**Lesson Three : Learning and Conditioning**

By reading this lesson, you should be able to remember and describe:

• Learning (psychologist’s definition)

• Basic elements of classical conditioning: unconditioned stimulus, unconditioned response, conditioned stimulus, conditioned response

• Higher-order conditioning

• Generalization and discrimination

• Extinction and spontaneous recovery

• Basic elements of operant conditioning: positive reinforcement, negative reinforcement, positive punishment, negative punishment

• Observational learning, non-associative learning, habituation, sensitization

Many students are confused when they first encounter the concept “learning” in their psychology class. Learning happens when behavior (and knowledge) can change as a result of experience**.** As you read this module, keep in mind that the learning which you are familiar with is the kind that takes place in a school setting, involves remembering information in order for you to prove that you learned it (for example, for you to perform well on an exam). Thus, it is often useful for you to think of learning and memory as parts of the same process. How can you remember something if you did not learn it? And how can you say that you have learned something if you do not remember it? This module describes several basic types of learning, but it focuses primarily on two. The first is classical conditioning, in which the learner comes to associate two events in the environment, called stimuli. The second is operant conditioning, in which the learner comes to associate a behavior with its consequences. Together, classical and operant conditioning are sometimes called **associative learning,** because both involve learning some association, or link.

**3.1. Learning that Events Are Linked: Classical Conditioning**

Although it may not be obvious at first, these two descriptions are both examples of the same psychological phenomenon, classical conditioning. **Classical conditioning** is learning that two stimuli are associated with each other. A **stimulus** is simply an event or occurrence that takes place in the environment and leads to a **response,** or a reaction, in an individual. For example, suppose that you are fortunate enough to have someone feed you dinner every night.

Further, suppose that this kind person does this at the same time every night, 6:00 pm. On the first day, you look up at the clock and see that it is 6:00 (a stimulus), and your benefactor makes dinner appear in front of you (another stimulus). Second day, same thing: 6:00, and dinner appears. It will not take you too many days to learn that these two stimuli are

associated- every time the clock says 6:00, someone gives you dinner. This is the essence of classical conditioning, and it explains a wide variety of animal and human behavior.

Furthermore, there are more types of conditioning. Classical conditioning occurs when the unconditioned stimulus is paired with something else that originates in the environment (another stimulus). Originally, this stimulus had no particular power to produce a response. In other words, it was a **neutral stimulus**. It is an environmental event that does not lead to any particular response related to the conditioning situation. This stimulus will become a conditioned stimulus. This new response was learned, or conditioned, so it is called the **conditioned response (CR). The conditioned stimulus is** an environmental event that an organism associates with an unconditioned stimulus; the conditioned stimulus begins to lead to a reaction that is similar to an unconditioned response. the conditioned stimulus can become so well established that it can eventually become an unconditioned stimulus in a future round of classical conditioning. This type of conditioning is called **higher-order conditioning.**The period during which classical conditioning occurs is called **acquisition.** During acquisition, in order for conditioning to occur, the conditioned stimulus must come before the unconditioned stimulus. A predictor that occurs after, or at the same time as, the event is supposed to predict is not very useful. Imagine that you were once bitten by a big yellow dog named Rex. You might easily develop a fear of Rex through classical conditioning. But many people who have an experience like this go on to fear other dogs as well, even little white or black or brown ones; in some cases, they may come to fear all dogs. What has happened is that stimulus generalization has taken place. **Stimulus generalization** occurs whenever a conditioned response occurs in the presence of stimuli that are similar to the original conditioned stimulus. On the other hand, what if you have a dog?

In this case, although you might still develop a fear of Rex and some other dogs, it is likely that you would not come to fear your own dog. In this case, stimulus discrimination has occurred. **Stimulus discrimination** is when a conditioned response does not occur in the presence of a stimulus similar to the original conditioned stimulus. Classical conditioning effects do not last forever; they fade over time. If a conditioned stimulus is presented repeatedly without pairing it with the unconditioned stimulus, the conditioned response will grow weaker and eventually disappear. This is called **extinction.** For example, suppose Rex bites you, and then you adopt a new puppy. At first, because of generalization, you may have a classically conditioned fear of the new puppy. Over time, however, as this puppy (a conditioned stimulus) is presented to you without the unconditioned stimulus—she does not bite you—your fear may fade.

The concept of extinction is perhaps misnamed, however, because the conditioned response is not really dead. After a delay, it will reappear in a weakened from, a process called **spontaneous recovery.**

**3.2. Learning that Actions Have Consequences: Operant Conditioning**

**Operant conditioning is a** type of associative learning in which a behavior comes to be associated with its consequences.Consequences that make it more likely that you will repeat a behavior are called **reinforcements,** whereas consequences that make it less likely that you will repeat a behavior are called **punishments.** There is already a complication that makes it difficult to recognize the difference between reinforcement and punishment. Basically, there are two main ways that we could do something pleasant to you: we can give you something

good, or we can take away something bad. Similarly, there are two ways that we could do something unpleasant to you: We can give you something bad, or we can take away something good. These four possibilities constitute the four main types of consequences that are important in operant conditioning; they are called **positive reinforcement, negative reinforcement, positive punishment,** and **negative punishment.**

**3.3. Some other Types of Learning**

**Observational learning**, which is learning that occurs through watching others’ behavior.

Of particular importance is the observation of operant conditioning in someone else. For example, if a child observes his sister being punished for a behavior he may learn not to do it as effectively as if he was being punished himself. Also, as the joke hilariously illustrates (we assume you are still laughing at it), because punishment does not directly tell learners

what they are supposed to do,it is not a particularly efficient way to change people’s behavior.

 Observational learning involves learning that behavior is associated with consequences, just as in operant conditioning.

You might be wondering if there is such a thing as non-associative learning. The answer is yes. **Non-associative learning** occurs when the repetition of a single stimulus leads to a change in an individual. Note, of course, that this stimulus is not linked with anything; it just occurs repeatedly. Over time, your experience, even your very perception of that stimulus might change. Imagine that you visit a friend who lives near an airport for the first time. As your friend is making coffee for the two of you, an airplane flies overhead, and you practically jump out of your skin. Your friend, on the other hand, does not even react, continuing to make the coffee as if nothing has happened. You cannot believe it. “How can you even hear yourself think with that deafening noise?” you ask. “Oh, I got used to it. I barely even hear it anymore,” your friend answers. Your friend has experienced **habituation**, in which the repetition of the stimulus leads to a reduced reaction or perception over time. On the other hand, consider the opposite kind of non-associative learning, **sensitization**, in which the repetition of the stimulus causes a stronger reaction or perception over time. We like to call this the annoying-little-brother effect. Imagine that you have a little brother who has the worst habit of scraping his teeth on his fork when he takes it out of his mouth. You are absolutely convinced that he is doing it louder and louder just to annoy you. Maybe. Or maybe you have just experienced sensitization.