What Is Behavior Analysis?

Howard Sloane

A Basic Science

Behavior analysis is a science concerned with the behavior of people, what people do and say, and the behavior of animals. It attempts to understand, explain, describe and predict behavior.

Behavior analysis differs from most psychological attempts to understand behavior. Psychological theories study entities such as "the mind" or "the personality" or "cognitive structure"" or "self-concept" or "drives." These are usually viewed as the basic subject matter of psychology; they are causal and behavior is merely a derivative of them. Unfortunately, these assumed entities do not exist in the natural world of the other sciences, they do not reside in the same physical natural science realm as electrons, atoms, magnetism, cells, and so forth. Where they actually exist is unclear, perhaps in some "mental" or "hypothetical" universe.As a result, it is difficult to define and measure them unambiguously and even harder to understand how they relate to other natural phenomena.

Behavior analysis does not posit such "mental" causes for behavior. Behavior itself is seen as the subject matter of interest. Variations in behavior, changes in the frequency or form of what we do or what we say, are understood in terms of relations with real-world events. Understanding, describing, and predicting behavior does not require an appeal to nonobjective or unscientific concepts. It is analyzed in terms of interactions between behavior itself and the environment.

Selectivism, not "purposism," is the guiding concept. Behavior does not occur "in order to" produce some result, even though we inaccurately say "the child cries to get attention." Purposive statements suggest that present behavior (e.g., crying) is caused by something which has not yet occurred (attention). It is more accurate to say that the environment provides consequences for behavior, which make that behavior more likely to occur in the future under similar circumstances. At a later time we then observe the strengthened behavior to occur. Thus, the child cries (now) because in the past crying has resulted in attention, and the present is influenced by the past, not the future. Operants and reflexes are the two major classes of behavior. Operants (traditionally called "voluntary behaviors") include most visible everyday things we do or say. Events which follow operants (consequences) significantly influence the likelihood of the behavior occurring again under similar circumstances (e.g., ask politely, get seconds on pie). Reflexes, called respondents, are mostly automatic responses to some stimulus which precedes them (e.g., loud noise, heart rate changes), and are frequently "physiological." They are not influenced very much by consequences.

Some people incorrectly believe that behavior analysis considers all behavior to be respondent in nature, and therefore "automatic" and not influenced by what happens. Even some texts suggest this. This is an unfortunate misunderstanding. In fact, however, behavior analysis suggests that most behavior of interest in everyday life, in family or personal relationships, in school or on the job, is operant in nature, not respondent. It therefore changes as the environment changes and provides different consequences.

Contingencies and functional relationships describe the connections between behavior and its causes in the environment. "When he told jokes people laughed" asserts that the laughter of others was contingent on his telling jokes. If we found that this consequence strengthened the probability that he would tell jokes, we would have discovered a functional relationship; his telling jokes was a function of people laughing. From this observed functional relationship and many, many others we might develop the abstract concept of reinforcement, an abstract functional relationship.

Explanations which are not functional relationships do not really "explain." Some people might explain an individual's helpless behavior as due to a "dependent personality." This might refer to chronic, frequent dependent behavior, including test responses such as "I let other people make decisions." Although this label or description is often useful to know, it "explains" little. We cannot say that a person acts helpless or dependent because he or she has a dependent personality (has acted dependently a lot in the past) and claim we have illuminated the causes of the behavior.

Genetics, brain chemistry, physiology, and related factors play a role in understanding behavior. Behavior analysis assumes that certain functional relationships between behavior and the environment are true for individuals or species because of genetic endowment. We inherit a structure such that things "work" in a certain way, for both digestion and behavior. Functional relationships and general laws of behavior exist because of this genetic structure. Behavioral laws do not deny genetics, they exist because of genetics. Those individuals and species who inherited structures which allowed them to respond in certain ways to their environment survived, those who inherited structures which lead to different learning and behavior did not. "Nature" selected for survival those who inherited certain behavioral laws (structures), much as the environment selects specific behaviors of the individual to strengthen. The "nature-nurture" or "genetic-environment" controversy is meaningless. Because of our "nature" the environment nurtures (selects) our behavior in a certain way, and our "nature" reflects what we have inherited.

Behavior analysis sees things like physiology and brain chemistry as playing essential roles in understanding behavior. Contingencies which occurred in the past influence behavior today. Behavior analysis does not assume that some sort of time machine exists, that what happened eight years ago travels through time to influence how you will respond to a situation today. Behavior analysis speculates that these past events changed some structure, biological, neurological, chemical, or electrical, and these changes persist today and influence behavior today. However, we currently know little about what precisely goes on at these levels that mediate behavior. Fortunately, we can develop functional relationships that relate behavior to the environment independently of these events, and have a science of behavior, much as chemistry existed independently of quantum theory for a long time. Today, scientists know a lot about interpreting chemistry in terms of quantum theory; we are not at that stage in behavioral science, although there is a start. But today we do not know enough to explain behavior by reference to chemical or electrical events.

Determinism, robots and control are issues many raise about behavior analysis. Many seem to feel that determinism makes everything seem mechanical and pre-ordained, that it makes people appear like robots. Yet in spite of the fact that we know all the basics in classical physics, engineers cannot predict which plane will fail. Even with complete determinism in theory, complexity prevents full prediction or control in practice. Chaos theory posits a determined but unpredictable world. "Control" is merely a metaphor for functional relationships. As used technically in behavior analysis, if temperature affects how we dress, we say it "controls" dressing behavior. Thousands of other things may also exert concurrent control.

Many think that analysis destroys the romance of the world. Yet with every problem analyzed and "solved" in the physical, chemical and biological sciences, ten new ones are discovered. The more we understand the more we find there is to understand. Ignorance is neither romantic nor exciting.

Finally, reality is not up for a popular vote. Researchers who study behavior did not "create" behavioral laws. No one believes that if it were not for Newton there would be no gravity. Yet many act as if behavioral scientists are responsible for the way the world is.

An Applied Science

Applied behavior analysis attempts to improve individual and social conditions. In education, direct instruction, precision teaching, personalized instruction, and other behavior analysis approaches have great success, whether in regular education, special education, or adult and higher education. In spite of much that has been written, superior educational programs that consistently deliver quality results

across all ranges of students already exist. Research has shown this time after time. However, these programs have not been widely adopted yet.

In industry, the form of behavior analysis called performance management produces results far superior to traditional strategies. Many Fortune 500 companies now train managers in these approaches. Most significant current work in international public health is based on behavior analysis. Many behavioral programs related to environmental concerns, such as littering, energy and water conservation, and recycling, have been developed. In clinical areas related to personal problems, parenting, child-rearing, corrections, drug and alcohol treatment and in health-related areas, such as weight control and smoking cessation, successful programs grounded in behavior analysis are documented.

Many new areas are under development. A start has been made treating economics as a behavioral problem. Analyses have been completed and new ones are underway related to creativity. Traditional areas, such as thinking and cognition, will be completely reformulated on the basis of research and concepts already developed. The historic topics labeled motivation and emotion are understood from a new perspective. A start is being made to attempt to understand areas like ethnic conflict and group aggression. For nearly every topic and every area you can name, there is probably some behavioral researcher trying to analyze it and figure out a way to improve it.