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# Pavlov's Theory of Learning and its application

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# Background

- The behaviouristic theory of conditioned response was put forward by the Russian Nobel prize winner Ivan Pavlov at the turn of the century( 1890s ).
- This theory is known as ‘ Classical Conditioning ‘ theory.
- According to Stevan “ this theory comes under the non- reinforcement groups of learning theory.

- Classical Conditioning theory is also known as Pavlovian Conditioning, or Respondant Conditioning.'
- Classical Conditioning refers to a learning procedure in which a biologically potent stimulus(i.e food) is paired with a previously neutral stimulus.
- It is a form of associative learning.

- According to this theory- “ A stimulus, which is to be conditioned ( as bell )is presented again and again with unconditioned stimulus ( as food ),the stimulus becomes able to elicit unconditioned response ( salivation ). This is called conditioned reflex.
- In this process organism acquired an association between natural response and neutral stimulus.

# Classical Conditioning paradigm

- **Before conditioning** –  
CS (bell) ----- No Response  
US ( Food ) ----- UR( salivation )
- **During conditioning** -  
CS (bell) --- US(food) -----UR( salivation)
- **After conditioning** -  
CS (bell) ----- CR (salivation )

- Pavlov and his associates discovered several phenomena during their experimental studies on the gastric secretion in dog. We will discuss important findings as reported by him in his classical book on conditioning—
- **Intensity-----** One simple fact is that gastric secretion is the function of kind of food (UCS). There is a positive correlation between intensity of the stimulus and latency of response. The more intense the CS, the more rapidly conditioning will proceed and larger the CR will be. It has also been reported that if the CS is too weak there may be no conditioning.

- **Temporal Relationship**---- It has been reported that on interval of half a second between CS and UCS produces the greatest amount of conditioning. If the time interval is shorter than half a second, a dramatic failure of conditioning is typically found. The following types of temporal relationship have been studied- 1) Simultaneous Conditioning 2) Delayed Conditioning 3) Trace Conditioning 4) Backward Conditioning.



- **Extinction---** If CS( sound of the bell) is not followed by UCS (food), it means there is no reinforcement. A stage comes when the dog stop to secret saliva. This process is called Extinction.
- **Spontaneous Recovery**– It has been reported by psychologists that when the dog is brought out of experimental set up and again put in the set up after lapse of time, the dog respond to conditioned stimulus by gastric secretion. This process is called spontaneous recovery . The phenomena explain that there is no extinction due to time interval but there is inhibition of CR.

- **Inhibition---** Inhibition may be defined as a process in which a stimulus inhibits a response that would otherwise occur. Two types of inhibition as given follows--
  - External Inhibition---**It is a process of inhibition CR by external factors in the environment as noise or any other distraction which may draw the attention of the subject. It has been further reported that if the novel stimulus is presented on series of experimental trails , the CR will returns to its full strength .
  - Internal Inhibition---** It was observed by Pavlov that if complete extinction of CR is obtained by not providing food to the dog and it is then given a period of 24 hours rest ,CR will show spontaneous recovery when dog is tested again. The extinction does not permanently weaken the CR.

- **Generalization---** It is a process in which a conditioned response to a stimulus is generalized to similar category of stimuli. Suppose a dog salivates at the sound of buzzer of 1000 intensity ,but if the dog also salivate at the sound of 999 or 1001 intensity, it means the dog has response to the stimuli generalized. Classical experiment by Watson on Albert is an example of stimulus generalization of fear.  
**Higher- Order- Conditioning---** When a new CS (CS-2) is paired with previous CS (CS-1) and acquires the ability to elicit a specific response is called secondary reinforcement and the kind of this new conditioning (Learning) is called higher-order-conditioning.

- **Stimulus Discrimination**--- It is just opposite of stimulus generalization. In stimulus discrimination ,we learn to response differently to two stimuli.
- **Experimental Neurosis**--- Some times the differences between stimuli are so slight that discrimination between stimuli become practically most difficult when this happens, an experimental neurosis may develop.

# Application of Classical conditioning

## In explaining Psychopathology:

Classical conditioning explains many aspects of human behaviour. It play an important role in development of various emotional responses and addiction behaviour. In day to day life a people acquired or developed many irrational fears or phobia, attitudes on the basis of classical conditioning.

## In therapy:

Classical conditioning has been used as a successful form of treatment in changing or modifying behaviours, such as substance abuse, smoking, phobic reaction etc. The techniques based on principle of classical conditioning comes under behaviour Therapy. Some therapies associated with classical conditioning include Aversion therapy, Systematic Desensitization, Flooding etc.

- **Criticism of classical conditioning----**

- The theory has limited scope of its applicability to wide variety of learning situation. It is applicable in most simple form of learning only. It is unable to explain multi- response learning situation.
- Conditioning is mechanical in nature. Therefore ,it does not explain well the responses learnt under natural conditions because the same cannot be mechanically reproduce.
- Conditioning principle lays emphasis on practice and reflex repetition . But, most of the learning ,particularly incidental learning and learning of higher level problem solving may not necessarily require practice over long period of time.