

Column 5: Exploring Mysteries of Living: Behavior and Awareness



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A Los Alamos member of The International Behaviorology Institute

Why these Columns? Because human behavior causes global problems, and solving these problems requires changes in human behavior... So *everyone* benefits from knowing something about the natural science of human behavior (called behaviorology) that these columns relate. Having first appeared as newspaper columns, these columns began appearing on **BehaviorInfo.com** starting in 2020.

Last time we took a quick look at contingency causes of behavior through the oversimplified “A—B—Cs of behaviorology.” A slightly more realistic formula, “A—B—P,” refers mostly to events in time and stands for “Antecedents—Behaviors—Postcedents.” We will quickly see this develop into many fully realistic versions, a common one of which is “Evocative Stimulus—Response—Consequential Stimulus.”

Such variables are the starting point, the most basic starting point, for beginning any investigation about any behavior. We begin by considering each of the terms in “Antecedents—Behaviors—Postcedents.”

The “Antecedents” come first. Several types of variables comprise the antecedents of behavior. We start with the one that seems to be the most common. This antecedent stimulus is the “evocative stimulus.” These stimuli function to evoke behavior. This means that when energy traces from the stimulus make contact with sensory neurons, the result is that the behavior occurs.

Any setting contains many of these stimuli. Which ones affect you next depends on several other variables. These include the history of conditioning in your past that has made some stimuli functional in relation to your behavior. The result is that, according to the currently operating functional relations, at least one of these stimuli will be affecting you. This takes the form of its presence evoking the relevant behavior.

That means the stimulus functionally controls the occurrence of the response. If the stimulus provides the appropriate energy change at receptor cells, then the physiology of the “carbon unit” that is you mediates the response. That is, in the presence of the stimulus, the response occurs.

For example, very likely, previous conditioning has made flashing red lights evoke

responses of arresting motion, as in stopping. So if, as you drive around a corner, you come into the presence of a flashing red light, then you stop. Otherwise you keep going.

Or rather, excising the inner agent implied by the word “you,” the presence of the flashing red light evokes the response of foot pushing on brake, all entirely naturally. By the way, some folks object to saying “carbon units.” And yet, referring to them does not dehumanize humans, but respects the related scientific objectivity.

Some evocative stimuli occur simultaneously. In a sense, these stimuli compete with each other. What if, in the presence of that flashing red light, an officer directs you to turn left? This means you are in the presence of two functionally effective evocative stimuli, a flashing red light and a directing officer. What happens? The officer’s directions evoke the behavior of turning left! At least, that is what happens if your conditioning history has been in keeping with the laws of the land where directions from a present officer take precedence (that is, carry more severe consequences for non-compliance) over automatically operating red lights.

See all the levels of complexity we can get even in a simple example? While I cannot even come close to mentioning all these levels in this column (that would take several columns) behaviorology makes possible our comprehending and managing them.

Again, usually you are in the presence of a multitude of evocative stimuli, and which ones affect you, and in what sequence, will vary. As I craft these examples here at my desk, the evocative stimuli that surround me include the keys on the computer keyboard, the computer mouse, the computer screen, the papers on the desk containing my notes for this column, the flash drive on which I backup my work, the clock, the telephone, the tissue box, the lights, the stereo, the CD player and its remote control, even the dust bunny barely visible under the edge of the stereo, and so on and on and on!

What elements of my history or current circumstances will make one particular stimulus, rather than another, evoke my next response? And now the phone is ringing...

Survey your own desk or current setting. I am sure you can list a similar number of evocative stimuli, and possibly still leave numerous ones unmentioned, as I did. Which one will evoke your next response? Right now the words in this column are again evoking your responses, your reading responses.

However, what if a slight sideways glance showed your clock showing that you have been enjoying reading for an hour and are about to be late for a medical appointment? Now *that* contingency would indeed change behavior, from reading to traveling.

After the "antecedents" term comes the "behaviors" term, the middle term of our most basic behavior-control formula. In practice, we differentiate between behavior and responses. While "behavior" is the general term, we use the term "response" for particular instances of a behavior.

Responses occur under the control of currently operating variables. This makes every response a new, and thus different, response. This could be a problem since science usually deals with repeatable phenomena. But responses naturally fall into “response classes” on the basis of sharing the same circumstances, usually the same stimulus consequences. Thus our experimental analysis operates on the level of response classes.

For example, some classrooms contain teachers whose educational background includes a couple of courses in the science of teaching, an applied area of behaviorology. Such well-instructed and well-managed classrooms contain students whose hands regularly go up when the teacher asks a question.

What is the question? It is, in part, an evocative stimulus evoking the behavior of hand raising. When the teacher acknowledges one of the students, the acknowledgement is an evocative stimulus for answering, so the acknowledged student provides an answer.

To anticipate our next step, the answer produces consequences. Whether it is correct or not, the teacher responds with intellectually and emotionally honest and appropriate comments that serve several functions. For the sake of all the students, these consequences both include a rephrased restatement of the correct answer, and provide consequences that affect subsequent behavior, including maintaining studying and hand raising.

For any particular student, many hand raises might occur each day. None of them has identical characteristics with any of the others. They all differ topographically, for instance up at different angles. But they all share the same kinds of consequences.

Sharing the same kinds of consequences makes all of these hand-raising instances into members of a single response class, with repeatable members, that we can count and study. We might call them all members of the response class of "hand raising." The same happens with more noteworthy responses.

Some other points flow from responses occurring under the control of currently operating variables, which makes every response a new, and thus different, response. How can events that seem to be in the past or future affect our behavior? The basic answer is that past or future stimulus events cannot directly evoke or consequate responses. Both responses and stimuli occur only in the present. This emphasizes that all behavior is new behavior, with responses grouping into response classes for experimental analysis.

Every behavior occurs under the functional control of current evocatives, which includes eliciting, stimuli regardless of the complexity, multiplicity, or interactivity of the stimuli and responses.

Even memories are not "stored" responses. They are new responses, similar to previous responses but nonetheless new. They are new responses that current stimuli evoke and that current neural structures mediate. These neural structures have their current structure because conditioning processes changed them both at the time of, and since the time of, the earlier occurrence.

After the "antecedents" term, and the "behaviors" term, comes the "Postcedents" term, the third term of our most basic behavior-control formula. Both "antecedent" and "postcedent" terms merely refer to a temporal relation, before or after a response. The "postcedents" term receives much attention, especially in its "consequences" form. It is not necessarily more important than the other two terms, but it is the part that helped differentiate between different kinds of behavior, which later columns address.

The word consequences has a meaning far too specific merely to substitute for

"postcedents," because consequences are but one kind of postcedent. The next column extends our conversation to consequences and "awareness" considered scientifically.

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