South Valley University
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Lectures On
Psychology of Learning

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Chapter I
Psychology of Learning: An Introduction

Learning: Definition

The term learning is one of those concepts whose meaning is crystal clear until one has to put it in actual words. Learning is when you learn something. Learning is learning how to do something. Learning is knowledge or skill acquired by instruction or study. Learning is any relatively permanent change in behavior brought about by experience or practice.

In addition to, Guilford's defined learning as any change in behavior resulting from stimulation. A more useful definition is as follows: Learning is any relatively permanent change in behavior brought about by experience or practice.

What does "relatively permanent" mean? The "relatively permanent" part of the definition refers to the fact that, when people learn things, some part of the brain is physically changed to record what they have learned. This is actually a process of memory. Without the ability to remember things, learning process will not take place effectively or people cannot learn anything. Although there is no conclusive proof as yet, researchers suggest strongly that once people learn something, it is always present somewhere in the memory. They may be unable to get to it or retrieve it, but it is there somewhere stored in the memory.

As for the part about experience or practice, think about something that you have done and caused a lot of pain. Are you going to do it again? of course not. You don't want to experience that pain again, so you change your behavior to avoid the painful consequence. This is how experience or practice bring changes in our behavior and help learn new things. Every action or behavior has a consequence. If the consequence of that action or behavior is painful or unpleasant, we do not repeat that action or behavior in order to avoid the painful or unpleasant consequence. However, the consequence of an action or behavior is pleasant or pleasurable; we repeat that action or behavior again and again in order to get the same consequence or pleasure.

Therefore, these changes in behavior which are relatively permanent and which are brought about by experience or practice are called learning.

Learning defined also as a persisting change in human performance or performance potential. This means that learners are capable of actions they could not perform before learning occurred and this is true whether or not they actually have an opportunity to exhibit the newly acquired performance.

Second to be considered learning, a change in performance or performance potential must come about as a result of the learner’s experience and interaction with the world.

Some behavior changes such as the acquisition of fine motor control, can be attributed to maturation and are therefore not considered learned.

Do we learn to play the guitar?

Is this fine motor control

Other behavior changes, such as searching for food, when hungry or becoming garrulous when drunk, are obviously explained on the basis of temporary states. These also do not imply learning.

Learning characteristics

First: the learning process involving the semi-permanent change in behavior or experience and takes three forms are :

1. Behavior or the acquisition of new experience.
2. Abandonment of what behavior or experience.
3. Modification in the behavior or experience.

Second: The learning process occurs as a result of individual interaction with the physical and social environment.

Third, learning is an ongoing process not linked to a specific time or place.

Fourth: The cumulative learning process gradually.

Fifth: The learning process that includes all the desired behaviors and experiences and those that are not desirable .

Sixth: The learning process may be directed to a specific destination, and may be an occasional unintended.

Seventh: The learning process that includes all the changes and the resulting relatively fixed by factors of experience, practice and training.

Eighth: learning multiple aspects of a comprehensive process, it not only on the behavioral aspects or specific expertise, but includes all changes in the behavioral manifestations of mental, emotional, social, motor, linguistic and moral.

Measurement of learning

Learning is measured and judged by observing the external performance played by the individual.
Range of means and methods of measurement depending on the type of learning, learning Movement measured by means different from the means used to measure cognitive learning or social, for example.

There are a number of criteria that are used to measure the extent and quality of learning, including:

1. Number of correct responses compared to the total number of responses.

- Ex.: Aream answered all the exam questions.

2. Reaction time: is a measure of how quickly you can identify a signal and produce a response.

- Ex.: Aream started answering the question after three minutes.

3. Speed: the time it takes for an individual to learn a skill or a particular behavior. This means the total time of performing the task.
- Ex.: Adel spent 3 hours to master scalar physical quantities (mass, length, speed, time).
- Nada spent 2 hours to master the same scalar physical quantities.
- Ex.: Adel spent 3 hours to finish reviewing the subject matter.

4. Resolution: to do the job behavior or the fewest number of errors. Or Mistakes means that fewer number of mistakes, the better learning level.
- Ex. Mary made (committed) 4 errors through answering the question: Which part of the cell is responsible for cell division? Why?".
- Ex.: Morad involved in 7 errors through answering the same question.
- Ex.: Adel acquired 4 errors in applying a mathematical Model to a new problem.
- Ex.: Ahmed acquired 6 errors in applying the same mathematical Model to the same problem.

5. Skill: the ability to adapt to different roles.

- Ex.: Ahmed skilled in data representation and was beginner in data analysis.
- As a teacher, compare between your students skills according to the following task: Draw a graph that illustrates each of the following:
  - a body moves at a uniform speed.
  - a body at rest.
  - a body movies at a regular speed 60 km/h.
  - a body moves at an increasing acceleration.
  - a body moves at a decreasing acceleration.
  - a body moves at zero acceleration.

6. Number of attempts needed to learn: The number of attempts that a person needed to learn a specific task or behavior.
   - Ex.: Ghada spent 5 attempts to fulfill the task: identify the components of the universe?
   - Hany spent 2 attempts to fulfill the same task.

Chapter II
Learning Theories

Learning theories are an organized set of principles explaining how individuals acquire, retain, and recall knowledge.

By studying and knowing the different learning theories, we can better understand how learning occurs.

So, the learning theory is the principles of the theories can be used as guidelines to help select instructional tools, techniques and strategies that promote learning.

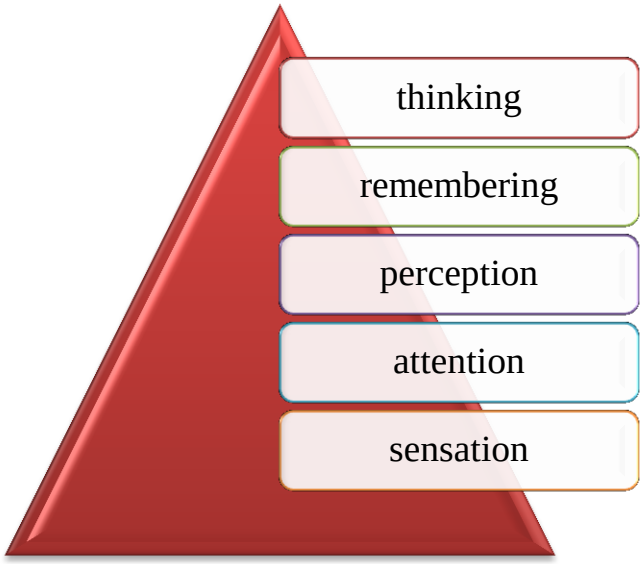
Perspectives of Learning Theories

1. Behaviorism Theories: Essentially states that one's environment causes one's behavior. New behaviors or changes in behaviors are acquired through associations between stimuli and responses. Behavior is the response of an organism to stimuli.

2. Cognitivism Theories: Focuses on mental processes, including how people think, perceived and learn, to solve problems.

Totally different from behaviorism. It focuses the processing of information, how the learner organizes new information within the pre-existing one. So, Information

processing leads to understanding and retention. The next graph shows the hierarchy of the cognitive processes:



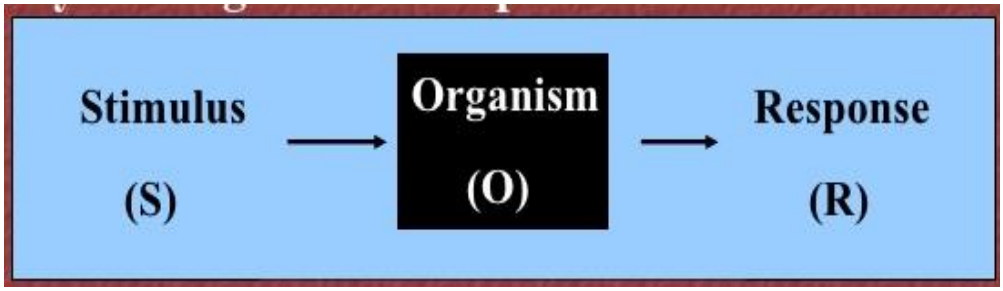
3. Constructivism Theories: A theory based on observation and scientific study about how people learn. Learner constructs their own understanding and knowledge of the world through experiences and reflecting on these experiences. We construct our own knowledge of the world based on individual experiences.

4. Social Learning Theory: is a theory of learning process and social behavior which proposes that new behaviors can be acquired by observing and imitating others. It states that learning is a cognitive process that takes place in a social context and can occur purely through observation or direct instruction, even in the absence of motor reproduction or direct reinforcement. In addition to the observation of

behavior, learning also occurs through the observation of rewards and punishments, a process known as vicarious reinforcement. When a particular behavior is rewarded regularly, it will most likely persist; conversely, if a particular behavior is constantly punished, it will most likely desist. The theory expands on traditional behavioral theories, in which behavior is governed solely by reinforcements, by placing emphasis on the important roles of various internal processes in the learning individual

Chapter III
Behavioral Views of Learning

The behavioral learning theory is represented as an S-R paradigm. The organism is treated as a "black box" we only know what is going on inside the box by the organism's response.



So, the general model described as: stimulus (S) elicits response (R). Classical conditioning starts with a reflex (R): an innate, involuntary behavior. This involuntary behavior is elicited or caused by an antecedent environment event.

Major theorists of behaviorism are John B. Watson the founder of Behaviorism, Ivan Petrovich Pavlov, B. F. Skinner, and Edward Lee Thorndike.

Pavlov's Theory

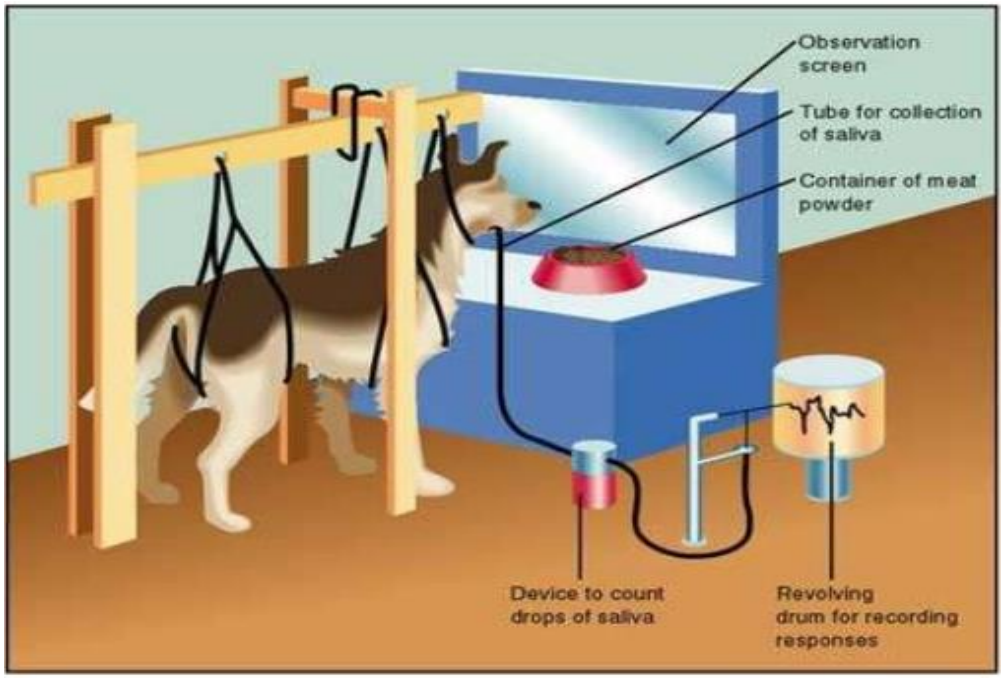
Ivan Petrovich Pavlov one of the key figures in psychology. Was a famous Russian Physiologist trained in Biology and Medicine. He lived from 1849 to 1936. Pavlov won the Noble

Prize in medicine in 1904. The founder of classical conditioning in psychology, and he is the founder of modern behavior therapy.

Pavlov contributed to many areas of physiology and neurology. Most of his work involved research in temperament, conditioning, and involuntary reflex actions. Pavlov performed and directed experiments on digestion, eventually publishing the work of digestive glands in 1897, after 12 years of research.

Pavlov's Experiment

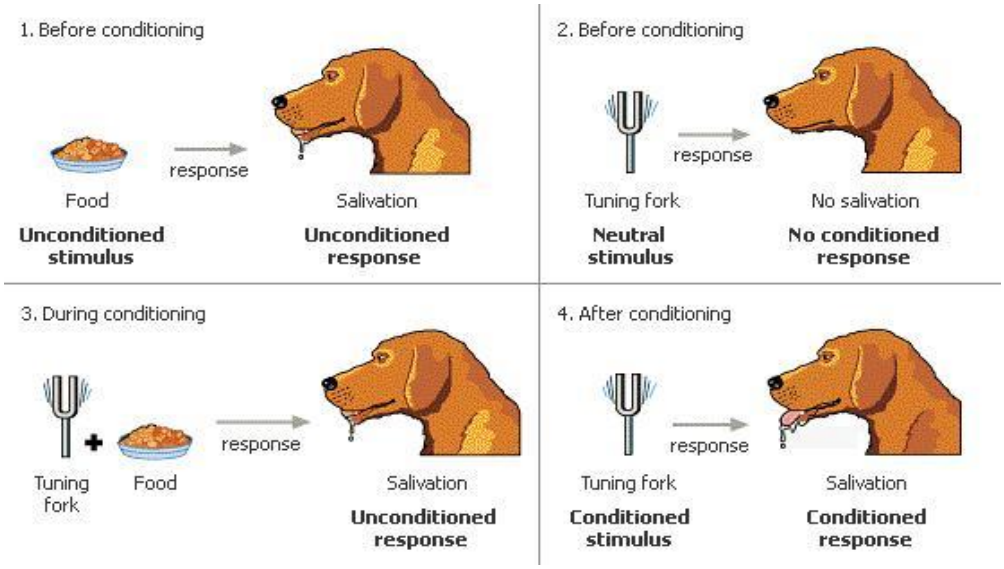
Pavlov was studying the digestive system of dogs and became intrigued with his observation that dogs deprived of food (hungry) began to salivate when one of his assistants walked into the lab (room). He began to investigate this phenomenon and established the laws of classical conditioning. The following figure represents Pavlov's experiment:



Pavlov associated the ringing of a bell with presence of powdered meat. He rang the bell every time the dogs were served food. Pavlov started ringing the bell and the dogs would salivate without the powdered meat being present. Thus, a learned reflex.

So, there are three phases of the experiment: before conditioning, during conditioning, and after conditioning.

The following figure summarizes three phases of Pavlov's experiment..



According to a series of experiment Pavlov concluded that: develop new automatic responses by repetitively pairing an originally neutral stimulus with an UCS.

What Is Classical Conditioning?

Classical conditioning is a type of learning that had a major influence on the school of thought in psychology known as behaviorism. Discovered by Russian physiologist Ivan Pavlov, classical conditioning is a learning process that occurs through associations between an environmental stimulus and a naturally occurring stimulus.

Classical Conditioning Basics

Although classical conditioning was not discovered by a psychologist at all, it had a tremendous influence over the school of thought in psychology known as behaviorism. Behaviorism is based on the assumption that:

- All learning occurs through interactions with the environment
- The environment shapes behavior

It's important to note that classical conditioning involves placing a neutral signal before a naturally occurring reflex. In Pavlov's classic experiment with dogs, the neutral signal was the sound of a tone and the naturally occurring reflex was salivating in response to food. By associating the neutral stimulus with the environmental stimulus (presenting of food), the sound of the tone alone could produce the salivation response.

