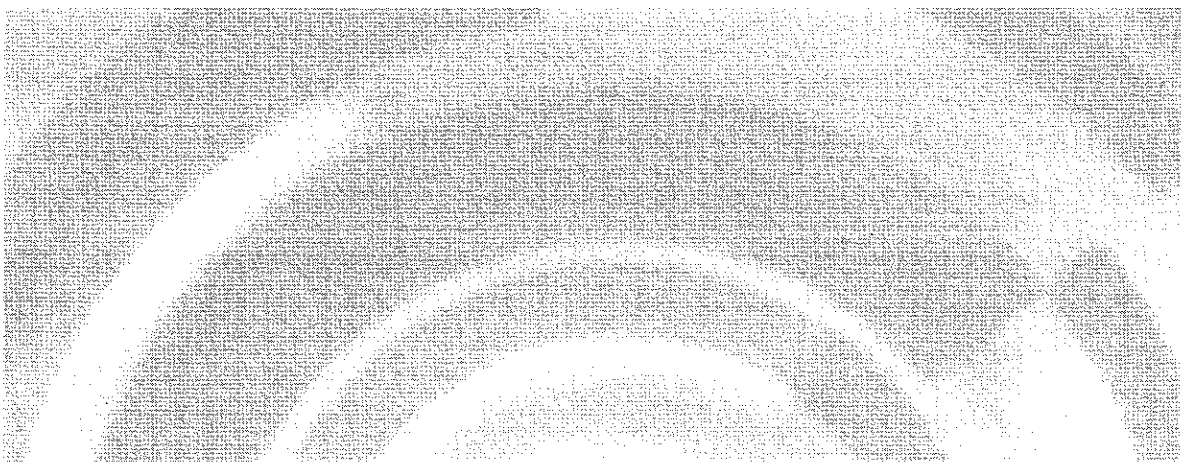
Week 4

Chapter 19

The SAGE Handbook *of* Special Education



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19

Behavioral theory and practice: current and future issues

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Behavioral theories are based on the underlying epistemological model known as *logical positivism*. Positivism asserts that the only valid knowledge is that which is objectively observed. It is from this model that scientific theories of behavior are generated which, in turn, are used to develop and apply technology whose primary goal is cost-effective, useful, and ethical behavior change (Fishman, Rotgers, & Franks, 1988). Behavioral theory has its roots in two orientations: Skinner's (1938) operant conditioning and Pavlov's (1927) respondent (classical) conditioning. Hull (1943), an early contemporary of Skinner, developed a systematic behavior theory that meshed together operant and respondent conditioning.

Behavior modification – a term believed to have first appeared in a chapter written by R. I. Watson (1962) – is the systematic application of learning principles and techniques to assess and improve individuals' behaviors. Two closely related terms are *behavior therapy* and *applied behavior analysis*. Behavior therapy is closely aligned with respondent conditioning and Wolpe's (1958) construct of reciprocal inhibition which formed the basis for systematic desensitization. It tended to be used by behavioral psychologists and psychiatrists who were concerned primarily with treatment in traditional clinical settings, such as a therapist's office, by means of verbal interaction (that is, 'talk therapy'). Applied behavior analysis (ABA) tends to follow an operant orientation and was popularized in 1968 with the founding of the *Journal of Applied Behavior Analysis*. Applied behavior analysis has been defined as a systematic, performance-based, self-evaluative method for changing behaviors. Although the three terms have been used interchangeably, Martin and Pear (2003) preferred the term behavior modification because it subsumes both behavior therapy and ABA.

The science of behavior modification has, arguably, made its most valuable contributions to education (for example, Heward, Heron, Hill, & Trap-Porter, 1984; Sulzer-Azaroff, & Meyer, 1986). Skinner (1984) suggested that the most effective instructional practices are based on behavioral theory. Nevertheless, it still elicits strong reactions from educators who continue to savagely castigate and extravagantly praise its use. General educators tend

to condemn behavior modification as being coercive and stifling internal motivation – a view expounded by Kohn (1993) in his book *Punished by Rewards*. Conversely, most special educators embrace behavior modification – perhaps since Itard's work with Victor, the wild boy of Aveyron – as an essential foundation of classroom management (Haring & Kennedy, 1996).

