

Perspectives on the Development of Behavior Characteristic of Autism

Meeta R. Patel*
University of Nevada

Abstract

Perspectives on the development of behavior characteristics of autism are reviewed. This paper presents an analysis of existing behavioral theories on autism and attempts to integrate various theories from a developmental perspective. Behavior changes from infancy to adulthood are examined and an attempt is made to explain these changes behaviorally. The paper concludes by highlighting the importance of function in describing such behavior changes across a life span.

Behavioral Theories of Autism

Several behavioral theories have attempted to explain behavior characteristics of autism (Ferster, 1961; Lovaas & Smith, 1989; Koegel, Valdez-Menchaca & Koegel; Bijou & Ghezzi). This paper discusses four existing behavioral deficit theories: (1) behavioral hypothesis by Ferster (1961), (2) Lovaas and Smith's (1989) behavioral theory, (3) the social communication theory by Koegel, Valdez-Menchaca and Koegel, and (4) Bijou and Ghezzi's (1997) behavior interference theory.

Ferster's (1961) theory claims that the maintaining variables of behavior characteristics of autism can be explained by parental environment. This notion assumes that the parents are responsible for creating an environment that maintains autistic behavior. His theory is not in conjunction to those who believe that maltreatment by parents may result are autistic tendencies, but rather he is concerned with the direct contingencies established by the parent. Although this theory is the first attempt at understanding autism behaviorally, it lacks the complete understanding of the wide range of existing behavior characteristics of autism.

Lovaas and Smith's (1989) suggest that the behavior characteristics of autism can be explained by the laws of learning. They also claim that children with autism are able to learn in special environments, and this ability to learn in special

environments may suggest a deficiency in the nervous system. Children with autism, according to this theory, also exhibit many more specific deficits. For the most part, this theory encompasses a behavioral account of autistic behavior; however, Lovaas and Smith's biophysiological explanation steers away from a strictly behavior analytic perspective.

The social communication theory by Koegel, Valdez-Menchaca and Koegel's (1994) is in conjunction to Lovaas and Smith in that both theories emphasize the neurological or physiological processes responsible for behavior characteristics of autism. Koegel et al. (1994) claim that these biophysiological processes may contribute to the lack of social behavior in children with autism. However, it is difficult to observe such proposed processes. Behavior characteristics of autism, from this perspective, are not completely behavioral because they are not observable. In a sense, reducing the behavior characteristics of autism to the neurological or physiological level of analysis allows for little room for an explanation of behavior from an operant level. It is possible to explain these behavior characteristics strictly by the laws of learning. Although we have a few behavioral theories on autistic-like behavior, there is still a need for further investigation.

The behavior interference theory is a developmental theory proposed by Bijou and Ghezzi (1996). The theory describes five categories in order to understand behavior characteristics of autism: (1) children with autistic-like behavior have an innate tendency to escape and avoid cutaneous and auditory stimuli, (2) the above posit interferes with the normal development of social conditioned reinforcers, therefore interfering with attachment behavior early in development, (3) attachment behavior is an important prerequisite for developing more complex social behavior such as language-related behaviors and symbolic play, (4) stereotypy in children with autism is an automatically reinforcing operant behavior that can be compared to exploratory behavior in normally developing children, and (5) the characteristics of autistic behavior are interrelated among the traits and abilities of the child with autism. The behavior interference theory, unlike any other psychological theory, describes all aspects of autistic behavior

from a developmental and behavioral perspective. This theory is specific to young children with autism, but developmentally it may be important to look at behavior changes across a life span. The following sections address these changes.

Developmental Changes in Characteristics of Autism over a Life Span: Deficits and Excesses

Although autism is referred to as a global deficit, it is important to realize that individuals who engage in autistic-like behaviors vary in the level of functioning and severity (Rogers & Pennington, 1991). Autism, therefore, can be viewed as a developmental disorder in that particular behaviors develop over a period of time and that development may not be the same in all individuals. For example, all normally developing children learn to walk at the same age, usually within a range where variability is low. Although a range exists, walking may emerge at different times. From a developmental perspective we can analyze autistic-like behaviors in a similar manner. Rogers & Pennington (1991) suggest that specific deficits in young children with autism are not maintained throughout development, "rather, we expect to see some sign of deeper underlying deficit specific to autism stand out during a specific developmental stage, only to be accomplished to some degree at a later developmental stage and replaced by other symptoms" (p. 146). From this perspective, autism should not be viewed as a developmentally stagnant disorder, but rather it should focus on the developmental changes that occur over a life span.