In order to understand how more about how classical conditioning works, it is important to be familiar with the basic principles of the process.

How Does Classical Conditioning Work?

Classical Conditioning basically involves forming an association between two stimuli resulting in a learned response. There are three basic phases of this process:

Phase 1: Before Conditioning

The first part of the classical conditioning process requires a naturally occurring stimulus that will automatically elicit a response. Salivating in response to the smell of food is a good example of a naturally occurring stimulus.

During this phase of the processes, the unconditioned stimulus (UCS) results in an unconditioned response (UCR). For example, presenting food (the UCS) naturally and automatically triggers a salivation response (the UCR).

At this point, there is also a neutral stimulus that produces no effect - yet. It isn't until this neutral stimulus is paired with the UCS that it will come to evoke a response.

Let's take a closer look at the two critical components of this phase of classical conditioning.

The unconditioned stimulus is one that unconditionally, naturally, and automatically triggers a response. For example, when you smell one of your favorite foods, you may immediately feel very hungry. In this example, the smell of the food is the unconditioned stimulus.

The unconditioned response is the unlearned response that occurs naturally in response to the unconditioned stimulus. In our example, the feeling of hunger in response to the smell of food is the unconditioned response.

Phase 2: During Conditioning

During the second phase of the classical conditioning process, the previously neutral stimulus is repeatedly paired with the unconditioned stimulus. As a result of this pairing, an association between the previously neutral stimulus and the UCS is formed. At this point, the once neutral stimulus becomes known as the conditioned stimulus (CS). The subject has now been conditioned to respond to this stimulus.

The conditioned stimulus is previously neutral stimulus that, after becoming associated with the unconditioned stimulus, eventually comes to trigger a conditioned response. In our earlier example, suppose that when you smelled your favorite food, you also heard the sound of a whistle. While the whistle is unrelated to the smell of the food, if the sound of the whistle was paired multiple times with the smell, the sound would eventually trigger the conditioned response. In this case, the sound of the whistle is the conditioned stimulus.

Phase 3: After Conditioning

Once the association has been made between the UCS and the CS, presenting the conditioned stimulus alone will come to evoke a response even without the unconditioned stimulus. The resulting response is known as the conditioned response (CR).

The conditioned response is the learned response to the previously neutral stimulus. In our example, the conditioned response would be feeling hungry when you heard the sound of the whistle.

Key Principles of Classical Conditioning

Behaviorists have described a number of different phenomena associated with classical conditioning. Some of these elements involve the initial establishment of the response while others describe the disappearance of a response. These elements are important in understanding the classical conditioning process.

Let's take a closer look at five key principles of classical conditioning:

1. Acquisition

Acquisition is the initial stage of learning when a response is first established and gradually strengthened. During the acquisition phase of classical conditioning, a neutral stimulus is repeatedly paired with an unconditioned stimulus. As you may recall, an unconditioned stimulus is something that naturally and automatically triggers a response without any learning. After an association is made, the subject will begin to emit a behavior in response to the previously neutral stimulus, which is now known as a conditioned stimulus. It is at this point that we can say that the response has been acquired.

For example, imagine that you are conditioning a dog to salivate in response to the sound of a bell. You repeatedly pair the presentation of food with the sound of the bell. You can say the response has been acquired as soon as the dog begins to salivate in response to the bell tone. Once the response has been established, you can gradually reinforce the salivation response to make sure the behavior is well learned.

2. Extinction

Extinction is when the occurrences of a conditioned response decreases or disappears. In classical conditioning, this happens when a conditioned stimulus is no longer paired with an unconditioned stimulus.

For example, if the smell of food (the unconditioned stimulus) had been paired with the sound of a whistle (the conditioned stimulus), it would eventually come to evoke the conditioned response of hunger. However, if the unconditioned stimulus (the smell of food) were no longer paired with the conditioned stimulus (the whistle), eventually the conditioned response (hunger) would disappear.

3. Spontaneous Recovery

Sometimes a learned response can suddenly reemerge even after a period of extinction. Spontaneous recovery is the reappearance of the conditioned response after a rest period or period of lessened response. For example, imagine that after training a dog to salivate to the sound of a bell, you stop reinforcing the behavior and the response eventually becomes extinct. After a rest period during which the conditioned stimulus is not presented, you suddenly ring the bell and the animal spontaneously recovers the previously learned response.

If the conditioned stimulus and unconditioned stimulus are no longer associated, extinction will occur very rapidly after a spontaneous recovery.

4. Stimulus Generalization

Stimulus generalization is the tendency for the conditioned stimulus to evoke similar responses after the response has been conditioned.

This tells that learning depends on not only repetition but also on the ability to generalize. Other stimulus that is similar can lead to the same response. The extension or broadening of a CR

from the original CS to another, similar stimulus. After a CR has been trained to a CS, that same CR will tend to occur to similar stimuli without further training; the greater the similarity, the stronger the response will be.

Ex: all the teachers are… / all the woman are …

5. Stimulus Discrimination

Discrimination is the ability to differentiate between a conditioned stimulus and other stimuli that have not been paired with an unconditioned stimulus.

It is the opposite of stimulus generalization and results in selection of a specific stimulus from among similar stimuli. When a person /animal is able to learn to respond different stimuli in different ways. Differing responses to differing stimuli that have been followed by differing events.

Ex.: the ability of student to solve many calibrated problems.

Select the suitable answer…..

Also, For example, if a bell tone were the conditioned stimulus, discrimination would involve being able to tell the difference between the bell tone and other similar sounds. Because the subject is able to distinguish between these stimuli, he or she will only respond when the conditioned stimulus is presented.

What are examples of classical conditioning in the classroom?

Remember that, the classical conditioning refers to a systematic procedure through which associations and responses to specific stimulus are learned…. In classical conditioning, there is a neutral stimulus and an unconditioned stimulus together which leads to conditional response….. Let's consider this as an example, In a mathematics class room when a math tutor brings a cane to the class room (Unconditioned stimulus) one begins to exhibit some kind of fear.. Lets pulse there. When the tutor comes alone (neutral stimulus), there is no shivering… Once the tutor

comes with the cane everyday, one begins to shiver (conditional response)…. Lastly, the tutor comes alone without holding a cane and students begin to shiver which is a conditioned response

Pavlov's Classical Conditioning Theory & Educational Implications

Following are the some of the educational implications of Pavlov classical conditioning theory

1. Fear, love, and hatred towards specific subjects are created through conditioning. For example a Maths teacher with his or her defective method of teaching and improper behavior in the classroom may be disliked by Learners. The Learners develop hatred towards Maths due to teacher's behavior.

2. The good method and kind treatment a teacher can bring desirable impacts upon the Learners. The Learners may like the boring subject because of teacher's role.

3. In teaching A.V. Aids role is very vital .When a teacher want to teach a cat. He or she shows the picture of the cat along with the spellings. When teacher shows picture at the same time he or she spell out the spellings, after a while when only picture is shown and the Learners spell the word cat.

4. Pavlov's classical conditioning theory can be used for developing good habits and elimination of bad ones and various kinds of phobias can be controlled through it.

Thorndike's Theory

Thorndike was born in the state of Almes Berg Masachostesfa 8/31/1874, and his death was in August 9, 1949.

Thorndike American scientist born in the state Illemsberg Masashostis married and had children Elisebut Mulnon five children.

Received his Ph.D. under the title of intelligence from Columbia University in New York in 1889. and began to influence his research on the topic of learning to emerge since the beginning of the twentieth century.

Thorndike Research and appeared in the theory of learning in 1913-1914 when he published his book "Educational Psychology", which consists of three parts and select the Training Act and the law impact the principles developed in the light of empirical and statistical research.

Thorndike was one of the first psychologists who tried to explain the occurrence of learning links between stimuli and responses, and finds that the most prestigious learning in humans and animals alike is the attempt-and-error learning.

Thorndike's theory has been defined, which has been dominant for several decades of last century on educational practices in the USA as relational, because I think that learning the process of forming links between stimuli and responses.

Thorndike has developed, through his theory of long research, carried out by the impact of reward in the behavior of different animals. One of the most experiences on the cat was placed in a cage; a door can be opened if the cat pulled the thread cast inside the cage. The task of the cat out of the cage to get food (reward) located outside the cage.

Thorndike has repeated this experiment several times, and found that the time it takes for the cat gradually decreases but the thread became withdrawn immediately after entering the cage.

This theory is sometimes called many titles such as Thorndike theory as a link tag Edward Lee Thorndike.

Last name of the theory of neural connections and the reason or exciting alarm transmission from the outer surface of the organism to the parties and then to the neural nerve centers and therefore to the brain, nerves and end up with a certain response.

Theory of trial and error and the reason is to determine the number of attempts and learn animal by deleting errors and attempts to strengthen the right during the repetition.

And the theory of the link and that the learning process of forming connections between stimuli and responses.

Thorndike experiments

The experiments on several species of animals such as chickens, "chicks", cats, fish ....

Result of experiments that the animals are unable to understand the mental processes, for example, if animals understood the problem to know the solution in a short time. And

realized that the animals gradually learned through trial and repetition.

Thorndike and used his experiences in several organs such as mazes and cages and the funds of the problem and we will mention one of the following experiments, which reached from which to interpret the learning

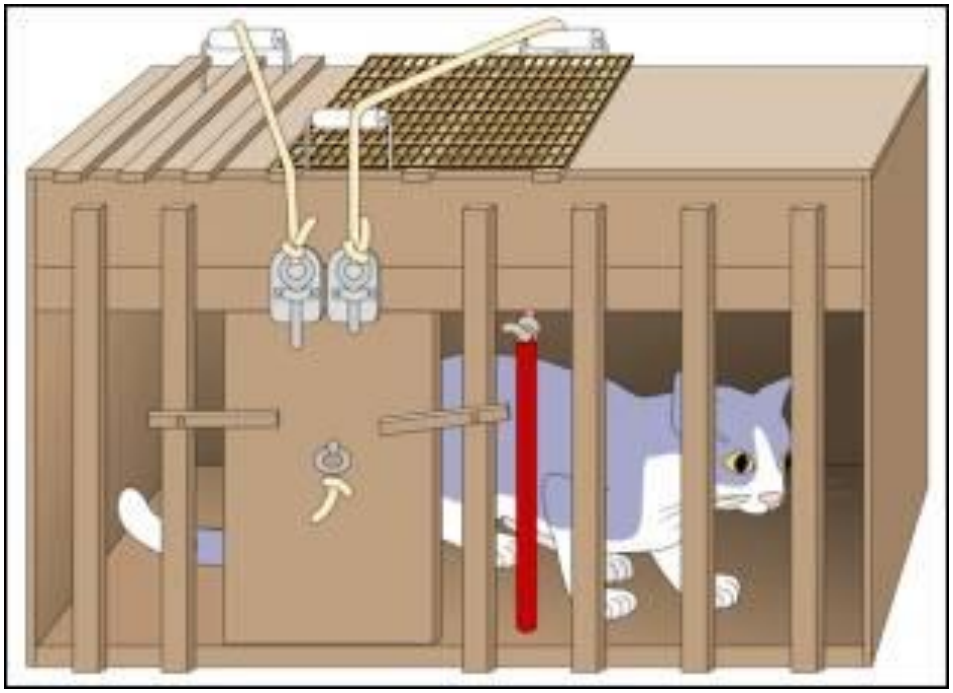
The experimental study of animal learning by E. L. Thorndike (1874-1949) in the United States and his theory on trial-and-error learning provided the impetus for Skinner's experiments on instrumental or operant conditioning. Thorndike's doctoral research on 'Animal Intelligence' in 1898 provided the psychological world the first miniature system of learning known as trial-and-error learning.

Trial & Error is based on random activities to reach the goal. Thorndike's research on animals showed that learning is a matter of connecting responses to stimuli in a very mechanical way. There is no involvement of consciousness, thinking, reasoning or understanding. The animal performs responses mechanically. The responses that bring reward are learned; the responses that do not bring reward are not learned. The animal does not show ability to understand, think, and reason. The animal learns mechanically through trial-and-error.

Indeed many forms of human learning, particularly the learning of sensory- motor skills, are achieved through trial-and-

error. Learning to walk, to swim, or to ride a bicycle is based on trial-and-error. At the beginning, we make wrong movements and commit errors. As we go through a series of practice trials, errors are reduced and responses are mastered. The gradual reduction of errors over trials gives the name, trial-and-error form of learning.

Thorndike's Experiment on Cat:



Thorndike's Puzzle Box

His classic experiment used a hungry cat as the subject, a piece of fish as the reward, and a puzzle box as the instrument for studying trial-and-error learning.

In this typical experiment, a hungry cat was placed inside the puzzle box, and a piece of fish was kept outside the box. The cat could not reach the fish unless it opened the door. In order to escape from the box, the cat had to perform a simple action as required by the experimenter. The cat had to pull a loop or press a lever in order to open the door. Once the door was opened, the cat could escape and get the fish as a reward.

Thorndike's Laws of Learning:

1. Law of Effect: According to the law of effect, responses that are immediately followed by a satisfactory outcome become more strongly associated with the situation and are therefore more likely to occur again in the future. Conversely, responses followed by negative outcomes become more weakly associated and less likely to reoccur in the future.

    - If the behavior is followed by something positive = it will get repeated and strengthened
    - If the behavior is followed by something negative = it will get weakened and will not be repeated.

In other words: when the association between the stimulus and response combined with the status of satisfaction, it strengthens, but if the situation was accompanied by distress or discomfort, they weaken. According to Thorndike's major work in the interpretation of the learning process is the reward, and believes that the punishment does not weaken the links.

2. Law of Recency: The most recent response or any behavior or activity which is happened recently is most likely to reoccur. According to this law what is learned most recently is remembered best. And that is why those reviews right before the test are so very important.

3. Law of Frequency: According to the law of frequency, the stimulus-response (S-R) associations are strengthened through repetition or weakened through lack of repetition. Any activity or behavior which is repeated many times becomes permanent.

4. Law of Exercise: Sometimes the law of recency and the law of frequency together is called the law of exercise. It has two parts; the law of use and the law of disuse.

- Law of use- the more often an association is used the stronger it becomes.
- Law of disuse- the longer an association is unused the weaker it becomes.

5. Preparedness Act: describes the physiological basis for the law of effect, it defines a mile to the learner a sense of satisfaction or distress and formulates Thorndike three cases for the interpretation of readiness are:
    - The unit of neural ready to work, working, and its work relaxes the organism.

- The unit is ready neurons do not work, the work not disturb the organism.
- Unit shall be nerve is ready to work, and forced to work, the work disturbs the organism.

Application of the Theory

In brief, implications of the Trial-and-Error Learning Theory are:

1. According to this theory the task can be started from the easier aspect towards its difficult side. This approach will benefit the weaker and backward children.
2. A small child learns some skills through trial and error method only such as sitting, standing, walking, running etc. In teaching also the child rectifies the writing after committing mistakes.
3. In this theory more emphasis has been laid on motivation. Thus, before starting teaching in the classroom the students should be properly motivated.
4. Practice leads a man towards maturity. Practice is the main feature of trial and error method. Practice helps in reducing the errors committed by the child in learning any concept.
5. Habits are formed as a result of repetition. With the help of this theory the wrong habits of the children can be modified and the good habits strengthened.
6. The effects of rewards and punishment also affect the learning of the child. Thus, the theory lays emphasis on the use of reward and punishment in the class by the teacher.

