In Response

Teaching the Distinction Between Positive and Negative Reinforcement

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Baron and Galizio (2005) iterate an argument attributed to Michael (1975) that there is no reason to distinguish between positive and negative reinforcement. Their article examines advances in behavior-analytic research since Michael and finds no new compelling reason to maintain a technical distinction between these terms. Their argument is logical, scholarly, and precise. I agree completely with the conclusion that one cannot attribute different processes to positive and negative reinforcement nor can one attribute control by one and not the other in any given situation. What the article does not provide, though, are any strong insights into why the distinction has been maintained for 30 years after Michael published his analysis of these terms. Why has the distinction been maintained?

Perhaps such an analysis involves conjecture, but maybe we can go beyond simple conjecture by surveying the field (a form of group conjecture, if you will, or intersubjective truth). This could involve either a thorough analysis of behavior-analytic textbooks or a direct survey of those who teach behavior analysis. How many of us actually teach the distinction as a technical distinction, and if we do, how do we do so? Maybe teaching the distinction serves a useful function. After all, according to both Baron and Galizio (2005) and

Michael (1975), the distinction that is maintained by behavior analysts is the one ascribed to Keller and Schoenfeld (1950). No one who met either would argue with their skills as teachers. Keller was the best teacher I ever met. So as one representative member of a potential survey of teachers, my comments are directed toward how the distinction between positive and negative reinforcement might be useful in teaching behavior analysis.

I suspect that the distinction serves a heuristic purpose in teaching others about behavior analysis. The distinction, and particularly the examples many teachers provide, help to focus students on the detailed analyses of the kinds of variables that may control behavior. A behavior analyst might start by pointing out the distinction between behavior and environment. Then one might move to a description of environmental changes that occur before and after behavior. After establishing the priority of selection by consequences, one then shows that some of the changes in consequences can increase behavior and some can decrease behavior. Moving on, one might point out that some of those changes in consequences that increase behavior involve the removal of a consequence and others involve the presentation of a consequence. Finally one might add that sometimes the behavior removes a consequence by avoiding it and sometimes by escaping from it. These descriptions and the examples used to support them

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demonstrate the kinds of systematic, analytic practices that behaviorists use to solve problems. Further, such examples focus on environmental variables, change over time, the distinction between the environment and behavior, and the distinction between observable and unobservable variables. These are some of the critical aspects of teaching students how to examine behavior like a behaviorist.

I would also respond to a survey about this distinction by saying that as a teacher I present an analysis that shows exactly the logical point that Baron and Galizio (2005) make: All examples of positive reinforcement involve examples of negative reinforcement. This too shows the detail involved in a thorough analysis of behavior. Pointing this out to students is one of the "punch lines" of teaching them to solve problems like a behaviorist. A behaviorist has to be very specific about which behavior is targeted for observation or change. Focusing on issues like positive and negative reinforcement leads to the need for precise measurement.

Focusing on negative and positive reinforcement also helps to isolate the kinds of contingency changes that might be made to bring about behavior change. Sometimes applied behavior analysts manipulate the establishing operations or the consequences (or both) related to one side of the positive-negative distinction, and sometimes they manipulate the other side. For example, noting a low frequency of socially appropriate mands and a high frequency of self-injurious behavior, one change would be to increase contingent attention for mands, which may lead to an increase in mands. Alternatively, the caregiver may restrain the child for self-injurious behavior, and the child may avoid or escape from restraint by an increase in manding. That the positive and negative reinforcement components of both manipulations can be described does

not negate the heuristic value of seeing that either or both attention and restraint can be manipulated to increase socially appropriate mands. Again, bringing this kind of analysis to the attention of students focuses the analysis on what behavior is measured and how it is measured.

Contrasting this example with at least one of the examples given by Baron and Galizio (2005) also helps to point out the semantic value of the distinction between positive and negative reinforcement. Weiss and Laties (1961) illustrate one of the problems with the distinction, but as an example it has very little force because it sounds like simple semantics. Cold and hot are opposites of each other; it makes very little difference whether we talk about making the room hotter or eliminating the cold. In the example I gave above, however, increased attention and decreased restraint are not necessarily opposites; each procedure has its own opposite that can be described as negative or positive. Increasing attention might also decrease periods of nonattention, and decreasing restraint might also increase periods of nonrestraint, but semantically these opposites are pretty awkward. My favorite example of cases in which it may be easier to describe a positive change than a negative change is pay for performance. Talking about paying an individual for performance seems less awkward than saying that conditions were arranged for the individual to avoid moneyless periods of time.

Baron and Galizio (2005) also discussed the importance of analyzing the history of the organism with respect to the consequences that are changed in both positive and negative reinforcement. Focusing on history is essential for behavior-analytic explanations. Also, a focus on history may help us to understand why the distinction between positive and negative reinforcement is maintained. Although examining the history of

consequences will reveal both changes from “present to not present” and “not present to present,” such an examination may also reveal that one direction of change is more salient or discriminable to the observer than the other. In some examples it also may be easier to measure behavior that produces a “positive” change and in other cases it may be easier to measure “negative” change. These analyses of history suggest that the discriminability, measurability, and ease of description of change, as illustrated above, help to maintain the distinction.

One also finds that the terms *positive* and *negative* seem to have semantic value in other sciences. *Positive* and *negative* are used to describe functions, for example positively and negatively skewed functions. *Positive* and *negative* are used to describe charges, as in the charge of particles in physics. I know of at least one allied science, systems theory, that uses *positive* and *negative* in a very different way from behavior analysts. As a result, people versed in systems theory are confused by behavior-analytic use of the terms. Systems theory uses positive feedback to refer to decision rules that lead to continuation of the current state, whereas negative feedback refers to decision rules that lead to changes in the current state. A furnace stays on when feedback is positive (if temperature is less than x , then continue); it shuts off when feedback is negative (if temperature is X , then turn off). Perhaps a comparison of how the terms *positive* and *negative* are used across sciences would add to Michael's (1975) original argument.

Perhaps, however, such an analysis would lead to additional reasons why our community maintains the distinction.

A long time ago, so long ago that I do not remember the referent, someone told me that there is a difference between logical and psychological analysis. Although analyses of behavior are logical, logic will never be sufficient for understanding behavior. To understand behavior requires identifying and affirming consequences, which after all is not logical. Michael (1975) and Baron and Galizio (2005) are wonderful examples of logical analysis and scholarship. As logic is one of the foundations of science, behavior analysts should pay attention to what these articles say. But it is the behavior of a group of scientists, clinicians, teachers, and writers that Baron and Galizio address. Why the verbal behavior of this group maintains the distinction between positive and negative reinforcement may be logical only in that it follows the laws of behavior, that is, it has psychological functions. These functions, I believe, maintain the distinction in our verbal behavior.

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