Recurrent Issues in the Study of Behavior Development: Metamodels

by

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Metamodels play an important role in shaping theory and research in behavioral development. Recently, there has been increasing interest among theorists to explore metamodels of human development. In particular, developmentalists are searching for metamodels about human behavior that can both integrate existing data and generate new information. Such models would help researchers deal with the multidirectionality of behavior development and explain intraindividual variability and interindividual differences. Among today's common metamodels, contextualism is evolving as an alternative to the organismic and mechanistic world views of human development.

Of course, metamodels are metaphors, not truths. Known also as world views, metamodels are the philosophical assumptions of particular theorists about how the world functions (e. g., Pepper, 1942). The utility of a world view depends upon the theorist's ability to frame and explain his or her theory. Moreover, the particular world view selected will influence not only the topics to be investigated, but also the methods used and the conclusions reached

The behavior-analytical theory is often associated (perhaps incorrectly) with the mechanistic world view--with mechanical modes of explanation. As described by Overton and Reese (1973; Reese & Overton, 1970), a mechanistic metamodel of development assumes that organisms are passive (reactive) and not active. The types of causality involved in a mechanistic model are material (e.g., physiological) and efficient (i.e., external forces). In addition, a mechanistic model is said to adhere to elementarism. That is, behavioral changes are reducible to their prior immutable forms.

Under a mechanistic metamodel, the scientist's task is to analyze behavior in terms of its antecedent-consequent (cause-and-effect) relations and the temporal ordering of both the dependent and the independent variables. However, studying only simple cause-and-effect relationships between dependent and independent variables is insufficient for understanding behavior. To understand behavior we also must study the organization of codefined and interrelated stimulus and response classes in context (Skinner, 1931, 1935; Morris, 1992). Stimulus and response functions stand in direct interrelationship with one another. In behavior analysis, individuals are active agents contributing to their own development. Skinner did not regard animals or humans as "machines." Instead, he saw operant behavior as the "field of purpose and intention" (Day, 1992; see Skinner, 1974, p. 55).

As opposed to the mechanistic view, the organismic metamodel of development stresses movement toward a final end-state while emphasizing maturational and predetermined developmental stages. Hence, a person's characteristics (traits) and genetic/maturational processes account for interindividual differences in behavioral patterns. In organismic theories, learning experiences may accelerate or delay behavioral development, but do not change its course.

A major limitation of the organismic model is that the contextual variables of experience (i.e., history of conditioning) and environment (e.g., constraints and facilitators) play only secondary roles in behavioral development. Even so, Overton's and Reese's interpretations of world views seem to have favored organismic approaches such as Piaget's (1960) cognitive-developmental theory and Erikson's (1950) psycho-social theory over approaches classified as mechanistic (e.g., Bijou & Baer, 1961).

Recent psychological literature, however, suggests that both the mechanistic and organismic models are inadequate to explain human development (Ford & Lerner, 1992; Hayes, Hayes & Reese 1988; Sameroff, 1983; Sarbin, 1977). Furthermore, some behavior analysts argue that mechanistic theory is an impediment to psychology's advance into the third stage of scientific evolution (see Morris, 1992). Morris proposes **contextualism** as the world view of behavior analysis (Morris, 1988, 1992). However, other behavior analysts argue that immense behavioral complexity may be encompassed within a mechanistic metamodel. For instance, Marr (1992) stresses that a mechanistic metamodel is potentially capable of capturing many of the mysteries of behavioral dynamics. He suggests that there is no need to abandon a mechanistic perspective to embrace contextualism when the former appears to imply the latter.

Despite these opinions, the growing interest in contextualism as a metatheoretical framework is lessening the reliance upon both mechanistic and organismic world views. There are various reasons that may explain why many developmental theorists, including behavior analysts, have embraced contextualism as a metamodel for the study of human behavior.

Unlike the organismic metamodel, behavior changes within contextualism are not teleological, goal-directed, or channeled into particular directions. These changes are not elementaristic or reductionistic. Theories based upon contextualism adhere to a holistic view, in which neither responses nor stimuli have any psychological meaning by themselves. Instead, their meaning lies in the interdependent relationship between stimulus and response functions in context. Hence, the meaning of behavior emerges from its context (Morris, 1988).

The behavior analysis of development has emphasized the study of sequential, dynamic, and reciprocal interactions between behaving organisms and environmental conditions (Bijou, 1979). A behaving organism does not merely "interact" with the environment in a unidirectional, linear, and passive manner. Instead, the behavior and

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environment dynamically transact. That is, a strong reciprocal interaction takes place among stimuli and response functions. Furthermore, the functional relations observed between responses and stimuli are the product of a unique, ever-changing behavioral history (e.g., Wanchisen, 1990). In this framework, contemporary behavior analysis stresses the study of organized patterns of behavior and their interaction with biological and environmental contexts (e.g., deprivation, history of conditioning, fatigue). Behavior analysis is moving beyond just the analysis of the components of the three-term contingency paradigm. Today, researchers are interested also in the transactional nature of those relationships (e.g., Keehl, 1980).

I assume that behavioral development does not depend solely on the behavioral principles and their mechanisms (e.g., reinforcement, discriminative stimulus). The nature of the contextual variables involved (historical and current) and their interaction with operative contingencies play primary roles. In fact, the contextual conditions not only inflect behavior changes but also affect the interplay and reciprocal interactions among stimulus and response functions. Moreover, the probability of an organism learning at a given point may vary as a function of the contextual conditions involved.