Ishaq (1996) suggested that the social relevance of behavior modification can only be acknowledged when the issues facing its use have been addressed. Some issues have been successfully resolved (for example, guidelines for using schedules of reinforcement) while others continue to pose reoccurring and vexing problems (for example, social validity, promoting generalization). It is impractical to address – even summarize – every issue related to behavior modification in education in a single book chapter. It would even be a daunting task to untangle the complex issues within an entire book. Therefore, the purpose of this chapter takes a different tack. It begins with a brief overview of behavior modification in special education – the faction within education that has embraced its use the most. This synopsis is followed by a discussion of four current issues that have particular relevance to special educators in today's schools. The chapter concludes with a discussion of two issues that pose future challenges to behaviorists in education.

OVERVIEW OF BEHAVIOR MODIFICATION IN SPECIAL EDUCATION

The education of youngsters with disabilities has changed considerably throughout the years – ranging from neglect and ridicule to compassionate concern and integration (Winzer, 1993). Concomitant with these changes in social attitudes and emerging legislation (for example, P.L. 94–142), new programs for children with disabilities, based on empirically validated behavior modification techniques, were established in public schools.

Origins of behavioral approaches

Kauffman (2001) traced the use of behavior modification by educators back to the late 1950s and 1960s. William Cruickshank and his colleagues developed a highly structured experimental public school program for brain-injured and hyperactive children in Montgomery County, Maryland. Norris Haring and E. Lakin Phillips developed a similar program to work with students with emotional disturbances in Arlington, Virginia, public schools. Haring later collaborated with Richard Whelan who had previously developed a structured approach to teaching at the Southard School of the Menninger Clinic in Topeka, Kansas. Together, they developed a program at the University of Kansas Medical Center that included the direct daily measurement of behaviors.

Early applications of the behavioral approach were being reported by others in the literature. For example, Zimmerman and Zimmerman's (1962) study of how the use of systematic consequences reduced students' temper tantrums and refusal to write spelling words ushered in a plethora of behavior modification research. Perhaps the most extensive use of behavioral theory was by Frank Hewett who, in the middle 1960s, developed the engineered classroom that was based on the use of a token economy and special curricula as exemplified in the Santa Monica Project. Hewitt also had an interest in using operant conditioning techniques to teach children with autism. Perhaps the most notable person to use behavioral approaches in the treatment of autism was O. Ivar Lovaas. His research focused on teaching children with autism language and daily living skills. His Early Intervention Program has generated much recent attention and some controversy.

Applications of behavioral theory

A large body of research accumulated during the 1970s and early 1980s that focused on developing and validating the efficacy of various techniques based on operant learning principles. These techniques could be catego-

rized as those designed to increase or decrease youngsters' behaviors. So much research has accumulated on these technique that new empirical reports on their application have become more rare and even reviews of each technique have become dated. In essence, their effectiveness has become established fact.

Three of the most researched techniques for increasing behaviors have been behavioral contracting (Rutherford & Polsgrove, 1981), token economies (Kazdin & Bootzin, 1972; O'Leary & Drabman, 1971), and group-oriented contingencies (Hayes, 1976; Litow & Pumroy, 1975). Several techniques for decreasing behaviors have been the subject of extensive research: time out (Brantner & Doherty, 1983; Rutherford & Nelson, 1982), response cost (Walker, 1983), overcorrection (Foxx & Bechtel, 1983), and various schedules of differential reinforcement (Jones & Baker, 1990; Lancioni & Hoogeveen, 1990; O'Brien & Repp, 1990; Whitaker, 1996).