7. The theory may be found quite helpful in changing the behavior of the delinquent children. The teacher should cure such children making use of this theory.
8. With the help of this theory the teacher can control the negative emotions of the children such as anger, jealousy etc.
9. The teacher can improve his teaching methods making use of this theory. He must observe the effects of his teaching methods on the students and should not hesitate to make necessary changes in them, if required.
10. The theory pays more emphasis on oral drill work. Thus, a teacher should conduct oral drill of the taught contents. This help in strengthening the learning more.

Skinner's Learning Theory

Prof. B.F. Skinner (b. 1904) started his research work on behavior while he was a graduate in the Department of Psychology of the Harvard University. In 1931 he wrote his thesis entitled, "The concept of the reflex in the Description of the behavior". Skinner was a Practical Psychologist who conducted several experiments on rats and pigeons.

His important publications are: 'The Behavior of Organism' (1930), 'Science and Human Behavior' (1953), Verbal behavior (1957), Cumulative Record (1957), Beyond Freedom and Dignity (1971) and 'About Behaviorism' (1974).

Meaning of Operant Conditioning:

Skinner called his theory as operant conditioning as it is based on certain operations or actions which an organism has to

carry out. The term ‘operant’ stresses that behavior operates upon the environment to generate its own consequences.

An operant is a set of acts which conditions an organism in doing something. In the process of operant conditioning operant responses are modified or changed by reinforcement.

Reinforcement is a special kind or aspect of conditioning within which the tendency for a stimulus to evoke a response on subsequent occasions is increased by reduction of a bond. Skinner revolted against “no stimulus, no response” mechanism in the evolution of behavior.

Based on the findings of his experiments, skinner concluded that “behavior is shaped and maintained by its consequences. It is operated by the organism and maintained by its result.” The occurrences of such behavior was named as operant behavior and the process of learning that plays the part in learning such behavior was named by him as operant conditioning. For understanding what Skinner propagated through his theory of operant conditioning we should define and explain some of the concepts used by Skinner for bringing out his theory.

Respondent and Operant Behavior:

Skinner, first time, got the idea that most of the responses could not be attributed to the known stimuli. He defined two types of responses—the one “elicited” by known stimuli which he called as “respondent behavior” and the other “emitted” by the unknown stimuli which he called as “operant behavior”.

Examples of operant behavior may include all reflexes such as Jerking one’s hands when Jabbed with a pin and the pupillary constriction on account of bright light or salivation in the presence of food.

Operant:

Skinner considers an operant as a set of acts which constitutes an organism's doing something e.g., raising its head, walking about, pushing a lever etc.

Defining Operant Conditioning:

Operant conditioning refers to a kind of learning process whereby a response is made more probable or more frequent by reinforcement. It helps in the learning of operant behavior, the behavior that is not necessarily associated with a known stimuli.

Skinner's Experiment:

B.F.Skinner conducted a series of experiments with animals. For conducting the experiments with rats, he designed a special apparatus known as Skinner's box. It was a much modified form of the puzzle box used by Thorndike for his experiments with cats. To begin with, Skinner, in one of his experiments, placed a hungry rat in the above described box. In this experiment pressing of the bar in a desirable way by the rat could result in the production of a click sound and presence of a food pallet.

For doing experiments with pigeons, Skinner made use of another specific apparatus called "Pigeon Box". A Pigeon in this experiment had a peck at a lighted plastic key mounted on the wall at head height and was consequently rewarded by receiving grain.

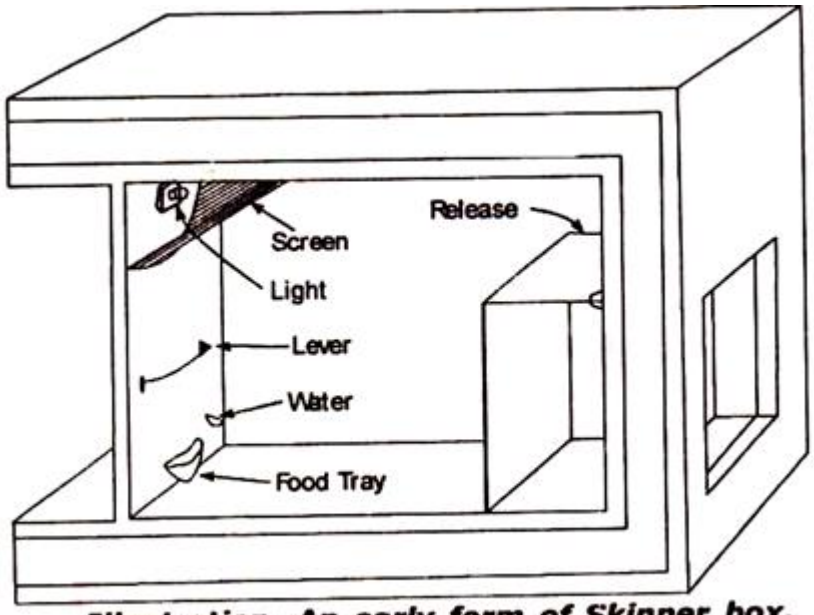


Illustration. An early form of Skinner box.

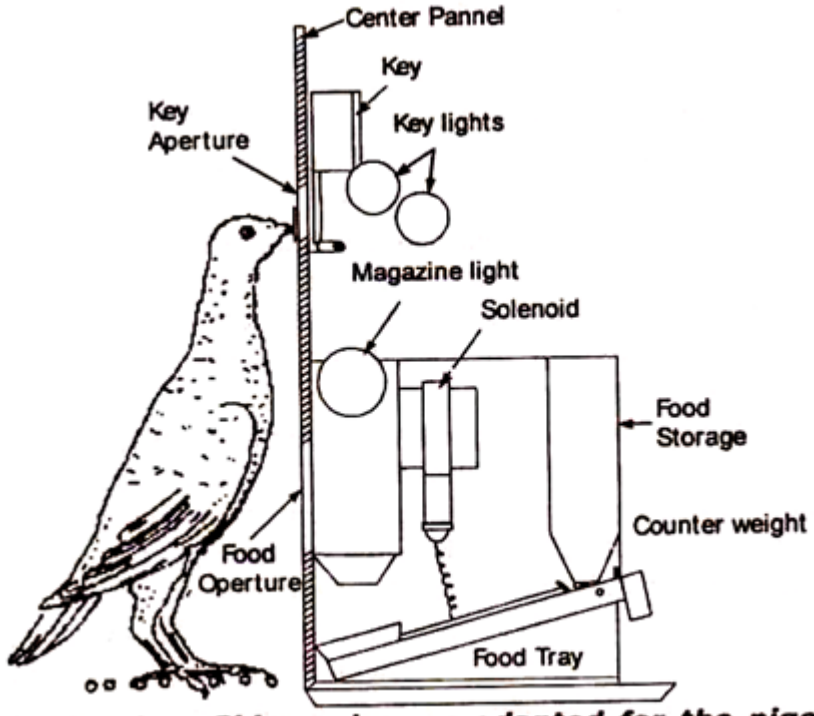


Illustration. Skinner box as adapted for the pigeon.

With the help of such experiments, Skinner put forward his theory of operant conditioning for learning not only the simple

responses like pressing of the lever but also for learning the most difficult and complex series of responses.

Reinforcer and Reinforcement:

The concept of reinforcement is identical to the presentation of rewards. A reinforcer is the stimulus whose presentation or removal increases the probability of a response re-occurring using.

According to Skinner there are two styles of reinforcer — Positive and Negative:

(i) Positive Reinforcer:

A positive reinforcer is any stimulus the introduction or presentation of which increases the likelihood of a particular behavior. Food, water, etc. are classified as positive reinforcer.

(ii) Negative Reinforce:

A negative reinforcer is any stimulus the removal or with-drawl of which increases the likelihood of a particular behavior. Electric shock, a lould noise etc. are said to be negative reinforcers.

Educational Implications or Significance of Operant Conditioning:

1. Successive approximation:

The theory suggests the great potentiality of the shaping procedure for behavior modification. Operant conditioning can be used for shaping behavior of children by appropriate use of reinforcement or rewards. Behavior can be shaped through successive approximation in terms of small steps.

Successive approximation is a process which means that complicated behavior patterns are learned gradually through successive steps which are rewarding for the learner. Every successful step of the child must be rewarded by the teacher.

2. Eliminating negative behavior through extinction:

When a learned response is repeated without reinforcement, the strength of the tendency to perform that response undergoes a progressive decrease. Extinction procedures can be successfully used by the class-room teacher in eliminating negative behavior of students.

3. Reinforcement:

Operant conditioning has valuable implications for reinforcement techniques in the class-room. The schools can use the principles of operant conditioning to eliminate the element of fear from school atmosphere by using positive reinforcement. Positive reinforcement is perhaps the most widely used behavioral technique in the school setting.

This technique simply involves providing a reward for positive behavior. The reward can be a high grade, a pen, a smile, a verbal compliment. The principle underlying positive reinforcement is that the tendency to repeat a response to a given stimulus will be strengthened as the response is positively rewarded.

Some educators believe that whenever a child is systematically punished for certain negative behavior that behavior tends to decrease in strength.

The effectiveness of punishment as a reinforcement technique depends upon the following variables:

(i) Timing of punishment:

To be effective, punishment should be administered immediately after the inappropriate behavior.

(ii) Consistency of punishment:

If a child is punished sometimes for a certain behavior but not punished at other times, then the punishment is less effective than if it is consistently administered.

(iii) Intensity of punishment:

Punishment may range from a disapproving look to corporal punishment, to severe electrical shocks. But very aversive stimuli produce more permanent changes than mildly aversive stimuli and that intense punishment is effective. But corporal punishment which is an intense aversive stimulus should be avoided and instead some other strong aversive punishing stimuli should be found.

(iv) Adaptation to punishment:

If the child is continually subjected to punishment, he loses the ability to distinguish between aversive and non- aversive situations, between which behaviors are acceptable and which are not acceptable.

(v) Alternatives to the goal:

If a child is punished for a behavior that has no alternatives, serious, psychoneurotic side effects can be produced. By providing alternatives a teacher also facilitates the child's discrimination between what is acceptable and what is not acceptable.

4. Behavior modification:

Shaping may be used as a successful technique for making individual learn difficult and complex behavior. Operant conditioning technique also implies the use of behavior modification programs to shape desirable behavior and to eliminate undesirable behavior.

The basic principle of operant conditioning is that an individual learns to make desired responses because he is somehow rewarded for doing so, as that he learns to avoid undesired responses because he is either not rewarded or because he is punished for making them.

The following principles of behavior modification help a teacher to a great extent:

(i) Identifying the target behavior:

The teacher should identify first the particular disruptive acts or undesired responses of the child that he would like to terminate. The more specific he can be in this respect, the better for him. The undesired behavior that is to be eliminated is called the 'target behavior'. When there are several target behaviors the teacher must single out and concentrate on the one that he finds most disruptive or that can be most readily modified.

(ii) Recording the frequency of target behavior:

The teacher should gather information about the frequency with which a target behavior occurs. He should ascertain and record the number of times a student acts in the undesired way.

(iii) Identifying the antecedents of mis-behavior:

The teacher should observe and record the circumstances or conditions under which the student misbehaves. He should find out what happened just before the student misbehaved.

(iv) Identifying the consequences of the behavior:

It should be identified that what happens to the child immediately after he misbehaves.

(v) Specifying the goal behavior:

Goal behavior refers to the desired responses the teacher wishes to bring out, the things he wants the child to do. The teacher must first of all decide what behavior is to be established. He should give a functional description of the goal. Here the teacher should be as precise as possible.

(vi) Formulating and trying out the hypothesis:

The above mentioned five preceding steps are essential parts of a total behavior modification program. But the

formulation and testing of hypothesis is at the very heart of the program.

Formulating the hypothesis and implementing the intervention programs also imply the use of reinforcement techniques:

(a) Positive reinforcers:

The teacher should use positive reinforcers to influence behaviors.

(b) Appropriate reinforcer:

The reinforcer should be selected that is appropriate for the behavior. No one reinforcer is likely to work in all situations. Variation in the reinforcer may be effective.

(c) No demand for too much effort:

The teacher should not demand too much effort for too little reward. Positive reinforcers are effective because children derive certain benefits from them. Children assess these benefits against the effort it took them to obtain a reinforcer.

(d)Immediate reinforcement:

The teacher should reinforce a behavior immediately after it occurs because the association between a behavior and the reward is easily made at this time.

(e) Reinforcing successive approximation to goal behavior:

The teacher should reinforce each successive approximation to the goal behavior. When a student shows little success, his success must be rewarded. Instead of waiting for the complete behavior, the teacher should reinforce components of the total behavior. This is known as shaping behavior.

(f) Continuous reinforcement to partial reinforcement:

Once the goal behavior is acquired, the teacher should gradually make a shift from continuous reinforcement to intermittent schedules. If the teacher abruptly stops reinforcing the behavior, extinction is likely to occur. The purpose of shifting

from continuous reinforcement to partial reinforcement is to bring the behavior under self-reinforcement or self-control.

(g) Attention to desirable behavior:

The teacher should usually try to catch the child doing the right thing rather than the wrong thing and thus calls attention to desirable behaviors, not undesirable ones.

(h) Praise the behavior:

The teacher should praise the behavior not the child.

(viii) Keeps records of progress and checking the result:

The teacher needs to record the student's progress towards achieving a goal behavior. Keeping records of student's progress will allow the teacher to assess if his plan is working.

It should be noted that the success of any behavior modification program depends on the resourcefulness of the teacher, the student and the parents.

5. Basis for programmed instruction:

The theory provides the basis for programmed instruction. Programmed instruction is a kind of learning experience in which a program takes the place of tutor for the students and leads him through a set of specified behaviors. The principles originating from operant conditioning have revolutionised the training and learning programs. Consequently, mechanical learning in the form of teaching machines and computer-assisted instructions have replaced usual classroom instructions. The use of programmed material in the form of a book or machine makes provision for immediate reinforcement.

6. Behavior therapy:

Operate conditioning has also been used as a form of behavior therapy. Behavior therapy attempts to treat behavior disorders by reinforcing socially adaptive behavior and extinguishing maladaptive behavior.

Behavioristic View of Learner:

- Learner is passive.
- Learner responding to environmental stimuli.
- Behaviorist believes – learner behavior is shape by positive reinforcement a negative reinforcement.
- Learner does not have any opportunity for evaluation or reflection within the learning process.

Behavioristic View of Learning:

- Teacher is the dominant person in the classroom.
- Complete control, evaluation or reflection within the learning process.
- In the learning processes the teacher decides what is right or wrong.
- Learning only focuses on the external changes of the learner, have no any importance to the emotions or mental states of them.

Examples of application of Behavioristic view of learning:

- Rote work
- Repetitive practice
- Bonus points
- Participation points.
- Verbal reinforcement

Behavioristic View of Teacher:

- Teacher is the dominant person.
- Teacher providing stimulus material and promoting the correct responses.
- Classical conditioning, operant conditioning and social learning.
- Teacher can encourage or discourage a student by using positive or negative reward.

Behavioristic View of Classroom:

- A teacher uses behaviorism to manage his / her classroom.
- Teacher should use operant conditioning to reward or punish his / her students

Chapter IV
Cognitive Views of Learning

Cognitivism

The genesis of cognitivism as a learning theory can be traced back to the early twentieth century. The shift from behaviorism to cognitivism stemmed from the behaviorist tradition's failure to explain why and how individuals make sense of and process information (i.e., how the mental processes work).

In other words, it was the limitations of behaviorism that spawned the cognitive movement. Dissatisfied with behaviorism's heavy emphasis on observable behavior, many disillusioned psychologists challenged the basic assumptions of behaviorism. They claimed that prior knowledge and mental processes not only play a bigger role than stimuli in orienting behavior or response (Deubel 2003) but also intervene between a stimulus and response (Winn and Snyder 1996). It is argued that people are neither machines nor animals that respond to environmental stimuli in the same way (Matlin 1994).

