
Development of Phobias and Use of Classical Conditioning Principles to Overcome Phobias

The scope of this paper is to explain how phobias develop and how systematic desensitization can be used to overcome these phobias using classical conditioning principles.

The main classical conditioning principles are acquisition, extinction, habituation, and counterconditioning. "Classical conditioning helps explain many behavioral phenomena, especially phobias and addiction". (Michael S. Gazzaniga, 2018). Classical conditioning is a type of associative learning in which "An organism learns to associate two stimuli such that one stimulus comes to elicit a response that was originally elicited only by the other stimulus" (M. Passer, R. Smith, N. Holt, A. Brenner, E. Sutherland & M. Vliek, 2009).

A phobia can be defined as an 'extreme, irrational fear of a specific object or situation' (The Editors of Encyclopedia Britannica, 2019). Frequent exposure to a phobia is known as systematic desensitization and can help to overcome phobias "Systematic desensitization is a form of graded exposure". (Lynne M. Drummond & Isaac Marks, 2015). Through systematic desensitization, a phobia can be counter conditioned whereby an animal/human that has previously been conditioned to react to a certain stimulus is trained to react differently to the same stimulus.

This essay will outline how phobias develop, the different processes of classical conditioning (acquisition, extinction, habituation, and counterconditioning) and how the process of systematic desensitization and counterconditioning can help to overcome fears and phobias.

Classical conditioning was developed by a Russian Physiologist called Ivan Pavlov in the 1890s. Pavlov first developed this theory through his experiments on the digestive systems of dogs. Pavlov created an apparatus that collected saliva from dogs, and he noticed that dogs salivated at the sight of the person feeding them. "One day he was annoyed to realize that the laboratory dogs were salivating before they tasted their food" (Michael S. Gazzaniga, 2018). The dogs were associating the lab technician with food. This prompted Pavlov to develop a theory about the relationship between stimuli and responses that he believed could be applied to humans as well as animals. This theory is now known as classical/Pavlovian conditioning.

"Learning is a relatively permanent change in an organism's behavior as a result of experience" (Bryan Kolb & Ian Q. Whishaw, 2014.) According to Michael S. Gazzaniga "We learn predictive associations through conditioning, the process that connects environmental

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stimuli to behavior” (2018 pg. 210).

The first period of classical conditioning is known as the acquisition period. According to M. Passer, R. Smith, N. Holt, A. Brenner, E. Sutherland & M. Vliek “Acquisition refers to the period during which a response is being learned” (2009, pg.284). During the acquisition period, the unconditioned (unlearned) stimulus is first introduced. “In fear conditioning, a noxious stimulus is used to elicit fear, an emotional response.

According to Bryan Kolb and Ian Q. Whishaw,” A challenge for psychologists studying memory in laboratory animals (or people) is to get subjects to reveal what they can remember. Because laboratory animals do not talk, investigators must devise ways for a subject to show off its knowledge” (2014 pg. 483). A rat or other animal is placed in a box. A mild but noxious electric current can be passed through the grid floor. A tone is presented just before a brief, unexpected, mild electric shock.” (2014, Pg. 484). The tone is the unconditioned stimulus as it’s “A stimulus that elicits a response, such as a reflex, without prior learning” (Michael S. Gazzaniga, 2018). Here, in the acquisition period, an unconditioned, fearful response is being learned by the rat. “A response that does not have to be learned, such as a reflex” (Michael S. Gazzaniga, 2018). The rat may freeze and keep still or “become motionless and may urinate in anticipation of the shock” (Bryan Kolb & Ian Q. dWhishaw,2014). The tone must be sounded multiple times to create an obvious response from the rat, making the tone a conditioned stimulus. “A stimulus that elicits a response only after learning has taken place” (Michael S. Gazzaniga, 2018).

This repeated sounding of the tone is known as Systematic desensitization. Systematic desensitization occurs during acquisition in which 'A conditioned stimulus (e.g., a tone) typically must be paired multiple times with an unconditioned stimulus to establish a strongly conditioned response' (M. Passer, R. Smith, N. Holt, A. Brenner, E. Sutherland & M. Vliek,2009). “When the tone is presented later without the shock, the animal acts afraid.” (Bryan Kolb & Ian Q. Whishaw,2014.) The fear observed in the rat is evidence of associative learning “linking two stimuli, or events, that occur together” (Michael S. Gazzaniga, 2018).

The fear is a conditioned response “A response to a conditioned stimulus; a response that has been learned” (Michael S. Gazzaniga, 2018), and the tone is now a conditioned stimulus is “A stimulus that elicits a response only after learning has taken place” (Michael S. Gazzaniga, 2018). Here the rat has developed a phobia of the tone.

During this process, if a different unconditioned stimulus e.g. a light was presented to the rat in the same environment, this would prove to have little effect on the animal as the rat has now developed an association between the tone and the shock and a phobia of the tone. This addition of an alternative external stimulus is known as counterconditioning.

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The extinction of a phobia can be achieved through the processes of systematic desensitization and counter-conditioning. “Counterconditioning was the inspiration for systematic desensitization, a behaviour therapy technique in which frightening conditioned stimuli are deliberately associated with relaxation during therapy” (Wolpe 1958).

Here, the light is an external stimulus that prompts the process of extinction. “Extinction is a process in which the conditioned response is presented repeatedly in the absence of the unconditioned stimulus, causing the conditioned stimulus to weaken and eventually disappear” (M. Passer, R. Smith, N. Holt, A. Brenner, E. Sutherland & M. Vlieg, 2009). Pavlov studied ‘extinction’ and found that conditioned responding decreases if the conditioned stimulus is presented repeatedly without the unconditioned stimulus after conditioning.

The period of decreased behavioral response is known as habituation. According to Michael S. Gazzaniga “Habituation is a decrease in behavioral response after repeated exposure to a stimulus” (2018, pg.209). In the case of the rat confined in the box, the tone may be sounded multiple times, this time without the subsequent shock. The same fearful response may be observed in the rat as before. The rat may keep still in anticipation of the preceding shock of the electric current. Each time the conditioned stimulus (the tone) occurs without the shock, the conditioned response (fear) begins to decline. “The level of fear has been reduced to 50% of its highest value or, ideally, has vanished.”. (William C. Follette, Georgia Dalto, 2015). The rat has now habituated to the tone through systematic desensitization and counter-conditioning, reducing its fear of the shock in which is associated with the sound of the tone.

To conclude, classical conditioning helps organisms to adapt to their environment and modify their behavior through external stimuli and experiences. Using the classical conditioning principles (acquisition, extinction, habituation and counterconditioning) developed by Pavlov along with the process of systematic desensitization, fears and phobias can be developed and eventually overcome. In the case of the rat, it was not biologically programmed to fear the tone, but through the classical conditioning principles, it developed a phobia through associative learning in which was eventually decreased and overcome through the process of systematic desensitization.

References

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