaviorism is that it does not "follow the lead" of the learner, but instead is overly directive. This is a curious criticism, as we know of no other theoretical orientation that places so much emphasis on understanding the individual in relation to his or her environment. Moreover, behaviorists (e.g., Halle, Alpert, & Anderson, 1984; Hart & Risley, 1975; McGee, Krantz, & McClannahan, 1985) have been the leaders in the design and empirical evaluation of teaching strategies that have relied exclusively on child initiations toward the social and physical environment to occasion instruction.

Behaviorism Is Too Esoteric and Complex

This charge asserts that behaviorism, as a conceptual and empirical body of knowledge, is overly complex for practical application. In large measure, this charge is directed at the scientific foundation of behavioral approaches and questions whether research on nonhuman subjects and basic learning processes is relevant to the problems of children with disabilities and their families.

Behaviorism does present a unified view of learning and behavior that encompasses both humans and nonhumans. Many basic principles of behavioral psychology were identified, and continue to be studied, using nonhuman subjects. Also, behaviorism takes a scientific approach to understanding behavior and integrates knowledge from basic and applied research. However, behaviorists *do recognize* differences between the behavior of humans and other organisms and believe that learning processes *are not* identical across species. Indeed, there is a rich tradition of human and nonhuman behavioral research,

both basic and applied. A strong tie exists between basic research conducted with animals and applied research with preschool children, but there also is explicit attention to translating fundamental phenomena identified in laboratories to practical, and acceptable, procedures for use with humans (Tawney & Gast, 1984).

Behaviorism Is Limited in Its Scope of Application

This charge, though common, appears to originate from dated and incomplete information. On the contrary, behavioral procedures are used with an array of problems in varied settings. In schools, behavioral researchers have studied problems of developmental and academic competence, acquisition of social interaction and school survival skills, increased independence, self-management, and peer-monitoring. In communities, behavioral applications have focused on increasing cooperation among ethnically diverse groups, improving maintenance of the physical environment, improving pedestrian and worker safety, rehabilitating criminal offenders, and reducing the risk of AIDS transmission.

Based on this review of the common criticisms of behaviorism, we conclude that much of the criticism leveled at behaviorism is unfounded and is the product of inaccurate understanding of the model. The next section reviews the critical features of the behavioral approach.

Critical Features of Behaviorism

Several features of behaviorism make it well suited to early intervention. Indeed, because behaviorism and early intervention matured simultaneously, the critical features of each are almost indistinguishable. Many of the features we use to define early intervention have behavioral roots; for example: (a) a *theory* of developmental retardation that focuses on observable, and thus changeable, conditions; (b) a *research methodology* that focuses on the idiosyncratic patterns of children's behavior through the use of repeated, intensive assessments; (c) an *assessment* approach that focuses on factors that cause or maintain a child's behaviors; and (d) an *intervention* approach that emphasizes quality of a treatment's implementation, its social acceptance, and its effectiveness.

Behavioral Theory of Developmental Retardation

A primary contribution of behaviorism to early intervention is its conceptualization of the developmental process for typical (Bijou & Baer, 1978) and atypical child development (Bricker, 1989). When the field of early intervention was in its infancy, Bijou (1966) introduced the term *developmental retardation* to replace the term *mental retardation*. This change is terminology was a reaction to the then current approach to treating mental retardation as a hypothetical construct based on biological abnormalities such as brain dysfunction and corresponding defective intellectual capacities. The term developmental retardation shifted the focus from organismic and unobservable variables to the observable conditions that produced "retarded" behaviors. From the behavioral perspective, a "retarded" child acts as he does *not* because of the condition of retardation but because he has a "limited repertory of behavior shaped by events that constitute his history" (Bijou, 1966, p. 2). In other words, the child has yet been taught to behave otherwise (Bijou, 1966; Sailor & Guess, 1983; Vincent, Salisbury, Strain, McCormick, & Tessier, 1990). Thus, an intervention must be based not on past history or on assessed mental states but on critical relationships the child has with the environment (Bijou, 1966; Sidman, 1960; Vincent et al., 1990). So, given a child with delays, behavior-based intervention changes the child's developmental trajectory by intervening in those interactions that appear to retard development.