Behavioral changes in individuals with autism can be explained developmentally. For example, a pre-verbal, young autistic child has deficits in joint-attention, but as the infant with autism becomes older and more verbal, this deficit is no longer identified (Stone & Caro-Martinez, 1990). It has been shown that young individuals with autism with lower IQs fail infant-level motor imitation tasks, while older individuals with autism with higher IQs show proficiency in imitation skills (Morgan, Curtrier, Coplin, & Rodrigue, 1989). These and other findings in the developmental literature suggest that age and functioning level contribute to the behavior change of individuals with autism. These changes can be attributed to age related changes, but also

by environmental changes (Gewirtz & Peláez-Nogueras, 1996). That is, the primary deficits in autism will not be constant across developmental stages, but rather deficits will change with development and experience (Rogers and Pennington, 1991). Autistic-like behaviors are not constant, therefore we must analyze the changes that occur at different periods or phase shifts in an individual's life. Although behavior analysts are not concerned with an age related changes or age as a "psychological variable"; age may facilitate the understanding of behavior characteristic patterns of autism. However, we must emphasize that it is not age that contributes to changes in behavior over a life span, but it is the constant causal interaction between organic and environmental variables that is responsible for such changes.

Infant Autism: Behavioral Characteristics

Autistic-like behaviors have been proposed to emerge at birth, (Ritvo, Freeman, Ornate, and Tanguay, 1976; Happen, 1995). No research to date, however, can confirm this notion. At birth, it is very difficult to detect the socialities of behavior characteristics of autism. Although empirical evidence is not available for early detection, parent's reports have been useful in looking at behavior changes in infants. Parents have reported that their infant cried infrequently compared to normally developing infants and they do not respond to companionship. Early detection for deficits in social behavior is possible. This deficit is noted by the absence of social referencing in infants who are six to eight months old (Siegel, 1996). Parents have reported that their infant is rigid when he or she is being held, and appears to lack the need for any sort of stimulation. Also, retrospective reports from mothers have indicated a lack of social attachment early in infancy. Moreover, parents have reported that their infant is considerably irritable and overreactive to any form of external stimulation (Ritvo et al., 1976). These behavior patterns can be a result of an infant interacting with different stimuli in the environment and then modifying his or her behaviors according to the aversive properties associated with such patterns.

Another deficit observed in infancy is the lack of imitative behavior. Normally developing

children will begin copying the behaviors their parents engage in as early as ten months old, but a child with autism does not develop these imitation skills (Siegel, 1996). The idea of imitation, for some, is innate in that normally developing infants are not directly taught to imitate (Siegel, 1996). Although infants are not directly taught to imitate, this behavior may develop and sustain because the actual act of imitating may be reinforcing given that there is a social consequence for imitative behaviors. Imitation is a precursor to many more advanced social behaviors but it can also facilitate early language in infants. Normally developing infants may begin to communicate through nonverbal means such as gazing, facial expressions, sounds, and gestures. Some of these behavioral deficits can be further detected in childhood when many more behaviors seem to emerge due to more interactions with the environment.

Many behavioral excesses are precursors to more advanced topographies and functions of stereotypical and perseverative behaviors. Behavioral excesses are not common in infants, but parents have reported that their infant excessively scratched and rapped the cover of their pram for a long period of time and engaged in rocking and banging when left alone (Wing, 1972). Pinpoint specific autistic-like behaviors in infancy is very difficult because many normally developing children also engage in topographically similar behaviors. Often, these behaviors during infancy can only be described by structure, but as we move into childhood and adulthood the functions of autistic-like behaviors become more apparent. Given strong deficits in other developmental areas, the function of behavior changes with various interactions with the environment (Peláez-Nogueras & Gewirtz, 1997).

Childhood Autism

Autism is most often diagnosed around age three or four years, when behavioral deficits and excess are highly defined. Behavioral development in an autistic child can be divided into three subcategories: (1) Socialization, (2) Communication, (3) Play/Imagination. Early signs of social isolation are detected in one and two year olds, Normally developing eighteen

month old children are usually very interested in engaging in social interactions, but toddlers with autism prefer isolation (Siegel, 1996).

Children with autism have been labeled as being distant or aloof because they behave as though others do not exist (Wing, 1972). This lack of interest in others have been noticed as early as infancy, but is more apparent in early childhood. It is a type of social detachment that may result from a history of minimum conditioned social reinforcers (Bijou & Ghezzi, 1997). Detachment may be more than lack of conditioned reinforcers; rather it may result from the type of interactions the child experiences with the environment. For example, a child who is distant and shows little interest in others is probably not going to engage in many reinforcing interactions. At some point, according the author of this paper, the interactant will discontinue the attempts to interact with the interactee. That is, the child with autism may indirectly be reinforced for not engaging in social interaction. Although we are unclear on the actual variables that maintain such behavior, it is still important to examine the progression developmentally and the progression of changes in the controlling environment.

Children with autism, although very distant from others, do engage in some form of relating. These children are more likely to engage in instrumental, rather than expressive relating (Siegel, 1996). Most normally developing children are more interested in social expressive relating where the child is constantly interacting with others. This sort of interaction seems more active in that the child is trying to understand and explore his or her environment. On the other hand, an autistic child engages in more instrumental-type relating where he or she interacts with others only to fulfill a want or a need (Siegel, 1996).