The works of Edward Chase Tolman, Jean Piaget, Lev Vygotsky, Jerome Bruner, and German Gestalt psychologists were instrumental in engendering the dramatic shift from behaviorism to cognitive theories. Edward Tolman is usually considered a pioneer in initiating the cognitive movement (Bruner 1990, 2).

In the 1920s, Tolman's experiment with rats suggested that rats knew how the maze in which they were put was structured because they had its mental map. Accordingly, Tolman asserted that rather than an automatic response to an event, behavior had both purpose and direction and occurred without reinforcement. He saw motivation as the key to transmuting expectations into behavior. For these reasons, "Tolman's system was often justly treated as a precursor of contemporary cognitive psychology" (Greenwood 1999, 9).

It was during the mid-1950s that the impact of cognitive theories in education was so tremendous as to be called the "cognitive revolution." The second half of the twentieth century witnessed an outburst of theoretical and empirical works on such cognitive processes as memory, attention, concept formation, and information processing within a cognitive framework.

This new line of research is characterized by a search for new ways to understand what learning is and how it occurs. These cognitive psychologists investigated mental structures and processes to explain learning and change in behavior. Like behaviorists, they have also observed behavior empirically but only in order to make inferences about the internal mental processes. As opposed to behaviorist orientation's emphasis on behavior, the cognitive school focuses on meaning and semantics (Winn and Snyder 1996). The primary emphasis is placed on how knowledge is acquired, processed, stored, retrieved, and activated by the learner during the different phases of the learning process

(Anderson, Reder, and Simon 1997; Greeno, Collins, and Resnick 1996).

The cognitive school views (1) learning as an active process "involving the acquisition or reorganization of the cognitive structures through which humans process and store information" and (2) the learner as an active participant in the process of knowledge acquisition and integration (Good and Brophy 1990, 187; Merriam and Caffarella 1999, 254; Simon 2001, 210). This theory describes knowledge acquisition as a mental activity involving internal coding and structuring by the learner (Derry 1996; Spiro et al. 1992) and suggests that learning happens best under conditions that are aligned with human cognitive architecture (Sobel 2001). Cognitive psychologists place more emphasis on what learners know and how they come to acquire it than what they do. For this reason, the cognitive approach focuses on making knowledge meaningful and helping learners organize and relate new information to prior knowledge in memory. Instruction should be based on a student's existing mental structures or schema to be effective (Ertmer and Newby 1993).

The cognitive views of learning Includes many theories such as: Wertheimer's theory called Gestalt Theory and Lewin's Theory called Field Theory.

Gestalt Theory

A word "Gestalt" is a German word for form, shape refer to Holism, the idea that natural systems and their properties should

be viewed as wholes, not as collections of parts. Understanding the whole, not merely the sum of its parts.

The Basic premise of Gestalt psychology is that humans are not passive receivers of sensory information. Our perceptions are active, lively, and organized. We actively organize perceptions into coherent.

Gestalt psychologists believed that knowledge comes from more than just experience; it also involves the knower actively imposing organization on sensory data. Indeed, the German word Gestalt means organization.

Learning does not appear to occur in a regular, continuous way from a patter n of trial and error and a gradual buildup of correct associations. Instead subjects exhibit what Kohler called insight (Insightful Learning/ Learning by insight).

For insightful learning to occur, Gestalt theorists argued that all the parts to a problem had to be exposes to the learner. They criticized Thorndike's experiments for keeping important elements of the problem hidden from the chickens, thus preventing insightful learning.

The Gestalt theorists

The gestalt theorists were the first group of psychologists to systematically study perceptual organization around 1920's, in Germany. They were:

- ❖ Wertheimer: the teacher and lecturer who influenced students and colleagues through seminars and discussions
- ❖ Kurt Koffka: the writer and theorist – he produced the basic principles of Gestalt psychology in 1935 Principles of Gestalt Psychology
- ❖ Wolfgang Kohler – the debater – he enjoyed debating and criticizing the behaviorists and structuralists. Only one of the 3 elected president of the APA.
- ❖ Kurt Lewin: the founder of field theory and was the father of modern social psychology.

Gestalt's Criticism for Behaviorism

- They refused reinforcement and focused on insight.
- They rejected the analytical approach (elementalism) used by Behaviorisms.
- They rejected association and learning by trial and error and other behaviorisms' ideas.

Characteristics of Insightful Learning

Four features generally characterized insightful learning;

1. After a period of inactivity or trial and error, the learner suddenly and completely grasps the solution.
2. The learner performs the solution in a smooth and errorless fashion.
3. The learner retains the solution for a very long time.
4. The learner can easily apply a principle gained through insight to other, similar problems.

How About the Gestalt Principles?

These are implications of the Gestalt principles in the teaching and learning process. Now you know that Gestalt principles are not just mere principles of visual drawings or illustrations.

1. Law of Proximity

Things that are close to one another are perceived to be more related than things that are spaced farther apart.

Related concepts or lessons should be taught aligned or closely to each other. This is the reason why subtraction is taught after addition, multiplication after subtraction then division after multiplication. Imagine teaching addition then jumping directly to polygons.

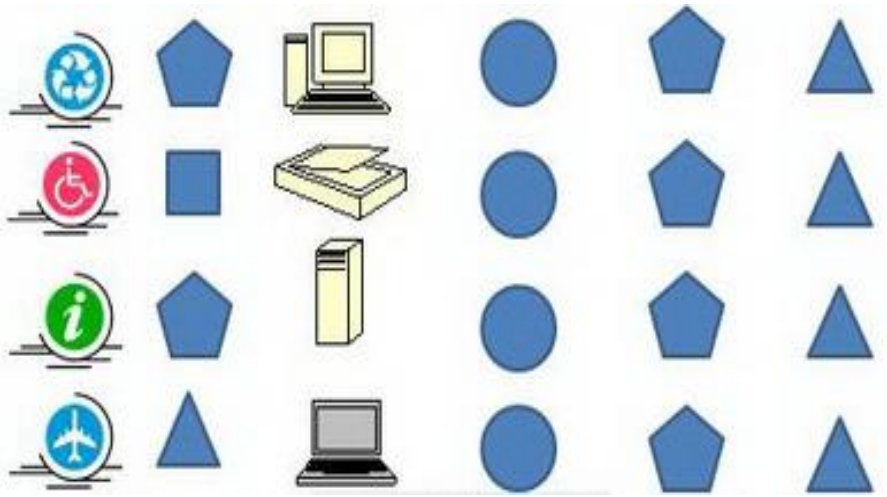
See the following figure:

2. Law of Similarity

Things that are similar are perceived to be more related than things that are dissimilar.

Similar lessons or contents should be grouped together to make learners develop understanding more efficiently and effectively. This is the reason why lessons are grouped into units: Unit I is for human body, Unit II is for energy and motion, so on and so forth.

See the following figure:



Column Similarity

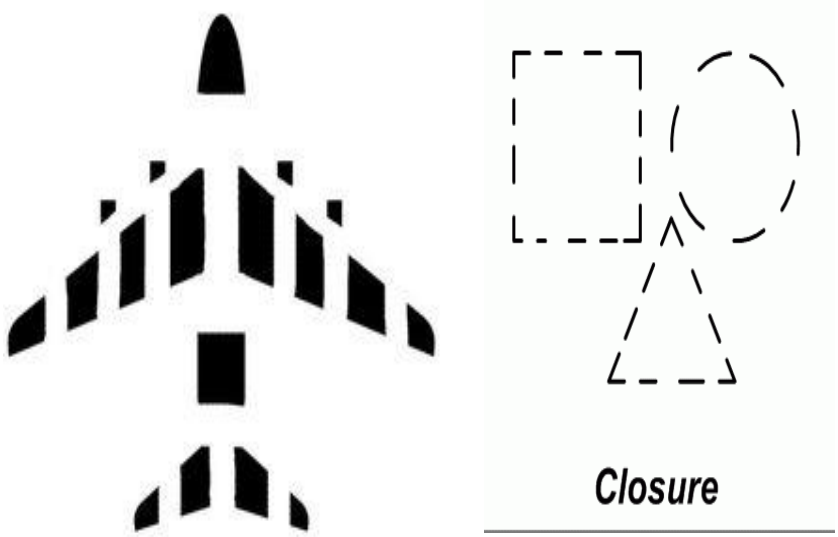
3. Law of Closure

"When seeing a complex arrangement of elements, we tend to look for a single, recognizable pattern.". As with Prägnanz, closure seeks simplicity. Closure is the opposite of what we saw in the Prägnanz image above where three objects were simpler than one. With closure, we instead combine parts to form a simpler whole. Our eye fills in the missing information to form the complete figure.

Individuals perceive objects such as shapes, letters, pictures, etc. as being whole when they are not complete.

When a concept or topic is incomplete thus isn't "closed", incomplete information may make learners want to discover what's missing, rather than concentrating on the given instruction. If students find a math algorithm confusing because a certain question is left unanswered or a step isn't clear, they will tend to concentrate on that confused part of the process rather than the total process as a whole. This is why students get "lost". Thus, make the lesson complete. Present it clearly; simply and always be ready for students' clarifications.

See the following figure:



4. Law of Good Continuation

“Elements are perceived as either figure (the element in focus) or ground (the background on which the figure rests).” Or, Elements arranged on a line or curves are perceived to be more related than elements not on the line or curve.

Lessons should be presented in such a way that learners will see these as connected and continuous. Now you know why we have the "Review" part of the lesson plan. This way, students will realize that their new lesson actually has continuity and is related to what they already know or to the previous lesson.

See the following figure:

5. Law of Pragnanz (good figure/simplicity)

This is the fundamental principle of gestalt. Pragnanz states that when things are grasped as wholes, the minimal amount of energy is exerted in thinking. People will perceive and interpret ambiguous or complex images as the simplest form(s) possible.

In short, we prefer things that are simple, clear and ordered. They take less time for us to process and present less dangerous surprise. So, make your lesson holistic, complete and most of all simple.

6. Law of Figure/Ground

Elements are perceived as either figures or ground.

For a figure to be perceived, it must stand out from the background. Emphasis should be done on important aspects of the lesson. For example, teachers should vary the tone of their voice or write boldly or underline the important key words of the lesson.

See the following figure:

The main principles of the Gestalt Theory

The main principles of the Gestalt Theory in Learning are:

- Teachers should encourage their students to discover the relationship of the elements that make up a problem
- Incongruities, gaps, or disturbances are essential stimuli in the learning process
- Educational instruction should be based on the Laws of Organization

In a learning environment, the Gestalt Theory applies to problem solving and perception. However, it can be used in all aspects of education. A perfect example was provided by Wertheimer himself, when he asked children to find the area of a parallelogram. He suggested that, as long as parallelograms had a normal shape, the children could apply the standard procedure in order to determine the area. However, if the parallelogram had an irregular shape, children could not apply the same logic or

principles, but had to solve the problem by understanding the actual structure of the shape.

Application: Gestalt psychology

The applications of Gestalt theory to the teaching and learning process are:

- Make your lesson holistic. The word Gestalt itself is almost synonymous to the word "whole". And for this, Gestalt psychology proposes education to be an integration of affective and cognitive domains of learning. As teachers, we can actually do this by setting the objectives that does not only focus on the cognitive (and psychomotor) domains of teaching and learning but also on the affective domain as well.

- In relation to above application, the fulfillment of the cognitive-affective integration is not only limited to instruction rather also related to the experiences of the students inside the classroom. This can be done when teachers maintain an emotionally harmonious and non threatening atmosphere during the teaching and learning process which consequently caters exchange of ideas and learning. Teacher behavior is a critical factor, and if necessary, should be changed in order to maintain good relationship between the teacher and his/her students, and relationship among and between students. This can be realized through teacher development programs, trainings or seminars.

3. Gestalt psychology is a proponent of discovery or insight learning. This takes place when learners forms relationships of the elements around them then integrates and organizes these elements to form insight (Remember Sultan?). Hence, teachers must make use of discovery approach in learning. Teachers can use experiments, laboratory and inquiry-based strategies.

4. Making use of learners' past experience.

5. Three kinds of knowledge: Declarative knowledge (What), Procedural knowledge (How), and Conditional knowledge (Why).

- Declarative knowledge includes facts, rules for mathematics operations. For example:
  What is the difference between…
  What are the three Isaac Newton motion laws?

- Procedural knowledge knows "how" to do something. For example: How to prepare H_2SO_4 ?

- Conditional knowledge is knowledge about when to use a procedure, skill, or strategy and when not to use it.

Kurt Lewin's Psychological Field Theory

Kurt Lewin was considered by some as the father of modern social psychology due to his act of breaking new ground in employing scientific methods and experimentation in the study of social behavior. His focus on fusing psychology with the philosophy of science resulted in an extensive number of empirical studies performed in the realms of child development, motivation and social behavior, particularly having to do with observational studies and experiments on children's behavior.

Lewin not only adapted Gestalt principles but further applied them to a theory of personality and development into what is now known as the Psychological Field Theory. He translated Gestalt philosophy into social experience involving people who should be considered as wholes instead of being composed of discrete parts. A person is presented as a whole system consisting of subsystems that are somewhat separate yet are still capable of interacting and combining with each other.

He was one of the first psychologists to propose that the development of an individual was the product of the interaction between inborn predispositions (nature) and life experiences (nurture). This conception was presented by Lewin in the form of a mathematical equation known as Lewin's Equation for behavior, stating that behavior is the function of the person interacting within his environment or $B = f(P,E)$.

As such, Lewin accounted for human behavior by emphasizing forces and tensions that influence it. He asserted that the behavior of an individual is always geared toward some goal or objective and it is precisely this intention that matters most in the performance of behavior. These intentions supposedly follow field principles and are influenced by psychological forces such as how the individual perceives a situation.

According to Levin, behavior exists in a totality of interacting facts which comprise a dynamic field. The circumstances or conditions in any part of the field are influenced by and depend on every other part of the field. This psychological field is otherwise known as the life space which comprises the individual and his psychological or behavioral environment also known as facts that affect the behavior or thoughts of the individual at a certain point in time.

Life space is most frequently determined by the physical and social environment that the individual finds himself in. It may include places where he goes, events that occur, feelings about places and people encountered what he sees on TV or reads in books, his imagined thoughts and goals. Encompassed by a child's life space are forces which the child may be aware of or not, in addition to forces which are accepted by the child as true though they may not be so.

For example, if a child is convinced that his sibling is more loved by their parents, even if it were not true, the child's perception would, for him, still be a fact within his life space. Operating from this misconception, the child's behavior and attitudes would be influenced just as much as if what he knew were indeed a fact. Facts in a child's life space can stem from various sources such as the current physiological state, e.g. hunger or excitement, his social needs such as desire for approval, his past experiences, present realities and future goals.

The development of a child is characterized by a personality system that continually expands and differentiates to accommodate the learning of new roles, norms and social codes. Lewin further offered an explanation as to why same age children manifest differences in development. Each child experiences a unique combination of facts that make up his life space that can never be exactly the same as another child's life space.

Some say that Lewin's conceptions were more of an approach rather than a theory, pointing out that Lewin failed to present an organized description and elaboration of his views on child development.

Concepts in Lewin's Theory

Environment : Refers to the objective situation in which the person perceives and acts. It is necessary to consider all aspects of a person's conscious and unconscious environment in order to map out the person's life space.