Single-Subject Research Methodology

A second contribution of the behavioral approach is the use of research designs that value the individual. A fundamental principle of early intervention is the importance of the unique needs of each child and family and developing individualized programs to meet those needs. In single-subject studies, as with early intervention programs, within-subject variability is worthy of careful examination because it represents an individual's response to some variable(s) that should be explained. Thus, behaviorists engage in intensive assessment of individuals to monitor programs *and* to understand the factors that influence the child's behavior. These frequent measurements are used to change ineffective interventions. This approach shifts the "blame" for

lack of improvement from some trait of the child (e.g., an attentional disorder) to some fault of the intervention (Baer, 1981).

Behavioral Approach to Assessment

The cornerstone of the behavioral approach to measurement is frequent assessment with intensive observations to identify controlling and maintaining environmental factors. This approach shifts the traditional focus of assessment from infrequent sampling of unchangeable traits to the more frequent assessment of manipulable elements of the environment (e.g., interactions with caregivers or peers that set the occasion for language use, events that precede episodes of aberrant behavior, or classroom arrangements that promote high levels of engagement). The behavioral approach to assessment includes functional and ecobehavioral assessment.

Functional assessment is the process of determining the relationship between a child's behavior and the environmental factors that may cause or maintain it (Wolery, Bailey, & Sugai, 1988). Often, functional assessments are used to identify events that trigger children's challenging behaviors and to develop predictions about conditions under which those behaviors are likely to occur (Durand & Carr, 1987; Horner, Albin, & O'Neill, 1991). Functional assessment of a challenging behavior such as severe self-injury would include a description of when, where, with whom, and under what conditions the behavior would occur. This approach provides a means of determining the possible functions or maintaining consequences of behaviors. This approach is preferable to use of intrusive procedures or more traditional medical interventions.

Similar to functional assessment, *ecobehavioral assessment* seeks to identify functional relationships between environmental events and children's behavior. But ecobehavioral analysis attempts to study broader contextual or setting events that may affect behavior (e.g., Brown, Bryson-Brockman, & Fox, 1986; Morris & Midgley, 1990). Ecobehavioral assessment has often focused on behaviors that should be accelerated such as communicative behaviors (Hart & Risley, 1989), active engagement (Carta, Atwater, Schwartz, & Miller, 1990; Carta et al., 1988), or peer interaction (Odom, Peterson, McConnell, & Ostrosky, 1990a).

Ecobehavioral analysis holds several advantages. First, it allows the user to describe a behavior and its immediate and subsequent situ-

ational events. If these data records extend across several days or weeks, they lend themselves to the study of environmental effects distant in time from a particular target response (e.g., Wahler & Fox, 1981). Second, use of ecobehavioral assessment within experimental studies can document important features of the independent variable and allow quantitative comparisons of the interventions between baseline and experimental phases. For example, several aspects of classroom ecology and their effects on child behaviors could be simultaneously monitored within a manipulation of classroom organization. Third, use of ecobehavioral assessment within experimental studies increases the ability to explain changes in behavior that emerge, and also variability in that change. For example, when applied to a problem such as school failure by children in schools from low-income areas, Greenwood (1991) found many contrasting classroom ecological features. When those ecological features were manipulated, specific ecobehavioral interactions were found to covary with specific academic outcomes. Thus, ecobehavioral analysis offers early intervention a powerful, expanded process measure for studying the delivery of treatments and their effects on children's outcomes.

Behavioral Approaches to Intervention

The goal of behavioral approaches is the delivery of quality services to children. Toward this end, however, behavioral approaches are guided by three fundamental principles that undergird applied behavior analysis as a field: treatment integrity, acceptability, and effectiveness.

