

## CHAPTER 8 - ANTECEDENTS: STIMULUS CONTROL

Prologue: Hundreds of thousands of accidents occur at stop signs each year, producing tens of thousands of incapacitating injuries and about 3,000 deaths. What can be done to increase safe driving practices and reduce accidents at stop signs? Ron Van Houten and Richard Retting conducted a study to examine ways to manage antecedent stimuli to increase cautious driving behavior at stop signs - at the bottom of stop signs at three intersections where that had been at least four crashes in a three-year period, they installed either a sign saying "LOOK BOTH WAYS" or a sign that used LED technology to create animated eyes scanning to the left and right (with no words) when a vehicle approached. During the intervention, although the LOOK BOTH WAYS sign had little effect, the LED sign noticeably increased drivers' coming to a full stop and decreased conflicts and increased looking right only modestly (perhaps because it was already occurring at a fairly high level at baseline). These findings show that antecedents affect behavior and vary in the degree to which they are effective.

### Setting the Occasion for Behavior

**antecedents** - cues that precede and set the occasion for a behavior - they lead us to do, think, or feel something

example: if you notice that you are *thirsty* and see a *water fountain*, these two cues set the occasion for you to use the fountain to get a drink

example: when you hear a radio announcer say that one of your favorite recordings is about to be played, you stop what you are doing and turn up the volume - in the past, hearing this recording gave you great enjoyment

- we learn cues that tell us when and where to perform or not perform certain responses by linking the cues with the behavior and its consequences

### Types of Antecedents

Our behavior happens in a **context** that includes objects, other people, and internal events, such as feeling hungry; anything in the context that arouses behavior is a **stimulus**

- antecedents can involve any of our senses
- the effects of particular antecedents can differ from one person to the next - for example, some students never raise their hands when a teacher asks a question, and some students raise their hands only when they are sure they know the answer

### Overt and Covert Antecedents

**Overt** - open to or directly observable through our senses

**Covert** - internal and not open to observations

### Immediate and Distant Antecedents

**Immediate antecedents** - present shortly before the behavior occurs, such as when you hear someone in a building yell, "Fire!" and you head toward an exit right away

**Distant antecedents** - precede the behavior by several minutes, hours, or much longer amounts of time - often continue to affect behavior for a long time after the occurrence of the actual antecedent because they have strong emotional and covert components - the behavior of a woman who has been physically abused at home might be influenced for weeks or years by the emotion and frequent thoughts about these events

### Antecedent Functions

Two types of functions: motivational and discriminative

### Discriminative Stimuli

**discriminative stimulus** - cue that sets the occasion for a particular response and signals that the response will be followed by a particular type of consequence

- when we learn a discriminative stimulus, the behavior tends to occur in the future in accordance with the condition (the presence of the discriminative stimulus) that existed when it was reinforced or punished in the past

### Establishing Operations

**establishing operation** - procedure that increases the effectiveness of a particular consequence - a reinforcer or punisher - on performance of a target behavior, which enhances the motivational function of the antecedent conditions

for example, deprivation

### Learning antecedents

#### Stimulus Discrimination

**discrimination training** - teaching procedure in which a consequence is administered for a particular behavior when a specific stimulus is present but not when another stimulus is present

- teaches people to distinguish between different stimulus conditions and respond differently toward them
- we learn to discriminate through an operant process in which responding a certain way to a particular stimulus leads to a rewarding consequence

**S-delta** - stimulus that is associated with not being reinforced for making a given response - cue for not performing particular behavior

#### Stimulus generalization and equivalence

**stimulus generalization** - we learn to make a particular response to a specific discriminative stimulus

**stimulus equivalence** - two or more physically different stimuli come to serve the same purposes and be used interchangeably

### Concept Formation

- concepts help us make sense out of the enormous amount of information we find in our worlds
  - **concept** is a cognitive category by which we group noticeably different objects, events, or ideas on the basis of their concrete or abstract commonalities - can be concrete or abstract

## **Stimulus Control**

What is stimulus control?

**stimulus control** - refers to the extent to which an antecedent can influence performance of a specific behavior - when an antecedent exerts a high degree of stimulus control, the behavior tends to occur mainly or always in the presence of the cue, and when the cue is present, the response is highly likely to occur

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