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The Search for the Etiology of Autism

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This special section on autism etiology began with the paper submitted to *The Analysis of Verbal Behavior* by Drash and Tutor, who propose that autism is a contingency-shaped disorder of verbal behavior. The five papers that follow the Drash and Tutor paper provide reactions to their analysis by several behavior analysts working in the autism field. Only one of the five (Malott) is fully supportive of Drash and Tutor's analysis of autism as a completely contingency-shaped disorder. The other four authors recognize the importance of environmental variables in the development and maintenance of autistic behavior, but caution against the neglect of genetic and other variables such as environmental intrusion, and insist that a complete behavioral theory of the etiology of autism must involve all three variables. The series ends with Drash and Tutor's response to the five papers.

What causes autism? A search on the Internet with that question produces well over 250,000 hits that contain a wide array of theories, opinions, questionable facts, and miracle treatments promising to cure the disorder. Perhaps the only conclusions that can be drawn from a review of several sites, and the sometimes bizarre theories of the causes of autism, is that not only is there no consensus on what causes autism, but autism has become a big business. For example, one site claims 99% of children with autism have "metal-metabolism disorder" and sells a metal removing magnetic clay that in one bath can remove the symptoms of autism. This method has been "scientifically proven," according to the Web site. Why wouldn't a parent try it if there were a chance it would result in the child being "cured" of autism? How does one sort through all the information and misinformation?

The answer to the question regarding the etiology of autism and the most effective treatment for this disorder should come from the scientific community. However, despite the existence of hundreds of peer-reviewed professional journal articles, books, and conference presentations, and major research facilities dedicated to identifying the cause of autism (e.g., the M.I.N.D. Institute at the University of California, Davis), no scientific data has conclusively identified a specific cause of this disorder. This lack of conclusive findings most

likely feeds the frenzy of pseudoscience that surrounds autism treatment (Green, 1999). And given that the prevalence rates of autism are increasing each year (Croen, Grether, Hoogstrate, & Selvin, 2002), there is a sense of urgency in this search, not unlike the search for the etiology of cancer or AIDS. Thus, the following series of papers on a behavioral analysis of the etiology of autism are timely, and can perhaps move the scientific community closer to identifying the causes of autism.

There are three general areas of investigation into the etiology of autism; genetic causes, environmental intrusion upon the pregnant mother or child, and the social or learning environment. The dominating professional consensus is that autism is a neurobiological disorder that is either related to genetic variables, or intrusions such as virile infections, problems during pregnancy, immunization, exposure to toxins, etc. In addition, there is an overwhelming consensus that the learning environment is largely irrelevant to the development of autism. However, no "autism gene" has been found, no specific biological factor has been isolated, and no environmental contingencies have been scientifically identified or ruled out. Thus, the bottom line is that the etiology of autism is still unknown. While the majority of research focuses on genetic and neurobiological variables, there is little emphasis on the role of environmental contingencies. This latter position is somewhat ironic given that the most effective treatment to date for children with autism has involved manipulations of environmental contingencies (U.S. Department of Health and Human Services, 1999).

Perhaps the problem in identifying a single

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etiology for autism is that it is not one disorder, but many (Rutter, 1978). It is well known that there is a wide variation among children with the diagnosis, and the search for a single cause may be futile. There may be dozens of different causes, including interactions between genetic, biological, and environmental variables. This is why the following paper written by Drash and Tutor (2004) and the five responses to their paper is important to the current debate and related research on autism etiology. A neglected aspect of that debate and research has been the role of the learning environment. This absence of an analysis of environmental variables is largely due to the misguided views of Bettelheim (1967) and the parental backlash that resulted in a complete omission of environmental variables in professional discourse. However, perhaps more relevant to the neglect of the role of the environment is the failure by most professionals to understand the complexity of the learning environment, and even more critical, the variables that can lead to the failure to acquire typical verbal and social behaviors.

The paper by Drash and Tutor (2004) provides an analysis of six environmental variables that can significantly impair the verbal and social development of children. Given that it is widely agreed that the primary diagnostic criteria for children with autism involve delayed or defective language and social behavior, analyses and empirical research that can explain these delays should be welcomed by parents and professionals. These authors propose that a large percentage of the children diagnosed with autism acquired the behavior leading to that diagnosis as the result of environmental contingencies, and by identifying the relevant contingencies and conducting appropriate intervention procedures, we should be able to prevent a substantial number of such cases.

The five commentaries on the Drash and Tutor paper are analyses by several well-known behavior analysts working in the autism field, with each author contributing to the analysis

in one way or another. Only one of the five (Malott) is fully supportive of the Drash and Tutor interpretation of autism as a completely contingency-shaped disorder. The other four, while recognizing the importance of environmental variables in the development and maintenance of autistic behavior, all question the adequacy of the evidence supporting Drash and Tutor's theory, caution against the neglect of genetic and other variables such as environmental intrusion, and insist that a complete behavioral theory of the etiology of autism must involve all three variables. The series ends with Drash and Tutor's response to the five papers.

It is hoped that this interaction will stimulate further verbal behavior by behavior analysts and other professionals who are searching for the etiology of autism.

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