SOME CURRENT ISSUES IN BEHAVIORAL THEORY

A conundrum is created when selecting current issues in the use of behavior modification. The reason is that many 'current' issues have been around for decades. For example, over 35 years ago, Baer, Wolf, and Risley (1968) first discussed the notion that generalization must be specifically planned and rarely occurs spontaneously. In their seminal article nine years later, Stokes and Baer (1977) described a technology for programming generalization. Almost a decade later, Stokes and Osnes (1986) were reiterating those techniques. Around the same time, Rutherford and Nelson (1988) reviewed 5,300 behavioral treatment studies with children and adolescents and reached the conclusion that less than 2 per cent addressed generalization and maintenance of educational treatment effects and less than 1 per cent programmed for stimulus and response generalization.

The point is that the list of potential past issues, many of which are still current, as well as more recent ones, is enormous. For this chapter, four issues were included based on their relevance to the increasingly challenging behaviors displayed by children who attend public school: functional assessment, social validity, improving natural reinforcement, and momentum of compliance. Each of these issues have been the topic of articles, chapters, and in some cases, entire books (for example, functional assessment). The goal was to extract one or two unique aspects of each issue to present here.

Functional assessment

Functional assessment involves describing a problem behavior, identifying setting events that predict when it will and will not occur, identifying consequences that maintain it, developing hypotheses that describe the behavior, when it occurs, what reinforcers (positive or negative) maintain it, and collecting observational data that supports the hypotheses (O'Neill et al., 1997). The results are used to develop a behavior support plan. Functional assessment has been used extensively to develop situationally appropriate interventions for students with developmental disabilities in special education settings (Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; Dunlap et al., 1993; Kern, Childs, Dunlap, Clarke, & Falk, 1994; Lalli, Browder, Mace, & Brown, 1993; Northrup et al., 1994; Repp & Karsh, 1994; Sasso et al., 1992). It has also been used with students with mild disabilities (cf. Reid & Nelson, 2002). Its use with this population in the era of full inclusion raises the issue of whether it can feasibly be implemented by general educators in mainstreamed settings.

Applications in general education classrooms

Functional assessment has not been widely used by general educators because it has been perceived as time-consuming, complicated, and multi-faceted (Larson & Maag, 1998). However, the issue may not be the ability of general education teachers to learn and

implement functional assessments but rather if they can implement it in their classrooms and still manage the many tasks their profession demands. Preliminary results are encouraging. For example, Moore et al. (2002) trained three general education teachers to correctly implement functional assessments. However, no data were collected on the students' behaviors, nor were measures of treatment acceptability collected. Packenham, Shute, and Reid (2004) obtained similar results while also obtaining positive changes in the target students' behaviors. Admittedly, their approach was a truncated version of functional assessment. But that raises the question as to how streamlined can functional assessment be made while still retaining its fidelity?

Larson and Maag (1998) developed the Functional Assessment Hypotheses Formulation Protocol (FAHFP) to address this very question. Combining elements of other checklists, interviews, and observation forms, the FAHFP directs a teacher to independently operationally define a behavior, identify setting events, consequences, and functions associated with the occurrence of the behavior, and conduct a systematic observation of the behavior. The protocol culminates with a teacher generating hypothesis statements and formulating a functional analysis plan. Maag and Larson (2004) found that a general educator could independently use the FAHFP, collect direct observations of students' behaviors, and implement contextual and curricular modifications. In addition, treatment acceptability was quite high. Although these results are promising, this area of inquiry is still in its infancy and requires considerably more research.

Overruling results of functional analysis

Functional analysis is the second stage of functional assessment and involves testing a hypothesis by recording the target behavior during baseline and intervention (that is, contextual or curricular modifications) phases and graphing the results. Behavior support plans flow directly from functional analyses (Maag, 2004). It is a straightforward empirically validated practice. However, Leslie (1997) questioned whether certain ethical principles would overrule the results of a functional analysis. His question was framed within the context of the least restrictive environment (LRE) in which treatments for individuals with disabilities should not be unduly restrictive. His concern is germane to educators given the inclusion zeitgeist.