Example : **"Jake's Bothering Me again!"**

Whether you're reading …… or reviewing …….. , Jake always has the wiggles. He speaks out and bumps into the other students, who then add their voices to the chorus. It's like a chemical reaction.

Behavior : Any change within the life space subject to psychological laws. Accordingly, an action of the person (P) or a change in the environment (E) resulting from said action can be considered behavior (B).

Example …… John pushed in line and Maria said a bad word and Laura said ..."

- **Eli Called Me an ugly stupid head!" "No I didn't." "Yes, you did!"**
  Eli and Cole are at it again. As soon as they walk in the door from recess, Cole runs up to you, saying, "Eli called me a bad name!"

  Quick Response: Take Eli and Cole aside and talk about

how words can be hurtful. Encourage them to talk about their feelings using "I statements" and to apologize to one another.

Person : A person is presented as a whole system consisting of subsystems that are somewhat separate yet are still capable of interacting and combining with each other.

Example1 : when a teacher is absent from the classroom, student learning is disrupted. When that teacher is repeatedly absent, student performance can be significantly impacted in a negative way.

Example2: Aggressive student often threaten other students. These students often fear the aggressor, who delights in showing himself as a fighter, both verbally and physically.

Also, Lewin's theory can be broadly divided into two types of constructs-

Descriptive Constructs

1. Life Space- Life space are all the events in totality that influence the behavior and life of an individual. In Lewin's words "the person and his environment as one constellation of independent factors". According to him all the people have their own psychological space which is called their life space. Life space is actually an interaction between the person and the environment.

B= f (Lsp)

Where,

B= Behavior, f= Function of, Lsp= Life Space

Life Space has various differentiated regions of the activities, groups, classes, roles etc. related to the individual. As the child grows in life, the life space becomes more and more differentiated in various areas.

2. Locomotion- in simple words can be defined as the behavior of an individual. It is not related to any actual movement of the individual but it means the changes that occur in the psychological space or the life space. Locomotion can be and overt act like an attitude shift or making new associations between two events. It is assumed that locomotion happens due to motivation.

Dynamic Constructs

The fundamental concepts that form up an individual's motivation are-

1. Need– A need is any state of motivation which can be due to physiological drive, environmental drive or aim to achieve a goal.
2. Tensions- are the emotions that are elicited along with a need, they act as a motivating force for an individual.
3. Valence- Objects that are satisfying have a positive valence whereas objects which are not satisfying have a negative valence.
4. Vector- refers to a directed line mathematically. According to Lewin vector is the direction and strength of attraction towards objects. Vectors can move in one or more directions. Conflicts occur when two equally attractive vectors operate.
5. Barriers- are the obstructions that prevent the individual from reaching the desired goals and get in the way of their equilibrium.
6. Equilibrium- According to Lewin whenever a need is fulfilled the individual is able to get back to a state of balance between forces. Disequilibrium can be explained as a state of tension that exists due the arousal of a need.

Lewin's Contributions

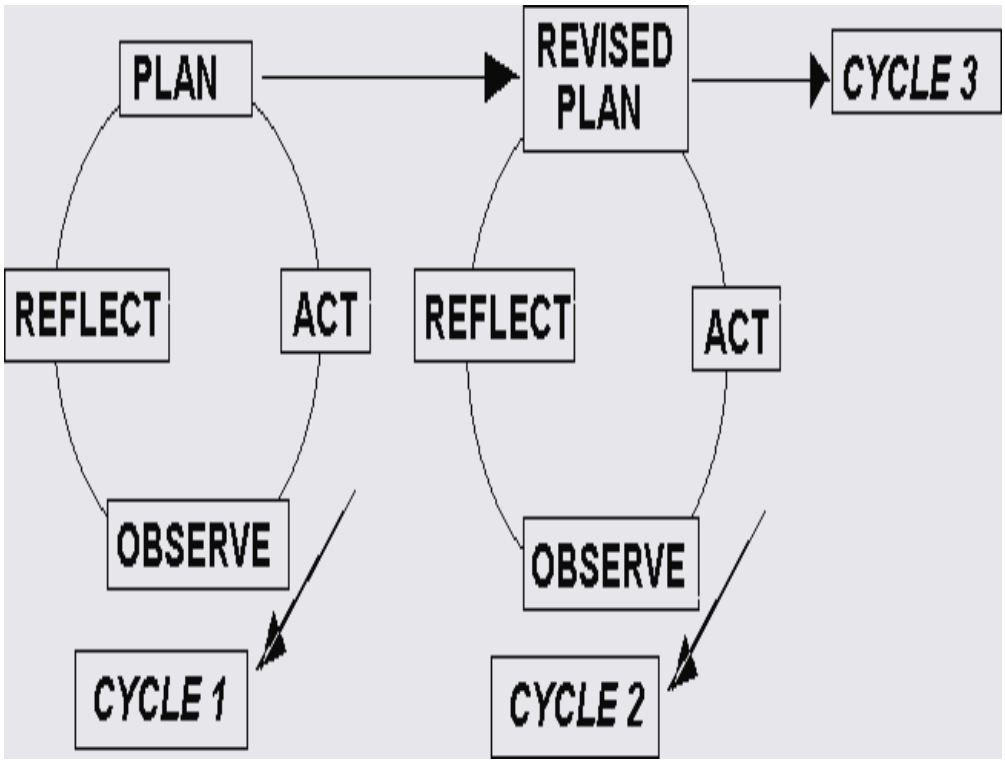
In spite of criticisms, however, Lewin merits recognition for stimulating a vast amount of innovative research on children. He was quite effective at motivating other researchers to explore

novel avenues of research. He unlocked new perspectives on development by borrowing ideas from physics and mathematics.

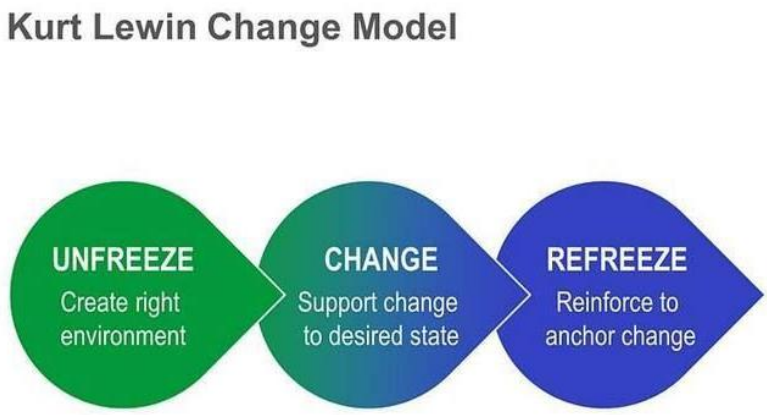
Lewin is also credited for contributing to American education through the practice of cooperative learning, wherein two or more students assist each other in learning a common subject matter resulting in more successful learning. He also contributed other useful concepts that aided in leadership, classroom management and discipline, and the field of action research. His impact on psychology has firmly entrenched him as one of the most highly revered psychologists of the twentieth century.

Action Research

- Kurt Lewin is often referred to as the originator of action research.
- He described action research as "a comparative research on the conditions and effects of various forms of social action and research leading to social action" that uses "a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action".



Change Model



Kurt Lewin's Force Field Theory states that restraining forces influence the behavior of both the group and individuals, ultimately deciding the fate of change. The driving forces motivate & steer employees towards the new state. The restraining

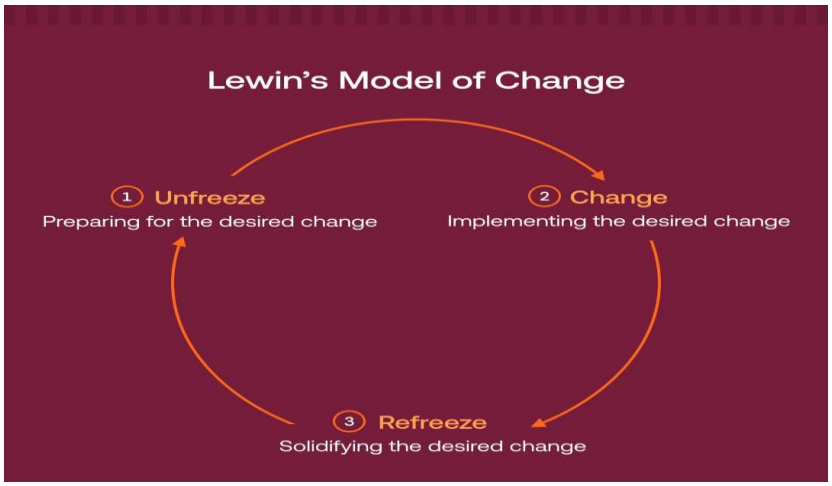
forces highlight potential resistance to change, acting as the prime barriers to change initiatives.

Lewin suggests that it is crucial to balance these forces through effective change communication and employee involvement, by providing employee training to bridge the skill gap. Change agents must implement stress management techniques, ensure compliance is met, and use convincing change reasoning.

The 3 Stages of Change in Lewin's Model

To substantiate his Force Field Theory, Lewin suggested a straightforward 3-step change model which aids employees' ability to adapt to change.

Here are the three stages in Lewin's change model:



Stage 1 - Unfreeze

The first stage in Lewin's model deals with perception management and aims to prepare the affected stakeholders for the upcoming organizational change. Change leaders must look at ways to improve the company's preparedness for change and create a sense of urgency similar to Kotter's change model.

During this stage, effective change communication plays a vital role in getting the desired team member buy-in and support of the people in the change management.

The following activities under the ‘unfreeze’ stage will help you embrace change better:

- Conduct a needs analysis by surveying your organization to understand the current loopholes in the business processes
- Obtain organizational buy-in
- Create a strategic change vision and change strategy
- Communicate in a compelling way about why change has to occur
- Address employee concerns with honesty and transparency

Stage 2 - Change

Once the status quo is disrupted, this stage deals with the implementation of change. In this stage, you must consider an agile and iterative approach that incorporates employee feedback to smoothen the transition.

You can further look at the following actionable items to keep uncertainty at bay:

- Ensure a continuous flow of information to obtain the support of your team members
- Organize change management workshops and sessions for change management exercises
- Empower employees to deal with the change proactively
- Generate easy wins as visible results will motivate your team

Stage 3 - Refreeze

Employees move away from the transition phase towards stabilization or acceptance in the final’ refreezing’ stage.

However, if change leaders fail to strengthen the change by reinforcing it into org culture, employees might revert to previous behaviors.

The following activities will help you support the change:

- Identify and reward early adopters and change champions
- Collect employee feedback regularly
- Offer on-demand employee training and support
- Explore digital adoption platforms such as **Whatfix** to be your partner in change with intuitive features such as interactive walkthroughs, customizable popups, and multi-format self-help content.

Styles of Leadership

In 1939, social psychologist, Kurt Lewin, identified three styles of leadership that relate to how a leader makes decisions. These three Lewin's Leadership Styles describe the level of control that a leader holds over the decision making process and the amount that they involve their team.

What are the three Lewin's Leadership Styles?

1. Autocratic (authoritarian) leadership
2. Democratic (participative) leadership
3. Laissez-faire (delegative) leadership

Autocratic (authoritarian) leadership

Autocratic leadership is where leaders have complete power over their people. The leader makes all of the decisions and the followers are expected to follow orders and to execute without question.

This style of leadership should only be used when dealing with inexperienced employees, or in crisis situations, as the lack of input and autonomy can have a negative impact on employee motivation over the longer term.

Democratic (participative) leadership

Democratic (or participative) leadership is where the leader involves followers in the decision making process. Often the leader may still make the final decision but input from group members is encouraged in order to reach a decision.

According to Lewin's research, this style is the most effective for group performance across the board. However, democratic decision making can be a slow process, so it may not be optimal in a time-critical situation.

Laissez-faire (delegative) leadership

Laissez-faire leadership is a hands-off approach where leaders delegate decision making authority to their followers and allow them to work largely on their own.

This style should only be used with highly skilled and highly motivated employees that are capable of planning, making

decisions, solving problems and getting the job done without management intervention.

High levels of autonomy can be very motivating for those who are skilled and motivated enough to handle it, but it can have a negative impact on performance for those who need strong direction and guidance.

What is learning ?

- ❖ learning is a process of perceptual organization or re-organization of one's life space involving insight and emphasizes on behavior and motivation in learning.
- ❖ learning is acquisition and change in cognitive structure and motivation.

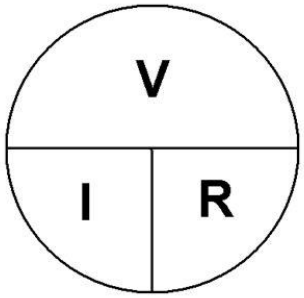
Types of conflicts in Lewin's Theory

- **Approach-Approach conflict-** When a person has to choose between two desirable alternatives. For example, watching movie with family and going out for an outing with friends. It leads to an unstable equilibrium as one has to choose a comparatively more attractive alternative.
- **Avoidance- Avoidance conflict-** In this type of conflict one has to choose between two non-desirable alternatives. For example, choosing between tooth decay and going to the dentist. It leads to a stable equilibrium.
- **Approach-Avoidance conflict-** In this type of conflict a person is attracted to and repelled by the same goal. For example, buying a new bike but not being ready to pay the installments. It leads to a stable equilibrium as the positives and negatives get balanced.

Cognitive View of Learner

- Student is active role.
- Students should thin deeply an answer questions about the topic to further develop their understanding.
- Students use sensory, short term memory and long term memory to store information learning in class.
- Students come up with mnemonic devices to remember facts…..

Ohm's Law Mnemonic



Definitions

Current: the number of electrons that go through a wire in one second

Voltage: the pressure that pushes the electrons

Resistance: the material property that makes it hard to push an electron through a wire

Power: the rate at which energy is used up. The more power, the brighter a light bulb.

V = IR

R = V/I

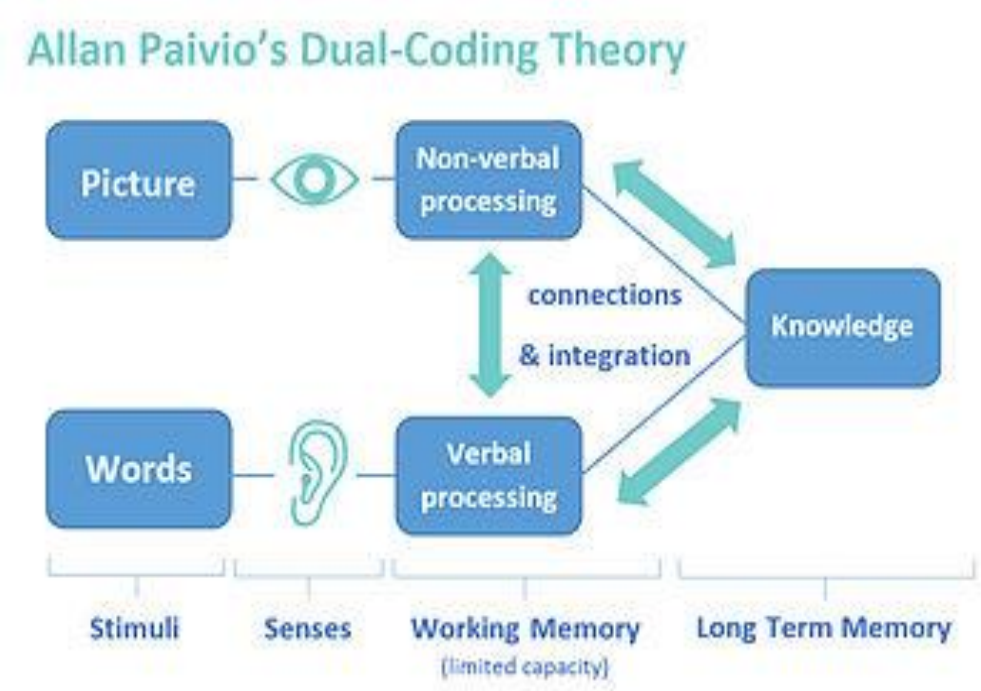
I = V/R

- Use existing knowledge to connect new information to help students retain information.
- Technology can be used to organize information into chart, graphs, concepts, maps etc.

