

Operant Conditioning

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This lesson falls under the Learning and under the sub domain of Operant Conditioning. Due to the length of each iteration of the classroom demonstrations, this lesson will take two days.

Mastery Objective(s):

- Students will be able to describe, in a BCR(brief constructed response) the importance of the timing and clarity of feedback in terms of behavioral change and how that feedback influences future action
- Students will be able to identify, in a ECR (extended constructed response) the principles and vocabulary of operant conditioning and how those principles exist in their everyday lives
- Students will be able to identify and write a BCR(brief constructed response) on confounding variables in experiments and demonstrations of Operant Conditioning
- Students will be able to record the frequency of punishments and rewards administered and use that data to create a graph demonstrating behavioral changes in their classmates.

DAY 1

Special Materials: small, individual bags of M&M's candy and paper cups, several sheets of scrap paper

Multimedia Support: A video clip from the T.V. show The Big Bang Theory. This clip can be shown at any time during this two day lesson. The clip shows the main character, Sheldon conditioning his roommate's girlfriend so that her behavior is less objectionable to him. While funny, the clip mentions relevant vocabulary, such as Skinner, Thorndike and Operant Conditioning.

<http://www.youtube.com/watch?v=Mt4N9GSBoMI>

Warm-up /Activator Day 1: Do teacher comments on ECR's and BCR's help you to improve your writing? If so, how and how much? If not, why not? (½ page)

Demonstration 1: To reinforce the experimental nature of conditioning, students are told the hypothesis of this activity is: if a student is rewarded for successfully tossing a paper ball into a trashcan, then that student will be more likely to do that in the future. This activity requires at least one student who is to shoot paper balls into a trashcan and one student who is to give him or her M&M's for each successful throw. Depending on interest level, class time, this activity can be repeated with another set of volunteers. Students who are not the shooter or the M&M grantor will record how shooting paper balls into trashcan on a table.

Note: This demonstration does not often result in a student increasing his or her performance.

Sample table:

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Trial 11	Etc.
hit												
miss												

Each time a student ‘makes a basket’, he or she is rewarded with an M&M, the “trainer” will hand the cup of M&M’s to the shooter. The shooter will then eat the M&M. The rest of the class is instructed to heckle the shooter for every missed shot. After a few iterations of this activity, students are told to sit down, discuss whether they see a trend of behavioral changes in the shooter’s accuracy.

Discussion on Demonstration 1: Did the M&M’s cause a change in behavior? Were the M&M’s correlated with a change in behavior. Were the M&M’s an appropriate reward? What type of punishment was being heckled? What other variable could have influenced the behavior? Does this symbolize grades in school? Does receiving good grades cause certain behaviors? How long after studying or writing a paper is the good grade received?

Demonstration 2 Two volunteers are needed for a version of the game, Hot and Cold. One student will be asked to step outside of the classroom for a few minutes. Once the student has left the classroom, the rest of the class and the ‘trainer’ are told that the student outside the classroom will have to perform a behavior. Examples of such behaviors are walking across the room and standing on a chair, writing a word on the board, or even crawling under a desk. The trainer is told the only words he can say are: Hot for a reward and Cold for a punishment. The first student then enters the room. He is told that he must perform a behavior and that he must figure out the behavior by performing certain actions. As the student steps, walks, or does any action, he is told either Hot or Cold. Of course in seeking the reward of the word Hot, he or she will eventually perform the predetermined behavior. Once that behavior is done, he or she will receive a little bag of M&M’s.

Note: very complex, seemingly awkward, and very funny behaviors have been performed by teenage students in this demonstration.

Discussion on Demonstration 2: Did the ‘subject’ do the behavior? Did he or she do it quickly? If not, was it the fault of the subject or the trainer? Were the words Hot and Cold clearly attached to behaviors?

Day 1 Wrap Up Activity: Five students must offer one idea that they and their classmates can use in their BCR homework. Students are chosen randomly using the birthday method. If a student cannot contribute an idea for the homework assignment, he or she can consult with a classmate, but the student who was selected must give the response.

Homework: In a half-page BCR, compare the two class demonstrations. Why was one successful and the other not? What confounding variables might have influenced the subjects’ performance?

DAY 2

Special Materials: None

Multimedia Support: A video clip from the T.V. show The Office. This clip can be shown at any time during this two day lesson. The clip shows the main character Jim, conditioning his coworker Dwight. While funny, the clip introduces itself, as classical conditioning, students are encourage to find operant conditioning aspects in the clip. The teacher will explain that the video clip contains aspects of both classical and operant conditioning.

<http://vimeo.com/35754924>

Warm-up /Activator Day 2: List at least three differences and three similarities between an animal subject in a operant chamber or a puzzle box and a human at work or at school.

Lecture: Presentation and assignment of operant conditioning vocabulary terms. Students will copy vocabulary terms and definition from the screen as the teacher reads and presents the definitions and offers analogies. Students are encouraged to volunteer how they see examples of the vocabulary terms and the previous day's demonstrations. In this way, students can make connections between what the 'official' definition is and what they saw and/or participated in. *Token economy, shaping successive approximation, number of trials, schedule of reinforcement positive punishment, negative punishment, positive reinforcement, negative reinforcement, Continuous Schedule of Reinforcement, learned helplessness, chaining, extinction, variable schedules, fixed-ratio, variable-ratio, fixed-interval, variable-interval, superstition, Premack principle, learning curve, discrimination, generalization*

Day 1 Wrap up Discussion: Five students must offer one idea regarding the use of operant conditioning in after school, high school sports or after school part time employment. Students are chosen randomly using the birthday method. If a student cannot contribute an idea for the homework assignment, he or she can consult with a classmate, but the student who was selected must give the response.

Homework: ECR – At least one page in length. Using what you know about academic life and home life, how are operant conditioning concepts applied in your life or the life of an average teenager's life? Include 10 vocabulary words from the lecture.