Typically, a hierarchy of options – beginning with the least restrictive – guides the use of behavioral interventions. For instance, in the case of punishment, a response cost should be used first, followed by mild forms of time-out, and culminating in the use of seclusion, restraint, and overcorrection, respectively (Maag, 2004). However, Johnston and Sherman (1993) argued that a hierarchy of methods does not always exist for all individuals. Rather, it is assumed that results of functional analysis will be the most empirically valid and, consequently, an ethically acceptable guide to implementing interventions.

Is this assumption valid? What if functional analysis reveals that an individual's self-injurious behavior (SIB) is maintained by attention and, therefore, its withdrawal (that is, extinction) becomes a centerpiece of the behavior support plan? Extinction typically results in a temporary increase in the target behavior (that is, extinction curve). So wherein does the restriction lie? During the initial stages of extinction, the individual theoretically could suffer more from the therapeutic restrictions of the functionally derived intervention than more restrictive punitive approaches that would eliminate SIB quickly.

Are experts in behavior modification the best individuals to develop and implement an intervention? Although functional assessment is empirically based, it is not perfect and results vary, in part, based on the training and expertise of the individual using it. Therefore, should the wider community be involved to impose restraints on treatment decisions? Perhaps it would be a valuable exercise to bring the ideas of functional analysis to a wider audience – a proposal related to social validity.

Social validity

Issues surrounding social validity were first addressed over 25 years ago in a seminar article written by Wolf (1978). At its most basic level, social validity addresses whether a relevant audience (for example, educators, mental health providers) finds interventions in real-life settings to be acceptable in terms of their goals, methods, personnel, outcomes, and ease of integration into the consumer's current environment and responsibilities (Schwartz & Baer, 1991). This information is then immediately used to modify the current intervention, future applications, and outcome evaluation. Therefore, social validity evaluations, in this larger context, are not dependent measures but rather meant to supplement them.

A misapplication of this concept is illustrated by outcome evaluation in social skills training that had been characterized as an exercise in social validation (Elliott, Gresham, & Heffer, 1987). Namely, changes in targeted behaviors should predict a student's status on socially important outcomes using such measures as sociometric techniques, teacher ratings, and measures of academic performance (Gresham, 1983; Hughes & Sullivan, 1988). However, Schwartz and Baer (1991) suggested that social validity assessment is a defensive technique because it is oriented toward detecting unacceptability in any of three major areas: the goals of intervention, its methods, and its personnel. Therefore, social validity assesses the viability of an intervention and not its effectiveness.

The ongoing challenge in social validity is predicting why certain interventions are liked and others disliked by educators rather than simply being an early warning or endorsement (Schwartz & Baer, 1991). To accomplish this goal, educators in a position to use interventions based on behavior modification need to be identified and reliably assessed. At issue here is not what to ask but *whom* to ask. There are other passive, but important consumers besides educators. For example, peers can be participants in enhancing entrapment for a student receiving social skills training or sabotage it as soon as school personnel are absent (McConnell, 1987). The point is that many people may be consumers of interventions other than the target child and that there are very little data indicating what turns them into either supporters or critics.

A related concern is how to collect information in a valid, reliable, and cost-efficient manner. The subjective nature of the assessments (for example, interviews, questionnaires) and intrusion of the experimenter make this type of data difficult to interpret. What does it mean, for example, if a teacher circles 'pretty much' for the level of satisfaction he or she had for an intervention? Instead, a wider range of observable behaviors should be sampled. For example, instead of an item that asks a respondent to rate how much a child 'fidgets', it may ask to rate how many times in a day a child handles materials not related to the lesson.