Cognitive View of Teacher:

- Teacher is to assist the learner application of the proper learning strategies and the learner is active in the learning process.
- Expository teaching: Teacher gives students the tools to organize information for easier coding, storage, and retrieval.

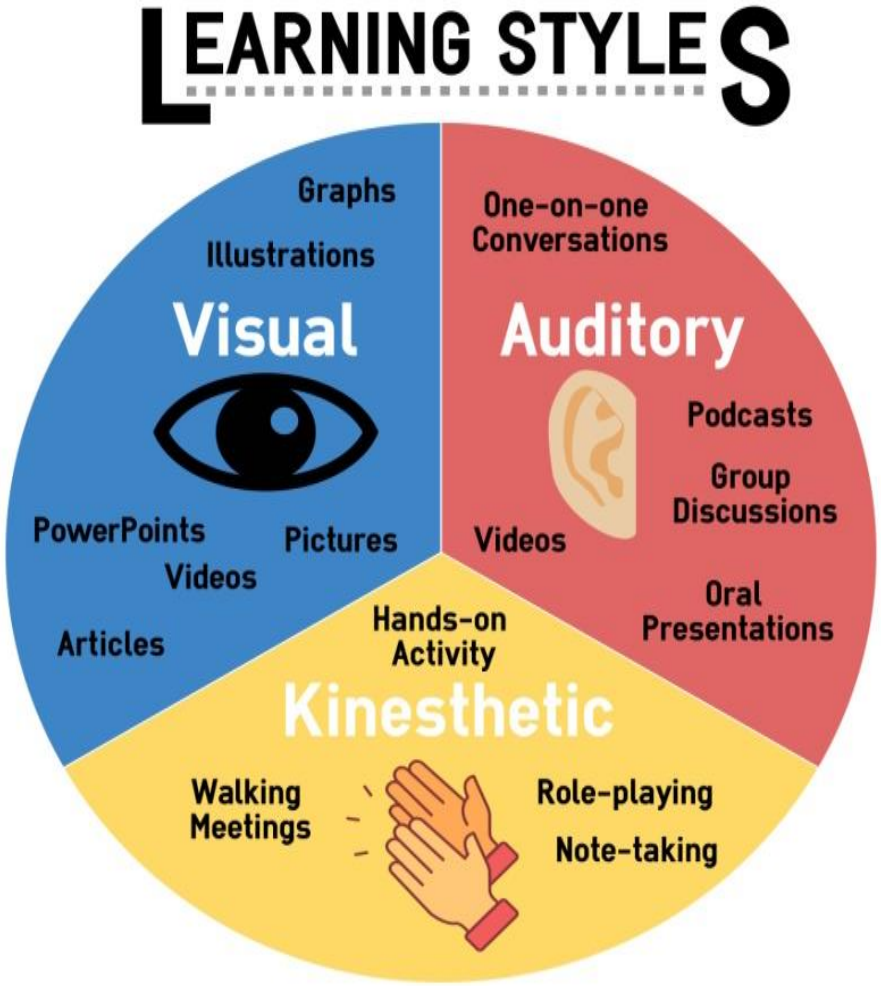
- Meaningful learning method: When processing new information the teacher uses old information to introduce new information and made connections.
- Dual coding: Both text and picture or sound while instructing gives students a better chances of remembering an encoding the information…..



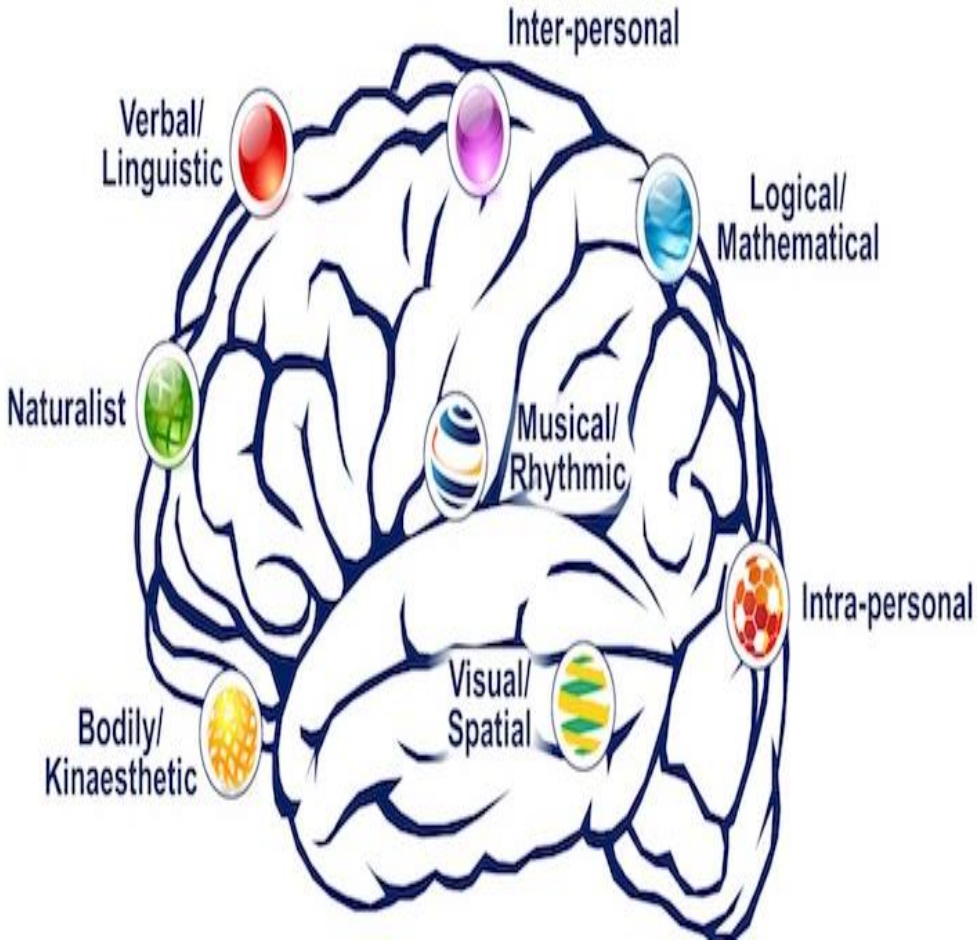
- Technology can easily use to enhance a lesson and the dual coding method.

Cognitive View of Classroom:

- Teachers should understand and incorporate different learning styles in classroom….



- Each student has a different type of intelligence. They use their dominant intelligence, while also working to improve their non-dominant intelligence….


Inter-personal
Verbal/
Linguistic
Logical/
Mathematical
Naturalist
Musical/
Rhythmic
Intra-personal
Visual/
Spatial
Bodily/
Kinaesthetic

Chapter V
Social Views of Learning

Bandura's Theory

Albert Bandura, an American psychologist, developed most of the principles of contemporary social learning theory / social-cognitive theory which is one of the more prominent and influential theories of development today.

Bandura’s Social learning theory serves as a link that connects the behaviorist perspective and the cognitive perspective, supporting the behaviorist’s belief in the importance of reinforcement on maintaining behavior on one hand, while acknowledging the influence of cognitions on learning on the other.

Contrary to the radical behaviorists, however, Bandura’s social learning theory recognizes the greater importance of cognition or thoughts about perceptions rather than mere reflexive responses to acts of reinforcement or punishment as the bases for behavior.

The Social Learning Theory proposes that children’s learning is influenced by their cognitions which include thoughts, perceptions, motivations, and expectations regarding behaviors.

Cognitive factors, such as the ability to attend to and mentally organize information, influence how children incorporate observed behavior into their own repertoire of behaviors.

While the behaviorist perspective asserts that a child must overtly perform a behavior himself in order for learning to occur, social learning theorists, on the other hand, believe that a child can add new behavior to his repertoire by merely watching or hearing other people perform and be rewarded for their behavior.

Observational learning entails learning information or behavior by simply watching the behavior of models who are usually significant people in the child's life. For example, when five-year-old Peter observes five-year-old Michael being praised by the teacher for sharing his food, Peter learns to share his food in similar circumstances. Social learning theory, then, does not adhere to the philosophy that human behavior is simply a product of simple conditioning.

Observational learning may be intentional, in which the learner devotes focused attention and deliberately observes a model in order to learn a particular skill, behavior or knowledge. Incidental learning, on the other hand, occurs when the learner does not exert deliberate effort to learn a skill, but does so anyway due to a chance exposure to a model and the model's behavior.

Incidental learning also involves the ability of a child to learn behavior that is observed from a model by storing the

information concerning his incidental observation for use at a later and appropriate time, even in the absence of the model. However, demonstration of the learned behavior is not necessary in order to conclude that observational learning has occurred. What is important to note is that the child learns the behavior even if the behavior does not serve to satisfy any current need of the child and even if the child was not immediately rewarded.

According to Bandura's Social Learning Theory, the child is regarded as an active learner, capable of acting upon and influencing his environment, and being influenced by it as well. This participation in an interactive relationship was termed as "reciprocal determinism" by Bandura. To a certain extent, the child "creates" his environment, which he is at the same time a product of majority of a child's learning stems from his act of actively imitating or modeling behavior that he has witnessed or heard from other people /models that comprise his environment.

Early on, children are already equipped with ideas and notions about what is preferred behavior in their society or what their society or culture values. As such, children actively choose the models whom they wish to imitate. The choice is based on personal characteristics of the child, the model and the environment in which the child finds himself.

A child, for example, may select one parent over another. It may also come about that instead of a parent, or, in addition to the parent, a child may prefer to imitate the behavior or conversation

style of a teacher, a TV character or a favored peer. Children tend to choose people they admire or people whose personalities are much like their own as their models. Thus, children who already have a propensity for aggression are more likely to imitate aggressive models.

In addition, a child may choose to have different models that he/she imitates for the different aspects of life. When a child imitates behavior, he/she does not necessarily imitate the entire behavior. A child may derive his/her style of talking from his/her mother but mimic the way his/her sister dresses. As such, a child is able to demonstrate novel behavior that she has never observed in anyone because he/she has the ability to combine different aspects of various behaviors he/she has observed from a variety of models into a pattern that is uniquely hers. Thus, Bandura has brought to fore the capacity of a child to acquire new behavior that she has never attempted before.

There are two main models of observational learning. First, observational learning can take place through vicarious reinforcement. This happens when we see others being rewarded or punished for particular actions and then modify our behavior as if we had received the consequences ourselves. For example, if you compliment two students on the attractive illustrations in their lab reports, several other students who observe your compliments may turn in illustrated lab reports next time. This demonstrates vicarious reinforcement. Punishment can also be vicarious: you may slow down on a stretch of high way after seeing several people get speeding tickets. Through modeling we learn not only

how to perform a behavior but also what will happen to us in specific situations if we do perform it.

In the second kind of observational learning, the observer imitates the behavior of a model even though the model receives no reinforcement or punishment while the observer is watching, often the model is demonstrating something; for example, the correct way to assemble laboratory equipments. But imitation can also occur when the observer simply wants to become more like an admired or high-status model. Models need not be real people. We may also use fictional characters or stereotypical images as models and try to behave as we imagine the model would (Woolfolk, 1995: 221)

Elements of Observational Learning

Bandura (1986) notes that there are four elements to be considered in observational learning. They are paying attention, retaining information or impressions, producing behaviors, and being motivated to repeat the behaviors.

1. Attention: in order to learn through observation, we have to pay attention. We typically pay attention to people who are attractive, popular, competent, or admired. In teaching, you will have to ensure students' attention to the critical features of the lesson by making clear presentations and highlighting important points. In demonstrating a skill, you may need to have students look over your shoulder as you work. Seeing your hands from the same perspective as they see their own directs their attention to the right features of the situation and makes observational learning easier.

2. Retention: in order to imitate the behavior of the model, you have to remember it. This involves mentally representing the model's actions in some way, probably as verbal steps, or as visual images, or both. Retention can be improved by mental rehearsal (imagining imitating the behavior) or by actual practice. In the retention phase of observational learning, practice helps us remember the elements of the desired behavior, such as the sequence of steps.
3. Production: once we "know" how a behavior should look and remember the elements or steps, we still may not perform it smoothly. Sometimes we need a great deal of practice, feedback, and coaching about subtle points before we can reproduce the behavior of the model. In the production phase, practice makes the behaviors smoother and more expert. A sense of self-efficacy, the belief that we are capable of performing the behavior, is important at this phase and influences our motivation to perform.
4. Motivation and Reinforcement: as mentioned earlier, social cognitive theory distinguishes between acquisition and performance. We may acquire a new skill or behavior through observation, but we may not perform that behavior until there is some motivation or incentive to do so. Reinforcement can play several roles in observational learning. If we anticipate being reinforced for imitating the actions of a model, we may be more motivated to pay attention, remember, and reproduce the behaviors. In addition, reinforcement is important in maintaining learning.

Observational Learning in Teaching

There are five possible outcomes of observational learning: teaching new behaviors and attitudes, encouraging existing behaviors, changing inhibitions, directing attention, and arousing emotions. Let's look at each of these as they occur in classrooms:

1. Teaching new behaviors: modeling has long been used, of course, to teach math, as well as skills in subjects such as chemistry, Biology, and Physics. Modeling can also be applied deliberately in the classroom to teach mental skills and to broaden horizons – to teach new ways of thinking. Teachers serve as models for a vast range of behaviors.
2. Encouraging already-learned behaviors: all of us have had the experience of looking for cues from other people when we find ourselves in unfamiliar situations. Observing the behavior of others tells us which of our already-learned behaviors to use.
3. Strengthening or weakening inhibitions: if class members witness on student breaking a class rule and getting away with it, they may learn that undesirable consequences do not always follow rule-breaking. The class may be less inhibited in the future about breaking this rule. If the rule-breaker is a well-liked, high-status class leader, the effect of the modeling may be even more pronounced. One psychologist has called this phenomenon the ripple effect.

4. Directing attention: by observing others, we not only learn about actions, we also notice the objects involved in the actions.
5. Arousing emotion: finally, through observational learning people may develop emotional reactions to situations they themselves have never experienced, such as. Students may be anxious when they are assigned to a certain teacher because they've heard frightening stories about how "mean" that teacher is. Note that hearing and reading about a situation are also forms of observation.

Applications of the Theory

Principles of the theory apply to a broad range of areas, including the instruction of children, the acquisition of language, dietary intervention, self-help, and even the reform of criminals. Truly, Bandura's Social Learning Theory is one of the most valuable and useful theories of development in contemporary history. The following some guidelines will give you some ideas about using observational learning in the classroom:

- Model behaviors and attitudes you want your students to learn.
- Use peers as models.
- Make sure students see that positive behaviors lead to reinforcement for others.
- Enlist the help of class leaders in modeling behaviors for the entire class.

Chapter VI
Constructive Views of Learning

What is meant by constructivism?

Emphasizes the importance of the active involvement of learners in constructing knowledge. Has many varieties such as active learning , discovery learning, and knowledge building. But all versions promote a student's free exploration within a given framework or structure.