Treatment integrity is the degree to which an intervention is delivered as intended. Frequently, investigators assumed that, with sufficient training and support, treatments would be implemented as planned. Numerous studies, however, documented that this is not the case (Gresham, 1989). Thus, carefully conducted behavioral intervention studies make frequent assessments of treatment fidelity. Such practice is important to planners and implementers of intervention programs. These data may help explain the lack of success with some program participants—they did not receive the intervention as planned. Also, the data may identify features of interventions that practitioners are likely to implement with fidelity and the ones they are likely to abandon or use inaccurately. Finally, when fidelity measures are used in conjunction with student outcome data, the most essential features

of interventions may be documented and used when disseminating interventions.

Behavioral researchers are concerned with the acceptability of their interventions by consumers, (i.e., their social validity) (Schwartz & Baer, 1991). This concern has been a persistent theme in behavioral studies over two decades (Kazdin, 1981; Repucci & Saunders, 1974; Wolf, 1978). Behaviorists have invested considerable energy to identify the features of interventions that are accepted by consumers (e.g., teachers, students, parents) and features they found unacceptable. Behaviorists also are concerned with the social validity of the goals of their treatments (e.g., How important do consumers consider the behavioral changes caused by our interventions?) and the magnitude of the effects obtained (e.g., Do consumers notice a change in individuals receiving our treatment and do they appreciate the difference?). Each of these questions must be answered by early interventionists as well as behavior analysts (Miltenberger, 1990).

A third, and probably the most fundamental principle of behavioral approaches, is concern for treatment effectiveness. This principle above others is the determining factor that guides the behaviorist researchers or practitioners in deciding whether an intervention should be maintained or modified. This concern that children's behaviors are changed in desirable directions was described more than 20 years ago by Baer, Wolf, and Risley (1968): "If the application of behavioral techniques does not produce large enough effects for practical value, then application has failed . . . . Its practical value, specifically its powers in altering behavior enough to be socially important is the essential criterion" (p. 96). This same concern for whether a program works must also drive the early interventionist in maintaining accountability for services. Empirical evidence for effectiveness must guide the selection of interventions as well as the decisions to maintain or change programs.

The Behavioral Perspective: Examples of Application

To illustrate the relevance of the behavioral perspective to early intervention, we identified six functions performed by professionals in early intervention. They appear to engage in two major development functions and four implementation functions; these are described

below. Other functions exist such as interacting with members of other disciplines, ensuring interagency coordination, developing and influencing policy, providing staff development and experiences, informing the public, and many others. However, these activities frequently occur to ensure that the six functions listed below are accomplished adequately.

Development Functions of Professionals

Developing Model Services. Service development is best accomplished when a unifying conceptual or philosophic base is used to make decisions about the nature and manner of service delivery (Dunst, Snyder, & Mankinen, 1989). The pertinent question is, Can the behavioral perspective provide a unifying conceptual foundation for making decisions about service provision? Experience suggests that the answer is yes; several well-established programs support this conclusion. Among others, these include the Teaching Research Data-Based Classroom Model (Fredericks et al., 1980); Learning Experiences . . . An Alternative Program for Preschoolers and Parents (LEAP) (Hoyson, Jamieson, & Strain, 1984); the comprehensive program developed by Lovass (1987); and the Preschool Training Project (Dunlap, Robbins, Dollman, & Plienis, 1988). These models vary in terms of primary goals, site of services, nature of family involvement, staffing patterns, curricula used, and many other features. However, they share several characteristics, such as a commitment to producing outcomes, careful identification of target skills, understanding children's behavior in the contexts of their natural environments, systematic manipulation of children's experiences to ensure acquisition of skills, attention to producing generalized outcomes, frequent and ongoing assessment of the effects of intervention, and adjustment of the intervention based on child progress. These programs have been thoroughly evaluated and shown to produce durable and desirable changes in outcomes. Thus, the behavioral model is sufficiently flexible and comprehensive to be used as the conceptual base for service development.