Improving natural reinforcement

For all the hundreds of empirically sound research reports validating the efficacy and scope of behavior modification, this technology has largely been ignored, or at least seriously questioned, by many educators (Axelrod, Moyer, & Berry, 1990). Maag (2001a) described how many teachers resist using positive reinforcement because they erroneously view it as an artificial device tantamount to bribery rather than the naturally occurring phenomenon it is that exists in every classroom. He then posed the following question to these teachers: what would you prefer, to ignore the effects of reinforcement and run the risk of it haphazardly maintaining inappropriate behaviors or program its use to increase appropriate behaviors? Teachers will not be able to consider seriously the implications of this question until behaviorists proffer strategies that teachers will accept – those that are socially valid (Fantuzzo & Atkins, 1992).

Perhaps the most socially valid behavioral approach for teachers is through the use of natural reinforcement. The goal is to identify reinforcers that students can receive without the mediation of teachers and that contribute to making the natural consequences of behavior

reinforcing (Horcones, 1992). Natural reinforcement has also been called intrinsic consequences because they originate in the behavior itself and are the natural or automatic results of responding (Vaughan & Michael, 1982). Conversely, extrinsic consequences originate in sources other than the behavior itself such as when a teacher verbally praises a student.

The irony is that because natural reinforcers are intrinsic consequences, they cannot be deliberately manipulated and, therefore, would appear meaningless to teachers. However, appearances can be misleading. It is possible for teachers to establish or eliminate the reinforcing function of natural consequences and make them more or less conspicuous (Horcones, 1992). Extrinsic reinforcement is still an important tool to shape, increase, and condition natural consequences as reinforcers.

Horcones (1992) recommended the following sequence in conditioning a natural consequence as a reinforcer. First, teachers should select a target behavior and identify the natural consequences of the selected behavior through the use of an A-B-C analysis (Maag, 2004). Second, an intrinsic consequence should be selected to be conditioned as a natural reinforcer. For example, the intrinsic consequences of typing could be the noise made by the keys on the board or the accumulating words appearing on the monitor. The latter consequence is the most educationally salient and, consequently, should be the one conditioned as the natural reinforcer. Third, intrinsic consequences should be identified that are easily observed by a student. For example, the intrinsic consequences for a student singing in a chorus are hearing herself singing the same words in the same volume and key as the rest of the group. Therefore, a teacher may first condition, as a natural reinforcer, the consequences of singing the same words because it is the easiest for the student to observe followed by singing at the right volume and finally in the right key – the latter being the most difficult to discriminate. Fourth, the teacher should arrange the conditions so that the intrinsic consequences are easily observable. For example, a teacher could point out and describe the correct sequence a student used to arrive at the solution to a division problem. The final step is for a teacher to select appropriate back-up reinforcers.

There are several features of natural reinforcement that teachers should find appealing. First, it may be easier to shape students' behaviors because this type of reinforcement occurs immediately and is simultaneously available to all students. It is impossible for even the most devoted behaviorally oriented teacher to match the frequency and breadth that intrinsic contingencies offer. Second, intrinsic consequences may bring a student's behavior under the control of natural discriminative stimuli. This type of entrapment is an essential ingredient for promoting generalization. Third, natural reinforcement is always individual-specific. It is an oxymoron when teachers say 'I've tried reinforcement and it doesn't work.' They are actually lamenting the difficulty finding consequences that students find reinforcing. The time used in trying to accumulate a large variety of external reinforcers can be better spent promoting natural reinforcement.

Momentum of compliance

The metaphor of behavioral compliance is a way to describe two independent dimensions of behavior: (a) rate of responding established and maintained by contingencies of reinforcement and (b) resistance to change when responding is in some way challenged or disrupted. The goal is to establish desirable behaviors that persist through changes in contingencies from external to natural reinforcement. The process begins with 'momentum' being a type of *discriminated operant* that follows a fairly classic A-B-C model (A = antecedent, B = identified response class, C = contingencies of reinforcement). It proceeds when a teacher uses a multiple schedule of reinforcement to present two or more distinctive stimuli successively – in regular or irregular alteration – for predetermined durations.