Educators who advocate constructivism believe that a learner's ability to learn relies to a large extent on what he already knows and understands, and the acquisition of knowledge should be individually tailored process of construction.

Construction of Knowledge

1. Social interactions: Individuals make meanings through the interactions with each other and with the environment, they live in.

2. Experience: Prior experience is a crucial factor in forming knowledge.

3. Direct teaching: By specialists via face to face interaction.

4. Modeling: Is very important in shaping new behaviors and acquiring new information.

Conditions of learning

1. Complex learning environments: constructivists believe that students should not be given stripped down, simplified problems and basic skills drills, but instead should deal with complex situations and "fuzzy," ill-structured problems.

2. Social negotiation: many constructivists share Vygotsky's believe the higher mental processes develop through social interaction, so collaboration in learning is valued.

3. Multiple representations of content: when students encounter only one model, one analogy, one way of understanding complex content, they often oversimplify as they try to apply that one approach to every situation.

Vygotsky's Sociocultural Theory of Cognitive Development

The work of Lev Vygotsky (1934) has become the foundation of much research and theory in cognitive development over the past several decades, particularly of what has become known as sociocultural theory.

Vygotsky's sociocultural theory views human development as a socially mediated process in which children acquire their cultural values, beliefs, and problem-solving strategies through collaborative dialogues with more knowledgeable members of society. Vygotsky's theory is comprised of concepts such as culture-specific tools, private speech, and the Zone of Proximal Development.

Vygotsky's theories stress the fundamental role of social interaction in the development of cognition (Vygotsky, 1978), as

he believed strongly that community plays a central role in the process of "making meaning."

Unlike Piaget's notion that childrens' development must necessarily precede their learning, Vygotsky argued, "learning is a necessary and universal aspect of the process of developing culturally organized, specifically human psychological function" (1978, p. 90). In other words, social learning tends to precede (i.e., come before) development.

Vygotsky has developed a sociocultural approach to cognitive development. He developed his theories at around the same time as Jean Piaget was starting to develop his ideas (1920's and 30's), but he died at the age of 38, and so his theories are incomplete - although some of his writings are still being translated from Russian.

Like Piaget, Vygotsky could be described as a constructivist, in that he was interested in knowledge acquisition as a cumulative event - with new experiences and understandings incorporated into existing cognitive frameworks. However, whilst Piaget's theory is structural (arguing that development is governed by physiological stages), Vygotsky denies the existence of any guiding framework independent of culture and context.

No single principle (such as Piaget's equilibration) can account for development. Individual development cannot be understood without reference to the social and cultural context within which it is embedded. Higher mental processes in the individual have their origin in social processes.

Vygotsky's Ideas

- Vygotsky's theory focuses on the role of culture in the development of mental abilities e.g. speech and reasoning in children.

- According to Vygotsky, adults in society foster children's cognitive development by engaging them in challenging and meaningful activities. Adults convey to children the way their culture interprets and responds to the world.
- They show the meaning they attach to objects, events and experiences. They provide the child with what to think (the knowledge) and how to think (the processes, the tools to think with).
- The interactions with others significantly increases not only the quantity of information and the number of skills a child develops, it also affects the development of higher order mental functions such as formal reasoning. Vygotsky argued that higher mental abilities could only develop through the interaction with more advanced others.
- Vygotsky proposed that children are born with elementary mental abilities such as memory and perception and that higher mental functions develop from these through the influence of social interactions.
- Vygotsky agreed with Piaget that the development of cognitive abilities takes place in stages and he also agreed broadly with the description of the stages however he viewed cognitive development as a social process where children learn from experienced adults.
- Vygotsky stated that language has two functions. Inner speech is used for mental reasoning and external speech is used to converse with others. These operations occur separately. Indeed, before the age of two, a child employs words socially; they possess no internal language. Once thought and language merge, however, the social language is internalized and assists the child with their reasoning. Thus, the social environment is ingrained within the child's learning.

Vygotsky's theory differs from that of Piaget in a number of important ways:

	Piaget	Vygotsky
Sociocultural context	Little emphasis	Strong emphasis
Constructivism	Cognitive constructivist	Social constructivist
Stages	Strong emphasis on stages of development	No general stages of development proposed
Key processes in development & learning	Equilibration; schema; adaptation; assimilation; accommodation	Zone of proximal development; scaffolding; language/dialogue; tools of the culture
Role of language	Minimal – Language provides labels for children's experiences (egocentric speech)	Major – Language plays a powerful role in shaping thought
Teaching implications	Support children to explore their world and discover knowledge	Establish opportunities for children to learn with the teacher and more skilled peers

1: Vygotsky places more emphasis on culture affecting cognitive development.

This contradicts Piaget's view of universal stages and content of development (Vygotsky does not refer to stages in the way that Piaget does). Hence Vygotsky assumes cognitive development varies across cultures, whereas Piaget states cognitive development is mostly universal across cultures.

2: Vygotsky places considerably more emphasis on social factors contributing to cognitive development.

- Vygotsky states the importance of cultural and social context for learning. Cognitive development stems from social interactions from guided learning within the zone of proximal development as children and their partner's co-construct knowledge. In contrast, Piaget maintains that cognitive development stems largely from independent explorations in which children construct knowledge of their own.

- For Vygotsky, the environment in which children grow up will influence how they think and what they think about.

3: Vygotsky places more (and different) emphasis on the role of language in cognitive development.

According to Piaget, language depends on thought for its development (i.e., thought comes before language). For Vygotsky, thought and language are initially separate systems from the beginning of life, merging at around three years of age, producing verbal thought (inner speech). For Vygotsky, cognitive development results from an internalization of language.

4: According to Vygotsky adults are an important source of cognitive development.

Adults transmit their culture's tools of intellectual adaptation that children internalize. In contrast, Piaget emphasizes the importance of peers, as peer interaction promotes social perspective taking.

Effects of Culture: - Tools of intellectual adaptation

Vygotsky claimed that infants are born with the basic abilities for intellectual development called 'elementary mental functions' (Piaget focuses on motor reflexes and sensory abilities).

Elementary mental functions include –
o Attention
o Sensation
o Perception
o Memory

Eventually, through interaction within the sociocultural environment, these are developed into more sophisticated and effective mental processes which Vygotsky refers to as 'higher mental functions.'

Each culture provides its children tools of intellectual adaptation that allow them to use the basic mental functions more effectively/adaptively.

Tools of intellectual adaptation is Vygotsky's term for methods of thinking and problem-solving strategies that children internalize through social interactions with the more knowledgeable members of society.

For example, memory in young children this is limited by biological factors. However, culture determines the type of memory strategy we develop. For example, in western culture, children learn note-taking to aid memory, but in pre-literate societies, other strategies must be developed, such as tying knots in a string to remember, or carrying pebbles, or repetition of the names of ancestors until large numbers can be repeated.

Vygotsky, therefore, sees cognitive functions, even those carried out alone, as affected by the beliefs, values, and tools of intellectual adaptation of the culture in which a person develops and therefore socio-culturally determined. The tools of intellectual adaptation, therefore, vary from culture to culture - as in the memory example.

Social Influences on Cognitive Development

Like Piaget, Vygotsky believes that young children are curious and actively involved in their own learning and the discovery and development of new understandings/schema. However, Vygotsky placed more emphasis on social contributions to the process of development, whereas Piaget emphasized self-initiated discovery.

According to Vygotsky (1978), much important learning by the child occurs through social interaction with a skillful tutor. The tutor may model behaviors and/or provide verbal instructions for the child. Vygotsky refers to this as cooperative or

collaborative dialogue. The child seeks to understand the actions or instructions provided by the tutor (often the parent or teacher) then internalizes the information, using it to guide or regulate their own performance.

Shaffer (1996) gives the example of a young girl who is given her first jigsaw. Alone, she performs poorly in attempting to solve the puzzle. The father then sits with her and describes or demonstrates some basic strategies, such as finding all the corner/edge pieces and provides a couple of pieces for the child to put together herself and offers encouragement when she does so.

As the child becomes more competent, the father allows the child to work more independently. According to Vygotsky, this type of social interaction involving cooperative or collaborative dialogue promotes cognitive development.

In order to gain an understanding of Vygotsky's theories on cognitive development, one must understand two of the main principles of Vygotsky's work: the More Knowledgeable Other (MKO) and the Zone of Proximal Development (ZPD).

More Knowledgeable Other

The more knowledgeable other (MKO) is somewhat self-explanatory; it refers to someone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept.

Although the implication is that the MKO is a teacher or an older adult, this is not necessarily the case. Many times, a child's peers or an adult's children may be the individuals with more knowledge or experience.

For example, who is more likely to know more about the newest teenage music groups, how to win at the most recent PlayStation game, or how to correctly perform the newest dance craze - a child or their parents?

In fact, the MKO need not be a person at all. Some companies, to support employees in their learning process, are now using electronic performance support systems.

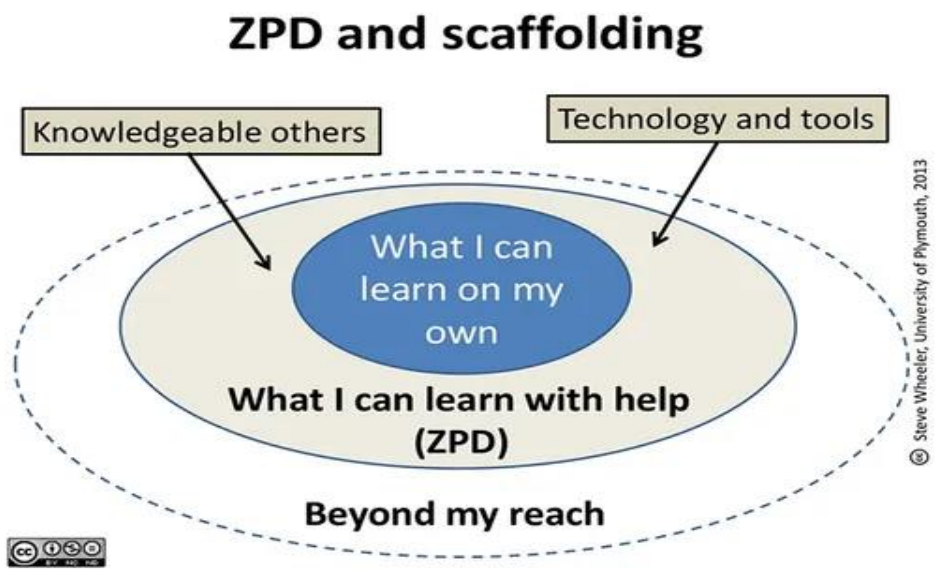
Electronic tutors have also been used in educational settings to facilitate and guide students through the learning process. The key to MKOs is that they must have (or be programmed with) more knowledge about the topic being learned than the learner does.

Zone of Proximal Development

The concept of the more knowledgeable other is integrally related to the second important principle of Vygotsky's work, the Zone of Proximal Development.

This is an important concept that relates to the difference between what a child can achieve independently and what a child can achieve with guidance and encouragement from a skilled partner.

Vygotsky consequently focuses much more closely on social interaction as an aid to learning; arguing that, left alone, children will develop - but not to their full potential. He refers to the gap between actual and potential learning as the Zone of Proximal Development (ZPD) - and argues that it is only through collaboration with adults and other learners that this gap can be bridged.



The Zone of Proximal Development is the gap between the level of actual development, what the child can do on his own and the level of potential development, what a child can do with the assistance of more advanced and competent individuals. Social interaction, therefore, supports the child's cognitive development in the ZPD, leading to a higher level of reasoning.

For example, the child could not solve the jigsaw puzzle (in the example above) by itself and would have taken a long time to do so (if at all), but was able to solve it following interaction with the father, and has developed competence at this skill that will be applied to future jigsaws.

ZPD is the zone where instruction is the most beneficial as it is when the task is just beyond the individual's capabilities. To learn we must be presented with tasks that are just out of our ability range. Challenging tasks promote the maximum cognitive growth.

As a result of shared dialogues with more knowledgeable others, who provide hints and instructions as well as encouragement, the child is able to internalize the 'how to do it'

part of the task as part of their inner or private speech. This can then be used by the child on later occasions when they tackle a similar task on their own.

Vygotsky (1978) sees the Zone of Proximal Development as the area where the most sensitive instruction or guidance should be given - allowing the child to develop skills they will then use on their own - developing higher mental functions.

Vygotsky also views interaction with peers as an effective way of developing skills and strategies. He suggests that teachers use cooperative learning exercises where less competent children develop with help from more skillful peers - within the zone of proximal development.

Evidence for Vygotsky and the ZPD

Freund (1990) conducted a study in which children had to decide which items of furniture should be placed in particular areas of a dolls house.

Some children were allowed to play with their mother in a similar situation before they attempted it alone (zone of proximal development) while others were allowed to work on this by themselves (Piaget's discovery learning).

Freund found that those who had previously worked with their mother (ZPD) showed the greatest improvement compared with their first attempt at the task. The conclusion being that guided learning within the ZPD led to greater understanding/performance than working alone (discovery learning).

Vygotsky and Language

Vygotsky believed that language develops from social interactions, for communication purposes. Vygotsky viewed language as man's greatest tool, a means for communicating with the outside world.

According to Vygotsky (1962) language plays two critical roles in cognitive development:

1: It is the main means by which adults transmit information to children.
2: Language itself becomes a very powerful tool of intellectual adaptation.

Vygotsky (1987) differentiates between three forms of language: social speech which is external communication used to talk to others (typical from the age of two); private speech (typical from the age of three) which is directed to the self and serves an intellectual function; and finally private speech goes underground, diminishing in audibility as it takes on a self-regulating function and is transformed into silent inner speech (typical from the age of seven).

For Vygotsky, thought and language are initially separate systems from the beginning of life, merging at around three years of age. At this point speech and thought become interdependent: thought becomes verbal, speech becomes representational. When this happens, children's monologues internalized to become inner speech. The internalization of language is important as it drives cognitive development.

'Inner speech is not the interiour aspect of external speech - it is a function in itself. It still remains speech, i.e., thought connected with words. But while in external speech thought is embodied in words, in inner speech words dies as they bring forth thought. Inner speech is to a large extent thinking in pure meanings.' *(Vygotsky, 1962: p. 149)*

Vygotsky (1987) was the first psychologist to document the importance of private speech. He considered private speech as the transition point between social and inner speech, the moment in development where language and thought unite to constitute verbal thinking.

Thus private speech, in Vygotsky's view, was the earliest manifestation of inner speech. Indeed, private speech is more similar (in its form and function) to inner speech than social speech.

Private speech is 'typically defined, in contrast to social speech, as speech addressed to the self (not to others) for the purpose of self-regulation (rather than communication).'*(Diaz, 1992, p.62)*

Unlike inner speech which is covert (i.e., hidden), private speech is overt. In contrast to Piaget's (1959) notion of private speech representing a developmental dead-end, Vygotsky (1934, 1987) viewed private speech as: 'A revolution in development which is triggered when preverbal thought and preintellectual language come together to create fundamentally new forms of mental functioning.' (Fernyhough & Fradley, 2005: p. 1)

In addition to disagreeing on the functional significance of private speech, Vygotsky and Piaget also offered opposing views on the developmental course of private speech and the environmental circumstances in which it occurs most often (Berk & Garvin, 1984).