Therefore, contextual conditions and behavioral principles may be of equal importance in the analysis of behavior. This is because context (both current and historical) defines the limits within which behavioral principles will function. Without studying the contextual determinants of behavior, the behavioral principles operating may not be identified correctly. In conducting behavior analysis, changes in the dependent variable (e.g., response frequency) can be difficult to understand outside the network of the contextual variables involved. For instance, in the experimental analysis of behavior, the typical procedure has been to consider contextual conditions (e.g., food deprivation, subject history) as sources of variation and hold them constant. However, some researchers are beginning to consider contextual variables of behavior as subject matter and experimentally manipulate them (for a review see Morris, 1992). Clearly, the historical context (e.g., conditioning history) can establish what functional relations will occur among stimuli and responses in the current interaction. That is, the historical context can determine which contingencies will be effective for behavior changes in the present context.

Perhaps a contextualistic metamodel of behavioral development can accommodate both the mechanistic and organismic processes. Certainly, all the issues we encounter today in the study of human development will not be solved by adopting either one view or a combination of them all. Even so, contextualism points to ways in which some difficulties may be solved. Specifically, it may enhance our understanding of intraindividual variability and our ability to deal more effectively with interindividual consistencies and differences in behavior. Theories embedded within a contextualistic metamodel also may deal more effectively with existing data and generate new information about behavioral development.

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Some Thoughts on How Multiculturalism and Deconstructionism Relate to Developmentalism in Education

by

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In an earlier commentary, I discussed an impediment to educational reform called "developmentalism." I suggested that developmentalism is a form of romantic naturalism and that acceptance of developmentalism makes teachers both receptive to multiculturalism and opposed to applied behavior analysis. Developmentalist doctrine prescribes an educational strategy of fitting schools to the cultural diversity of students. It opposes shaping students to the behavioral requirements of schooling.

In a recent paper (Stone, 1993), I further discuss developmentalism and suggest steps that might be taken to lessen its counterproductive effects. What may be of interest to the reader is the mutually supportive relationship that I believe exists between developmentalism and multiculturalism and the relevance of this relationship to the interests of the teaching profession. In my view, both developmentalism and multiculturalism are heavily promoted by organizations like the National Education Association because they enable the educational establishment to fend off external criticism and pressures for improvement: Developmentalism and multiculturalism both support "diversity" in education. The "creative" and "innovative" teaching methods prescribed by developmentalism promote diverse outcomes. Multiculturalism makes diverse outcomes respectable, indeed valued. Together, they virtually preclude teacher accountability. If standards cannot be set, judgements cannot be made.

Drawn from the same paper, one other point is especially relevant to the teaching profession's view of behavior analysis. Implicit in developmentalism is the assumption that "nature's way" of causing learning is somehow inherently superior to "man-made" alternatives. Thus developmentally informed teaching is presumed superior not because of its results but because of its harmony with the student's nature. Ideally such teaching is characterized by a minimum of teacher direction and intervention (i.e., it interferes minimally with the student's natural inclinations). Ideally it aims to promote creativity (i.e., it does not disrupt or suppress naturally occurring creative potential). Ideally it permits students to "construct" knowledge (i.e., it facilitates the operation of presumed natural intellectual processes). The unstated premise seems to be: Nature must not be altered or infringed because it is natural and therefore good.

It seems to me that the teaching profession's preference for teaching that avoids altering nature constitutes an unnoticed but crucial contradiction to the purpose for which other helping professions study and employ science. **In professions such as medicine, science is used to improve on nature. By contrast, the first priority of the teaching profession seems to be preservation of nature.** For example, medical science understands the natural process whereby viral immunities are conferred, and physicians use this knowledge as a means of preventing disease. The fact that vaccinations short-circuit nature is, of itself, not a consideration. By contrast, the teaching pro-fession knows of teaching methods drawn from behavior analysis that have proven effectiveness, yet they reject them primarily on the grounds that they seem unnatural, i.e., mechanical and contrived.

Not only does the teaching profession oppose the use of behavior analysis, they resist the use of experimentally vindicated teaching methods in general. Instead they favor teaching based on "creative" interpretations of descriptive and correlational studies made by individual teachers. Again, preservation of the "natural" teaching/learning process seems to be the overriding consideration. Innovations that fail to motivate students or produce learning are forgivable. Much less forgivable is the endangerment of students with methods what intrude on natural growth and development. In spite of extensive evidence to the contrary, a Frankenstein-like mythology about behavioral and other proven methods is transmitted and disseminated within the teaching profession. With the exception of areas such as school psychology, special education, and counseling, the teaching profession opposes the use of interventions that go significantly beyond providing educational opportunity.

In short, what I am suggesting is that contrary to the directions that have been taken in medicine and the allied health professions, teaching has not benefited from scientific advancements because the educational establishment clings to an eighteenth century philosophy that is known to have emerged in opposition to science, i.e., romantic naturalism. Romantic naturalism is the teaching profession's means of defending against outside pressures for change. It is their means of avoiding responsibility for educational outcomes. Without such a philosophic posture, the banalities and bromides that pass for a professional knowledge-base long ago would have been bypassed as quaint but obsolete.

If my assessment is correct, an examination of this issue is a first order priority in educational reform and in the righting of America's cultural and economic directions. In education as in so many other areas of life affected by science, natural is not necessarily better. Formal education, however conducted, is an unnatural (e.g., man-made) intrusion on the "natural" course of human development. It almost always entails getting young people to do that which their natural inclinations often fail to effect, i.e., study. Carried to its logical end,