Maag (2001b) described how behavioral momentum can be used as an intervention for managing students' resistance. The process

begins by instructing a student to engage in behaviors that she wants to perform (that is, high probability requests). Once the student is compliant, an instruction is given to perform an unfavorable behavior (that is, low probability requests). For example, a teacher may follow a request to have a student tack pictures on a bulletin board (high probability behavior) with the instruction to throw away trash (low probability behavior). The idea is to build momentum toward compliance by first getting the student to perform a series of desired behaviors. Rhode, Jenson, and Reavis (1995) developed easy-to-follow teacher guidelines for implementing behavioral momentum.

Nevin (1992a, 1992b) conducted two laboratory studies in order to refine the stimulus-reinforcer relation that characterizes behavioral momentum. He concluded that resistance to change depended on the relative, rather than the absolute, reinforcer rate in the presence of a stimulus. The implication of his studies for educators is that student resistance to following directions depends on the reinforcer rate not only within the classroom but also outside it. Therefore, educators should identify both proximal and distal reinforcement contingencies to use behavioral momentum effectively.

SOME FUTURE ISSUES IN BEHAVIORAL THEORY

The same conundrum exists when selecting future issues as that previously raised for current issues. Issues are updated and contextually relevant to other factors being discussed in education and psychology – both in and outside behavioral theory. Two issues are presented in this section: studying emotions and behavioral cusps. These topics are timely and less has been written about them than other issues. The purpose of only presenting two issues here was to give them each a more detailed account than what had appeared for the current issues which have received more attention elsewhere.

Studying emotions

The topic of emotions cannot be discussed without including cognitions. The relation between emotions and cognitions has been debated since Aristotle and continues to the present. There are two main opposing positions in this debate: cognitively oriented emotion theorists who hold that cognitions (that is, cognitive appraisals) are necessary for emotions (Lazarus, 1984) and independent systems theorists who hold that cognitive appraisals are not causally necessary for emotions and that they are independent of each other (Zajonc, 1984). The argument is not so much dichotomous – few would deny that cognition and emotion function conjointly – as it is programmatic (that is, understanding how the two interact).

It has not been easy to behaviorally study emotion because it tends to be an ambiguous and subjective term that cannot be reliably observed until the specific behaviors within the category are operationally defined. At its simplest level, Skinner (1989) believed that the meaning of an emotional term (for example, anxiety) resided in the functional relation between antecedents and consequences. For example, a student who said 'I feel anxious' would require identifying setting events (for example, giving a speech in front of the class) and consequences (for example, peers yawning, drawing pictures, writing notes, or talking amongst themselves).

Although Skinner's approach has been commended as providing a needed opening for the behavioral study of emotion, it has also been criticized as being limited and unproductive (Friman, Hayes, & Wilson, 1998). For example, knowing that an antecedent (giving a speech) elicits a verbal behavior ('I feel anxious') or that a consequence (peers yawning) exists does not help with prediction and control of the phenomenon called emotion – two of the fundamental goals of behaviorists.

An expanded view of emotion

Friman et al. (1998) provided a conceptualization of emotion (using the example of anxiety)

that – unlike Skinner who believed its study was theoretically and practically unnecessary – helps understand emotional problems characteristic of several anxiety disorders (for example, obsessive-compulsive disorder, panic disorder with agoraphobia, post-traumatic stress disorder). They discussed four points that make the study of emotion relevant.

First, language-able humans have the ability to draw relations between events and that it is straightforward to demonstrate that neutral stimuli can acquire discriminative functions indirectly with no direct training. That is, a child, in the presence of one stimulus, taking out a piece of paper, learns to select an arbitrarily related stimulus, grabbing a pencil, then this trained unidirectional relation will lead to a derived bidirectional relation in which grabbing a pencil leads to taking out a piece of paper without any direct training. This simple process can be observed in children as young as 16 months (Lipkens, Hayes, & Hayes, 1993). Many other relations can be learned, applied arbitrarily to stimulus events, combined, and transferred into networks of stimulus relations of incredible complexity (Dymond & Barnes, 1996). Transformation of stimulus functions provides a behavioral approach for studying emotion and other private events (Friman et al., 1998).