Another social deficit that becomes more visible in childhood is the lack of generalized imitation. Children with autism have difficulty producing generalized imitation. It takes many more trials to produce generalized imitation in children with autism compared to normally developing children (Poulson & Kymissis, 1996). As mentioned above, deficits in imitation are apparent as early as infancy. However, these deficits become more noticeable in early childhood when the autistic child fails to develop basic

imitation such as waving "bye." At two years of age, normally developing children begin to engage in a lot of pretend play, a concept that is very abstract and complex for children with autism. Deficits in children with autism may be a result of lack of motivation (Siegel, 1996). In behavioral terms we can interpret this as a setting factor, such as deprived environment, and the lack of externally mediated reinforcement associated with engaging in behaviors that produce a social consequence. Essentially, if a behavior is not reinforcing than it should decrease and eventually disappear from a child's repertoire.

Social behavior is an essential part of development because it facilitates language development. Along with deficits in socialization, children with autism also have both, deficits and excesses in communication. Lack of communication begins in infancy when a baby does not engage in nonverbal communication. During childhood, verbal communication starts developing in normal children, but we observe a delay in language with children with autism. Children with autism either have a language delay or are completely mute. Those children who have a verbal repertoire have difficulties with complex verbal behavior such as sentence structure, understanding pronouns, understanding idiosyncratic use of words, and they also have difficulties with pragmatics (Siegel, 1996). Children with autism who do have language have difficulty in prosody or what is known as melody speech (Schopler & Mesibov, 1985). Learning verbal behavior seems to be hierarchical in that complex language (i.e. conversational skills etc.) is a result of simplistic language skills. Children with autism need to be taught all the rules of language that appear to be innate to normally developing children. Autistic children also have language excesses where vocal behavior would not necessarily be termed verbal behavior. These children engage in what is known as echolalia and delayed echolalia (Siegel, 1996). Although verbalizations should be encouraged, these types of vocalizations are not functional ways of communication. To some degree these are not forms of communication because there is no reciprocal social contingencies associated with echolalia or delayed echolalia. Skinner (1957) describes the echoic repertoire being maintained by what he calls "educational" reinforcement.

Children with autism have been reinforced for engaging in echoic behavior, but the persistence of such behavior is difficult to explain. This behavior is usually termed as being a form of self-stimulation, which is automatically reinforced, therefore no social mediation occurs in echoic behavior.

Echoic behavior represents a form of excess, but there are other excesses that are observed during early childhood as well. Since autistic children have not developed an interest in play and imagination they tend to engage in unusual activities. Many children with autism do not engage in appropriate play, but rather have perseverative interests, or preoccupation's with parts of objects (Siegel, 1996). These behaviors can be termed self-stimulatory especially if the behavior is automatically reinforcing. This type of information would be determined by a functional analysis. These excesses start as early as infancy and continue to persist into childhood, and adulthood.

Adulthood

Many of the behaviors observed in childhood do improve in later adulthood. The improvements are mostly visible in social and emotional problems. Wing (1972) has suggested that as children become older they become more affectionate and sociable. He claims that language deficits are also not as distinguishable in adulthood, but this varies according to the severity of the diagnosis. On the other hand, Siegel (1996) does claim that even in adulthood individuals with autism have difficulties conforming to social rules; autistic individuals do not understand why rules that are established by society are so important. She furthers by saying that since individuals with autism have difficulties understanding social norms they compensate by overgeneralizing rules for social behavior.

There is a lack of literature devoted to adulthood autism, but it is apparent that many deficits from childhood extend to adulthood such as language and social deficits, but as suggested they can be modified when the environment is changed. The excesses such as various forms of self-stimulatory behavior also continues through adulthood. Many improvements can be observed with age, but this is still very unclear. Can

behaviors improve without intervention? It will be important to see behavior change in adulthood after intervention has been implemented during childhood and maybe even infancy. There is need for more research in understanding behavior change across the life span, by constantly examining environmental influences.

In sum, behavior characteristics of autism can be viewed from a life span perspective, but age and time alone cannot explain development of such behavior. This paper attempted to explain behavior change from infancy to adulthood, but these changes were attributed to operant learning, from a contextualistic perspective. Autistic-like behaviors do not always change across the life span, but it could be the result of the following analysis: analyzing behavior changes in the controlling environment and analyzing the contextual determinants of behavioral development (Gewirtz & Peláez-Nogueras, 1996). Behavior change is not a direct result of the "empty variable", but is a result of many observable interacting variables. We cannot explain behavior by age, nor can we explain it by topography, but rather we must explain autistic behavior by environmental determinants and more importantly function.

***Author's Note:** This article was presented at a seminar in *Developmental Psychology* taught by Professor Peláez-Nogueras while acting as visiting professor at the University of Nevada, Reno (1997). Appreciation is extended to Dr. Peláez and Dr. Shukla for their critical comments and reviews of this manuscript.

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