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EDITORIAL

BEHAVIOR ANALYSIS OF DEVELOPMENT: HISTORY, THEORY, AND RESEARCH

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Within the last 25 years, myriad journal articles and books on development have been written from what is generally a cognitive perspective. Only a few, however, have been written from a behavioral-analytic perspective (e.g., Baer, 1973; Bijou, 1979, 1993; Bijou & Baer, 1978; Bijou & Ribes, 1996; Gewirtz, 1969, 1978; Gewirtz & Peláez-Nogueras, 1992, 1996; Peláez-Nogueras, 1992; Peláez-Nogueras & Gewirtz, 1995; Morris, 1988; Morris, Hursh, Winston, Gelfand, Hartmann, Reese, & Baer, 1982; Novak, 1996; Schlinger, 1995; Reese, 1980, 1982). The main purpose of this special issue is to contribute, in some small way, to fill this void by demonstrating how contemporary behavior analysis can provide a framework for understanding learning and behavioral development.

This special journal issue serves two additional purposes. First, it helps disprove the common misunderstanding that behavior analysis is atheoretical or antitheoretical. The articles in this issue demonstrate that behavior analysis has made and continues to make important contributions to developmental theory (e.g., contextualism, general systems theory), and specialized areas (e.g., innate vs. acquired behavior, rule-governance, emotional and language development). These topics have been addressed in other areas of psychology; but the arguments are particularly vigorous in behavior-analytic circles. Second, by bringing together representative writings of prominent scholars in the behavior analysis of development, this special issue provides a source of information about important advances in the field. In its entirety, this issue might be useful to the instructor of a general survey course in developmental psychology that also covers behavior analysis, or to the instructor of a graduate-level seminar on topics in the behavior analysis of development.

The authors contributing to this issue view behavioral development as a natural process that can be understood from a *scientific* perspective. All the

papers emphasize the role of learning and environment in development, and approach development as an open system simultaneously affected by many contextual variables. The majority of the papers adopt a contextualistic worldview of behavior analysis that Morris (1988) and others (e.g., Hayes, Hayes, & Reese, 1988; Peláez-Nogueras, 1994) have emphasized. The context of development is continuously evolving and it is the hierarchical organization of the behavioral processes that many of us are interested in studying.

This special issue is divided into three sections. The first section deals with historical, conceptual, and methodological issues in the study of development. In the first article, Morris argues that the analysis of development is a vigorous and distinctive approach, in part because it is aligned with the *contextualistic* worldview and is opposed to mechanism. He suggests that by being contextualistic, the behavior analysis of development is at the forefront of the discipline. In the following article, Midgley and Morris deal with the concepts of *nature and nurture* in Skinner's approach. Their examination reveals that Skinner's behaviorism acknowledges both nature and nurture as determinants of behavior where both innate and acquired behavior are a function of selection by consequences--phylogenic and ontogenic contingencies. Baer and Rosales question the practice by developmental psychologies of positing a teleological endogenous system, in the form of a goal or outcome toward which behavior change is supposedly directed. They suggest that to the extent that this is so, the problem of explaining "development" becomes a problem for sociologists. Reese deals with methodological issues in developmental psychology. He argues that many independent variables related to behavioral development are better approached with group than with single-subject methods, either because experimental manipulation would be unethical or because these independent variables are only indices of the real causal variables. Reese further argues that variability can be approached within experimental group research, that *between-group experiments* can demonstrate functional relations, and that statistical inference is objective.

Section 2 of this journal issue presents contemporary theoretical models for explaining behavioral development, rules, and rule-governed behavior. Commons and Miller offer a *quantitative-analytic theory* of development. They claim that two of the major contributions that such a developmental theory can make are: (a) an explanation of why certain tasks have to be acquired earlier than others (developmental sequences) and (b) an account, based on selectionist principles, of the biological, cultural, organizational, and individual psychology of performance. The Commons and Miller argument is that behavior analysis can encompass these two goals and can incorporate them into its quantitative analysis, where assumptions are explicit and mathematically

describable. Novak presents a *Behavioral Systems Theory* (BST) which integrates principles from behavior analysis and dynamic systems theory. The BST principles of Novak's theory are reciprocal determinism, nonlinearity, coalescent organization, leading parts, control parameters, and attractor states. Novak places significance on development as skills learning. Peláez and Moreno offer a *taxonomy of rules* and explain the potential effects of these types of rules on the listener's behavior. Their taxonomy takes into account an entire contingency arrangement specified in the rule in terms of four rule dimensions: (a) explicitness, (b) accuracy, (c) complexity, and (d) source. Peláez and Moreno's main argument is that, even though manipulations of some types of rules have been conducted in studies of stimulus equivalence, relational frames, and derived stimulus relations, a more systematic study of the differential effects of the proposed *four* dimensions of rules on the listener's behavior is needed.

The articles in Section 3 of the issue deal with the etiology of early social development, including the development of exploratory behavior, language, and emotions. Bijou's analysis of *child exploratory behavior* is helpful in understanding how this behavior has been treated by other developmental approaches that maintain either that exploratory behavior is triggered by the emotion of "curiosity" or that it is brought about by an "arousal drive." Bijou describes how exploratory behavior should be treated from a behavior-analytic perspective. Similarly, Roth and Gewirtz emphasize that environment plays an explicit role in *emotional responding*. They discuss how a functional approach to the study of emotions can contribute to our understanding of emotions and their development. They present a comprehensive literature review. Alcaráz, Martínez-Casas, Padilla, and Puga present a functional approach to infant *language acquisition*. The longitudinal data reported suggest that language arises from a shaping process that begins with reflex responses which turn into operant responses during mother-child interactions.

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empirical scholarship, and offers new theoretical models, helps advance and make more complete the behavioral approach to development.

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