Second, private events can readily acquire discriminative functions. There is some research indicating that generalized responding to stimuli with discriminative function spread via stimulus generalization to novel stimuli resulting in large relational nebulous categories of responses (Fields, Reeve, Adams, & Verhave, 1991). In addition, events in relational classes spread with these stimulus generalization effects. Emotions may become part of the same relational class (DeGrandpre, Bickel, & Higgins, 1992).

Third, anxiety disorders seem to occur with little apparent direct learning or that the amount of direct learning is extraordinarily out of proportion with the amount of responding. It is difficult to examine emotions because they are influenced by indirect relations between events and public and private responses to public and private events (Friman et al., 1998). For example, high levels of anxiety may be experienced by a person because of repeated public and private events involving the process of stimulus generalization, derived relational responding, and transformation of stimulus function.

Fourth, the primary function of anxious behavior is experiential avoidance. Early in life, humans learn a myriad of strategies (for example, vigilance, withdrawal) for avoiding events (for example, pain, danger) (Friman et al., 1998). As verbal skills develop, their responses to aversive events become more verbal. For example, a child at an amusement park who sees the speed at which a rollercoaster travels (event) may say 'I'm afraid' (response). Through a transformation of function, the response (fear) may become aversive, resulting in two instances of negative reinforcement: the event (rollercoaster) and the response to it (fear). Therefore, humans, unlike animals, can exhibit experiential avoidance whose primary function is to reduce or eliminate private events such as anxiety or fear (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996).

Implications for practice

The typical treatment for emotional related problems such as anxiety disorders is to repeatedly expose the person to the feared stimulus while engaging in incompatible behaviors (for example, relaxation) to extinguish the maladaptive avoidance response class. The belief is that extinguishing overt reactions to the feared event or object causes a reduction in private responses such as negative self-talk and emotional overreaction. However, taking into account an expanded view of emotion, treatment would necessarily involve exposure to the private events as well as the external stimuli. The goal would be not only to have a person master being in the presence of a feared event or object but also to be free of thinking about or feeling fear. Acceptance and commitment therapy (ACT) is a behaviorally based approach that focuses on exposing a person to their private verbal events as a way of weakening them (Hayes & Wilson, 1994).

Behavior cusps as an alternative to developmental theories

Numerous theories have been put forth to describe, explain, predict, and guide human development: Freud's psychosexual stages, Piaget's cognitive-developmental stages, Kohlberg's stages of moral reasoning, and Maslow's hierarchy of needs are some of the most well known. Each of these theorists hypothesized an invariable set of emerging stages which reflect a progression of various intellectual abilities, discriminations, conflicts to be resolved, or products. Children are believed to traverse through these stages to adulthood somewhat analogous to a train beginning, stopping at various stations, and eventually ending its journey on a relatively linear path.

Almost every field of psychology endorses, or at least accepts, developmental theories except behavior modification. The closest behavioral theorists come to developmental theory is their basic analytical and empirically validated behavior-shaping contingencies that are irrespective of any theoretical lifespan patterning (Maag, 2005). The issue for behaviorists is whether there is any systematic pattern to these contingencies. Authors of some college textbooks believe it is possible to discern these types of patterns across the lifespan (for example, Novak, 1996; Schlinger, 1995). The question is whether these conceptualizations have meaningful implications for behavior analysts. Rosales-Ruiz and Baer (1997) believed they did and coined the term *behavioral cusps* to explain them in an analytic fashion.