Developing Curricula. In addition to devising service models, the behavioral perspective has influenced curriculum development activities. Examples of curricula that were influenced by the behavioral approach are: Teaching Research Curriculum (Fredericks et al., 1980);

Programmed Environments Curriculum (Tawney, Knapp, O'Reilly, & Pratt, 1979); HICOMP Preschool Curriculum (Willoughby-Herb & Neisworth, 1980); Evaluation and Programming System for Infants and Young Children (Bricker, Bailey, Gunnerlock, Buhl, & Slentz, 1986); The Integrated Preschool Curriculum (Odom et al., 1988); and IMPACT Curriculum (Neel & Billingsley, 1989). Most of these development efforts used the behavioral approach in conjunction with other compatible theoretical perspectives. For example, Dunst (1981), in developing the Cognitive–Linguistic Curriculum, based it on a synthesis of Piagetian theory and the behavioral perspective. For a discussion of the synthesis of theoretical perspectives related to curriculum development, see Dunst (1981, chap. 3; 1982). These examples show the utility of the behavioral perspective in developing curricula.

Implementation Functions of Professionals

Assessing Infant and Child Behavior. The purposes of intervention-planning assessments are to identify (a) skills children currently display and that can be used to facilitate other skills, (b) skills they display with assistance and the nature of that support, (c) skills they do not display but need to learn, and (d) the variables that influence their performance (Wolery, 1989). Many of the important outcomes of early intervention cannot be assessed through direct testing (Neisworth & Bagnato, 1989) (e.g., social interactions, communication skills, social play, self-care skills such as toileting and eating). These abilities are best assessed in natural contexts where they are needed. Failure to do so may lead to inappropriate intervention goals.

The behavioral perspective, with its rich tradition of direct observation as an assessment mechanism, is well suited for program-planning assessments for two reasons. First, it can lead to descriptive information about children's skills, and second, it can identify the environmental variables that influence their behavior. For example, direct observation can be used to assess and identify (a) dimensions of the physical environment (e.g., design of activity areas, materials, etc.) that result in engagement, learning, play, and independence (Bailey, 1989; Odom & Strain, 1984); (b) the nature and sequence of activities that promote engagement and interaction (Carta et al., 1988; DeKlyen & Odom, 1989); (c) staffing patterns that influence engagement (LeLaurin & Risley, 1972); (d) events that motivate children

to learn (Mason, McGee, Farmer-Dougan, & Risley, 1989); (e) membership and behavior of the social environment that promote interaction (McCollum & Stayton, 1985; Strain, 1983); (f) skills needed in particular environments (e.g., classrooms or settings to which children may transition) (Salisbury & Vincent, 1990); (g) the effects of particular instructional strategies on children's performance (Liberty & Haring, 1990); (h) the effects of broad ecological variables (e.g., mother's contact with service providers) on children's motivation and behavior (Rogers-Warren, 1984; Wahler, 1980); and (i) identification of the functions and consequences of children's behavior (O'Neill, Horner, Albin, Storey, & Sprague, 1990). Identification and description of current behaviors and of the effects of environmental variables are critical sets of information when planning programs. Thus, the behavioral approach has multiple applications for the assessment practices of professionals.