A pragmatic concept of behavioral cusps

A behavioral cusp refers to any behavior change that results in a child's behavior coming into contact with new contingencies that have more far-reaching consequences than the initial ones. The previous discussion on emotion provides an extreme example of the complexity and variety of this process. But within the current context, a cusp is a special instance of behavior change in which the next stimulus in a chain portents a shift in the entire sequence. In other words, a cusp (that is, behavior change) has an important consequence for a child beyond the initial change it produces (Rosales-Ruiz & Baer, 1997). Granted, every behavior change results from antecedent changes in interaction between a child and his environment. What makes a behavior change a cusp is that it exposes a child's repertoire to new environmental contingencies (that is, antecedents and consequences) that either maintain or destroy those contingencies.

Rosales-Ruiz and Baer (1997) used the context of a baby learning to crawl to illustrate this process. A baby in motion will have increased access to the environment and its contingencies. She can increasingly acquire reinforcing objects, activities, and interactions with family members, but still encounter stumbling blocks (that is, punitive consequences) – all of which potentiate subsequent stimulus–response chains that shape the scope and breadth of future interactions. Any turning point in the sequence, such as the child walking (that is, becoming mobile), would be considered a behavioral cusp.

The previous example does not deny the development of many small sequential skills culminating in crawling. Task analysis has long been a mechanism with which behaviorists operationalize shaping (Maag, 2005). The point is that, unlike traditional stage theorists who assume new challenges will suddenly appear, behaviorists observe that each subtask opens the child's world only to the next subtask in a perpetually changing environment. A cusp can be created either by changing one behavior or an entire response class.

Consequences and behavior change

Similar to stimulus control, the concept of cusps emphasize how consequences of behavior shape whether certain individuals find stimuli salient. Cusps can be either simple such as asking a question to get access to information or complex such as reading. However, if reading had little relevance (that is, consequence) beyond the act of reading it would not be a cusp. The goal would then be

to bring reading under the control of contingencies so it leads to broader changes such as the ability to access a dictionary to look up the definition of a word.

Children without disabilities get through many cusps when interacting with their environments, usually through widespread fundamental processes such as imitation and spoken language. They acquire self-regulation skills through prior cusps. Children with developmental disabilities do not get through as many cusps and become problems that attract special education services. The point is that cusps can vary in size, particularly in the length or intensity of their teaching programs, yet have similarly important consequences for what can happen next. The importance of cusps is defined by the degree of behavior change outcomes behaviors produce rather than their complexity. Therefore, teachers may begin to make a list of cusps, chunk them together, and teach the behaviors that produce them. Teaching reading to see its consequences fits the cusp concept whereas awaiting mature skeletal growth does not.

CONCLUSION

There are numerous issues facing behaviorally oriented educators. Some of those issues – both current and future – were described in this chapter. They provide central challenges for effective behavior modification with students with disabilities who are educated in a wide range of settings. Students with disabilities who are fully included in general education classrooms require unique interventions that can be tailored to this setting. Acceptance of behavioral techniques for these students requires an increasing emphasis on making functional assessment easy to use, educating teachers on the use of natural contingencies, and how behavioral momentum can increase compliance. None of these approaches will be accepted in the absence of social validity. In essence, behaviorists need to enlist the support of educators and show them the practical value of such principles and techniques. Behaviorists have also provided a working model for dealing with emotions and developmental transitions – both of which are salient to educators.

One of the trends in special education has been to move away from traditional behavior modification and blend it with more constructivist approaches. This eclecticism, although popular, diverts attention away from empirically based interventions for which behaviorism is at its core. As a result, some of the great strides behavior modification has made, as typified in the issues described in this chapter, are largely ignored or sidetracked into rhetorical debates between positivists and postmodernists. Behaviorists need to go beyond this distraction and present principles and techniques to teachers in an easy-to-understand user-friendly manner. Once teachers experience the effectiveness of behavioral techniques first hand, they are more likely to use them in the future. In essence, their successful use becomes a positive reinforcer for their subsequent use, thereby expanding educators' foundational understanding and willingness to address current and future issues.

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