Planning and Implementing Individualized Interventions. Perhaps the application of a behavioral perspective to intervention activities is most widely recognized in the control of problem behavior (e.g., Baer, 1978; Repp & Singh, 1990). Without minimizing such contributions, it is important to note that the behavioral approach is useful in devising instructional strategies to promote acquisition and use of skills. For example, the milieu teaching strategies such as incidental teaching, the mand-model procedure, and naturalistic time delay have their roots in the behavioral analysis of child language (Hart & Risley, 1980; Warren & Kaiser, 1988; Warren & Rogers-Warren, 1985). Similarly, peer-mediated strategies such as peer imitation training, peer tutoring, and peer social initiation training, the use of group contingencies (Kohler & Strain, 1990; Strain, 1981), and affection activities (McEvoy et al., 1988) also were derived from the behavioral approach. Further, the literature on shaping, modeling, prompting, fading prompts, and providing contingent reinforcement and feedback to promote learning of skills as diverse as dressing and naming numerals is primarily from the behavioral approach (Demchak, 1990; Wolery, Ault, & Doyle, 1992). The behavioral approach also is useful in promoting the transfer of skills across contexts and facilitating maintenance of outcomes (Horner, Dunlap, & Koegel, 1988; Stokes & Baer, 1977). Without the behavioral approach, many of the most widely used and effective intervention strategies would not exist.

Monitoring and Adjusting Interventions. Development is complex, the effects of disabilities on it are poorly understood, and early

intervention is an incomplete science/practice. Thus, most intervention plans require adjustment. In fact, rapid modification of interventions is a hallmark of quality services. The measurement systems of the behavioral perspective are useful in identifying when adjustments are needed. However, the contribution of the approach also is seen in the analysis of that data. Data decision rules are used to evaluate children's skill acquisition and fluency (Liberty & Haring, 1990) and their generalization of skills (Liberty, 1988). The rules move the analysis of data from an intuitive level to one based on research. The rules allow the professional to determine whether changes in intervention are needed and what changes are likely to be effective. Thus, the behavioral approach has made substantial contributions to our ability to collect and interpret data on the effects of individualized interventions.

Assisting Families. Radical reconceptualization has occurred in the past decade about the relationships between interventionists and families (cf. Dunst, 1985). Current perspectives, based on ecological psychology, suggest that families are complex systems that function within broader ecological systems. The interventionist must assist families in identifying their needs, goals, and resources; securing support from their natural resources; and engaging in patterns of behavior that are satisfying to them and promote their child's development. The behavioral perspective is useful in fulfilling this role in at least four ways: (a) identifying the effects of broad ecological variables on interactions within the family (e.g., Wahler, 1980); (b) identifying and modifying counterproductive interaction patterns within families (Kozloff, in press); (c) providing training and assistance to families to promote long-term prosocial responding in children (Patterson & Fleischman, 1979; Strain, Steele, Ellis, & Timm, 1982); and (d) providing training to families who wish to teach their children adaptive skills or manage their children more effectively (e.g., Cordisco, Strain, & Depew, 1988; Fowler, Johnson, Whitman, & Zukotynski, 1978). Thus, the behavioral perspective can be useful to interventionists as they interact with families.

Numerous examples confirm the relevance of the behavioral approach to developing services and designing curriculum. In addition, it has numerous applications in the day-to-day practice of early interventionists as they fulfill the functions of assessing infants/children, planning interventions, monitoring and adjusting those interventions, and assisting families.

Conclusions

Our purpose in coming to the defense of behaviorism is not to assert its supremacy, real or potential, over other conceptualizations. In fact, without any danger of becoming conceptually muddled, we see an integration of perspectives as offering the most promise for research and practice in early childhood special education. Yet, any conceptualization or practice that summarily omits the contributions of behaviorism is shortsighted. Relatedly, we hope that this article makes the point with sufficient clarity that behaviorism has been the conceptual foundation for many of our "best practices" of today. Most important, however, we hope to have communicated effectively regarding the absolutism, narrowness, and lack of determinism sometimes associated with behaviorism and behaviorists. Where those qualities do exist, they represent conceptual fuzziness and individual mistakes of application, not endemic shortfalls of theory and practitioners. As we proceed toward the next century, it is our sincere hope that our many vital and valuable conceptualizations regarding human behavior, and early intervention (e.g., ecological, developmental, systems theory, behavioral), find a mutually influential and synergistic role in the development of new and more robust interventions for children and families.

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