Theoretical predictions	Piaget	Vygotsky
Developmental significance of private speech	Represents an inability to take the perspective of another and therefore to engage in truly relational and reciprocal communication.	Represents externalized thought; its function is to communicate with the self for the purpose of self-guidance and self-direction.
Course of development	Declines monotonically with age.	Curvilinear, increasing at the younger ages but gradually decreasing as it loses its audible quality and becomes internal thought.
Relationship to social speech	Negative; is eventually replaced by social speech.	Positive at the younger ages.
Influence of environmental contexts: Task difficulty		Increases with task difficulty; the greater effort needed to reach a solution necessitates the action regulating role of private speech.

Table 1: *Differential Predictions of Piaget's and Vygotsky's Theories.* Reprinted from: Berk & Garvin, (1984).

Through private speech, children begin to collaborate with themselves in the same way a more knowledgeable other (e.g., adults) collaborate with them in the achievement of a given function.

Vygotsky sees "private speech" as a means for children to plan activities and strategies and therefore aid their development. Private speech is the use of language for self-regulation of behavior. Language is, therefore, an accelerator to thinking/understanding (Jerome Bruner also views language in this way). Vygotsky believed that children who engaged in large amounts of private speech are more socially competent than children who do not use it extensively.

Vygotsky (1987) notes that private speech does not merely accompany a child's activity but acts as a tool used by the developing child to facilitate cognitive processes, such as overcoming task obstacles, enhancing imagination, thinking, and conscious awareness.

Children use private speech most often during intermediate difficulty tasks because they are attempting to self-regulate by verbally planning and organizing their thoughts (Winsler et al., 2007).

The frequency and content of private speech are then correlated with behavior or performance. For example, private speech appears to be functionally related to cognitive performance: It appears at times of difficulty with a task.

For example, tasks related to executive function (Fernyhough & Fradley, 2005), problem-solving tasks (Behrend et al., 1992), schoolwork in both language (Berk & Landau, 1993), and mathematics (Ostad & Sorensen, 2007).

Berk (1986) provided empirical support for the notion of private speech. She found that most private speech exhibited by children serves to describe or guide the child's actions.

Berk also discovered than child engaged in private speech more often when working alone on challenging tasks and also when their teacher was not immediately available to help them. Furthermore, Berk also found that private speech develops similarly in all children regardless of cultural background.

Vygotsky (1987) proposed that private speech is a product of an individual’s social environment. This hypothesis is supported by the fact that there exist high positive correlations between rates of social interaction and private speech in children.

Children raised in cognitively and linguistically stimulating environments (situations more frequently observed in higher socioeconomic status families) start using and internalizing private speech faster than children from less privileged backgrounds. Indeed, children raised in environments characterized by low verbal and social exchanges exhibit delays in private speech development.

Childrens' use of private speech diminishes as they grow older and follows a curvilinear trend. This is due to changes in ontogenetic development whereby children are able to internalize language (through inner speech) in order to self-regulate their behavior (Vygotsky, 1987).

For example, research has shown that childrens' private speech usually peaks at 3–4 years of age, decreases at 6–7 years of age, and gradually fades out to be mostly internalized by age 10 (Diaz, 1992).

Vygotsky proposed that private speech diminishes and disappears with age not because it becomes socialized, as Piaget suggested, but rather because it goes underground to constitute inner speech or verbal thought" (Frauenglass & Diaz, 1985).

Applying Vygotsky's Theory to the Classroom

Vygotsky's approach to child development is a form of social constructivism, based on the idea that cognitive functions are the products of social interactions.

Vygotsky emphasized the collaborative nature of learning by the construction of knowledge through social negotiation. He rejected the assumption made by Piaget that it was possible to separate learning from its social context.

Vygotsky believed everything is learned on two levels. First, through interaction with others, and then integrated into the individual's mental structure.

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.
> *(Vygotsky, 1978, p.57)*

Teaching styles based on constructivism mark a conscious effort to move from ‘traditional, objectivist models didactic, memory-oriented transmission models’ (Cannella & Reiff, 1994) to a more student-centred approach.

Traditionally, schools have not promoted environments in which the students play an active role in their own education as well as their peers'. Vygotsky's theory, however, requires the teacher and students to play untraditional roles as they collaborate with each other.

Instead of a teacher dictating her meaning to students for future recitation, a teacher should collaborate with her students in order to create meaning in ways that students can make their own (Hausfather, 1996).

For example, a pupil and teacher begin a task with different levels of skill and understanding. As each adjusts to the perspective of the other, the teacher has to translate their own insights in a way that is within the grasp of the pupil, and the pupil develops more complete understanding of a task or concept.

The pupil is able to internalize the 'how to do it' part of a task as part of their private or inner speech dialog. Vygotsky referred to this process as *intersubjectivity*.

ZPD

Because Vygotsky asserts that cognitive change occurs within the zone of proximal development, instruction would be designed to reach a developmental level that is just above the student's current developmental level.

Vygotsky proclaims, "learning which is oriented toward developmental levels that have already been reached is ineffective from the view point of the child's overall development. It does not

aim for a new stage of the developmental process but rather lags behind this process" (Vygotsky, 1978).

Appropriation is necessary for cognitive development within the zone of proximal development. Individuals participating in peer collaboration or guided teacher instruction must share the same focus in order to access the zone of proximal development.

"Joint attention and shared problem solving is needed to create a process of cognitive, social, and emotional interchange" (Hausfather,1996).

Furthermore, it is essential that the partners be on different developmental levels and the higher level partner be aware of the lower's level. If this does not occur, or if one partner dominates, the interaction is less successful (Driscoll, 1994; Hausfather, 1996).

Vygotsky's theories also feed into the current interest in collaborative learning, suggesting that group members should have different levels of ability so more advanced peers can help less advanced members operate within their ZPD.

Scaffolding and reciprocal teaching are effective strategies to access the zone of proximal development.

Reciprocal Teaching

A contemporary educational application of Vygotsky's theory is "reciprocal teaching," used to improve students' ability to learn from text. In this method, teachers and students collaborate in learning and practicing four key skills: summarizing, questioning, clarifying, and predicting. The teacher's role in the process is reduced over time.

Reciprocal teaching allows for the creation of a dialogue between students and teachers. This two way communication

becomes an instructional strategy by encouraging students to go beyond answering questions and engage in the discourse (Driscoll, 1994; Hausfather, 1996).

A study conducted by Brown and Palincsar (1989), demonstrated the Vygotskian approach with reciprocal teaching methods in their successful program to teach reading strategies. The teacher and students alternated turns leading small group discussions on a reading. After modeling four reading strategies, students began to assume the teaching role.

Results of this study showed significant gains over other instructional strategies (Driscoll, 1994; Hausfather,1996). Cognitively Guided Instruction is another strategy to implement Vygotsky's theory. This strategy involves the teacher and students exploring math problems and then sharing their different problem solving strategies in an open dialogue (Hausfather,1996).

The physical classroom, based on Vygotsky's theory, would provide clustered desks or tables and work space for peer instruction, collaboration, and small group instruction. Learning becomes a reciprocal experience for the students and teacher.

Like the environment, the instructional design of material to be learned would be structured to promote and encourage student interaction and collaboration. Thus the classroom becomes a community of learning.

Scaffolding

Also, Vygotsky theory of cognitive development on learners is relevant to instructional concepts such as "scaffolding" and "apprenticeship," in which a teacher or more advanced peer helps to structure or arrange a task so that a novice can work on it successfully.

A teacher's role is to identify each individual's current level of development and provide them with opportunities to cross their ZPD.

A crucial element in this process is the use of what later became known as scaffolding; the way in which the teacher provides students with frameworks and experiences which encourage them to extend their existing schemata and incorporate new skills, competences and understandings.

Scaffolding describes the conditions that support the child's learning, to move from what they already know to new knowledge and abilities.

Scaffolding requires the teacher to provide students the opportunity to extend their current skills and knowledge.

During scaffolding the support offered by a adult (or more knowledgeable other) gradually decreases as the child becomes more skilled in the task. As the adult withdraws their help, the child assumes more of the strategic planning and eventually gains competence to master similar problems without the aid of a teacher or more knowledgeable peer.

It is important to note that this is more than simply instruction; learning experiences must be presented in such a way as to actively challenge existing mental structures and provide frameworks fo

Five ways in which an adult can "scaffold" a child's learning:

1. Engaging the child's interest
2. Maintaining the child's interest in the task e.g. avoiding distraction and providing clear instructions on how to start the task.

3. Keeping the child's frustration under control e.g. by supportive interactions, adapt instructions according where the child is struggling
4. Emphasizing the important features of the task
5. Demonstrating the task: showing the child how to do the task in simple, clear steps.

As the child progresses through the ZPD, the level of scaffolding necessary declines from 5 to 1.

The teacher must engage students' interest, simplify tasks so they are manageable, and motivate students to pursue the instructional goal. In addition, the teacher must look for discrepancies between students' efforts and the solution, control for frustration and risk, and model an idealized version of the act (Hausfather, 1996).

Challenges to Traditional Teaching Methods

Vygotsky's social development theory challenges traditional teaching methods. Historically, schools have been organized around recitation teaching. The teacher disseminates knowledge to be memorized by the students, who in turn recite the information back to the teacher (Hausfather,1996). However, the studies described above offer empirical evidence that learning based on the social development theory facilitates cognitive development over other instructional strategies.

The structure of our schools do not reflect the rapid changes our society is experiencing. The introduction and integration of computer technology in society has tremendously increased the opportunities for social interaction.

Therefore, the social context for learning is transforming as well. Whereas collaboration and peer instruction was once only possible in shared physical space, learning relationships can now be formed from distances through cyberspace.

Computer technology is a cultural tool that students can use to mediate and internalize their learning. Recent research suggests changing the learning contexts with technology is a powerful learning activity (Crawford, 1996). If schools continue to resist structural change, students will be ill prepared for the world they will live.

Constructivist View of Learner:

- Student centered.
- Learner must construct their own understanding of the world in which they live.
- Learner is self-directed, creative and innovative in nature.
- Develop skills by solving gained from experimentation and increase the confidences in their learning.

Constructivist View of Teacher:

- Teacher role is to facilitate discussion.
- Teacher is only a guide.

Constructivist View of Classroom:

- The learners are actively involved.
- The environment is democratic.
- The activities are interactive and student centered. Some activities encouraged in constructivist classroom are: Experimentation, Research project, Field trips, and films.

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Psychology of Learning

((Student's Workbook))

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Definition of Common Terms

Stimulus

A stimulus is any object or event that elicits a response.

For example, when food is presented to a lab mouse as a reward for pressing a lever, the food is a stimulus, and the mouse will likely respond by pressing the lever again.

With regard to perception, stimuli can be visual (sight), auditory (sound), tactile (touch), olfactory (smell), or gustatory (taste).

When we read words on a page, the text acts as a visual stimulus that excites the cells in our retina, which converts the stimuli to electrical signals and sends these signals to the brain.

Response

Response: any clearly defined, measurable physical reaction to a stimulus.

Response: "speaking loudly was the student's response to the teacher's absence".

For example ……

Stimuli	responses
Conditioned stimulus (naturally occurring stimulus)	Unconditioned response (automatic or reflexive response)
perfume	Feeling of happiness or desire
Bright light	Pupil in eyes contract

Smell of food	Salivation
Cold body temperature	shivering
Food in the mouth	Salivation
Low light	Pupils dilate
Puff of the air in the eye	Blinking
Very hot body temperature	sweating

Remember that: an unconditioned response (UCR) can be any unlearned response that can be elicited from an organism. For example, heart rate increasing, vomit/nausea, and tears these are not things that an organism chooses to do.

Practical Problem

Complete the following table:

Stimuli	Learned responses

……
……
……
……
……
……
……
……

Innate Behavior

- **Genetically inherited automatic response**
- **Behaviors that DO NOT have to be learned**
  - **Examples:**
    - **Suckling**
    - **Taxis in insects**
    - **Migration**
    - **Hibernation**
    - **Estivation**

Responses

physiological

- Shivering
- Sweating

behavioral

- Hibernation
- Migration
- Aestivation
- Nocturnal vs diurnal – circadian rhythms
- Taxis
- Kinesis

Innate vs. Learned Behavior

Innate:

- Inherited from parents
- Controlled by genes
- Developed by natural selection
- Increases chance of survival and reproduction
- Examples:
  - Migration of Black cap birds
  - Hunting instinct in some dogs
  - A spider spinning web

Learned:

- Not inherited from parents, dependent on the environmental context
- Not controlled by genes
- Develops by response to an environmental stimulus
- May or may not increase chance of survival and reproduction
- Examples:
  - Learning to drive a car
  - Learning a language

STIMULUS	**RESPONSE**
Startle	Redirect hands appropriately
Recognition of an attacker	Evade *or* if appropriate, get grip, move laterally to attacker, present firearm, defend
Press trigger, click or no bang	Reseat magazine, overhand rack
Perception of slide lock	Initiate reload
Attacker stops attacking	Stop defending

Animal Behaviors Sort SOL 3.4

Instinct	Learned Behavior
zebras stay in herds	dog plays fetch
bees make honey	eating when hungry
bears protect cubs	playing an instrument
squirrel hides nuts	bear cub watches mom hunt
birds migrate	dolphin doing tricks
spider spinning a web	baby walking
blinking your eyes	child talking
baby crying	dog "sits" on command

Directions: Cut out the behaviors on the lines below. Paste them under the kind of behavior it belongs to above.

Instinct		Learned Behavior	

The monarch butterfly flies south for the winter.	Atlantic green turtles go to Ascension Island to lay their eggs and bury them in the sand.	A tiger hunts for food.	A chimpanzee builds a leafy nest for sleeping and uses a stone to crack open a nut.
A dolphin does tricks at Sea World.	A baby bird flies for the first time.	The pectoral sandpiper travels from northern Canada to southern South America each fall.	Gray whales swim to warm waters of Mexico where they give birth to their young in the winter.
Pacific salmon swim from the ocean to a river or stream to lay their eggs.	The ground squirrel goes into an underground nest as winter approaches and hibernates.	A cub follows its mother to hunt for berries.	Songbirds sing songs.
Prairie dogs dive into the safety of their burrow when danger is near.	Baby ducks follow their mother.	A dog barks at a stranger when the stranger comes close to its home.	A spider spins a web to catch food.

Innate and learned behavior

Innate	Learned
Instinctive (Fixed Action Pattern), based on genetics	Based on experience
Not modified by individual & unaffected by environment	Modified by individual by trial and error & affected by environment
Low variation in population	High variation in population
Evolved through natural selection	Capacity to learn is a product of natural selection
Examples: Newborn instincts Migration of blackcaps	Examples: Acquisition of language and social skills Domesticated behavior in pets Training dolphins to perform

Innate behaviour

- independent of experience
- independent of environmental conditions
- inherited from parents - genetic pre-disposition
- present in all members of a population
- evolves through natural selection
- **example**: blackcap southern or western migration, nest building in birds, feeding in new-borns, fly larvae moving away from light

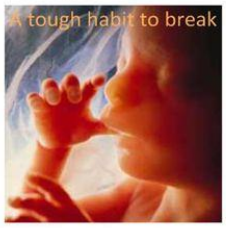
Learned behaviour

- influenced by experience
- influenced by environmental conditions
- not inherited from parents – no genetic pre-disposition
- the behaviour varies among individuals of a population
- specific behaviour may not be naturally selected
- **example**: dog learning to walk on heel, human learning to juggle three balls, learning to ride a bike, ducklings following the first thing they see moving

E3.1 DISTINGUISH BETWEEN INNATE AND LEARNED BEHAVIOR.

Innate Behavior

- Instinctive – _____ based
- Not modified by the individual
- _____ through population
- Unaffected by environment
- _____ are product of natural selection
- e.g. suckling in newborns
  _____ of blackcaps hunting instinct

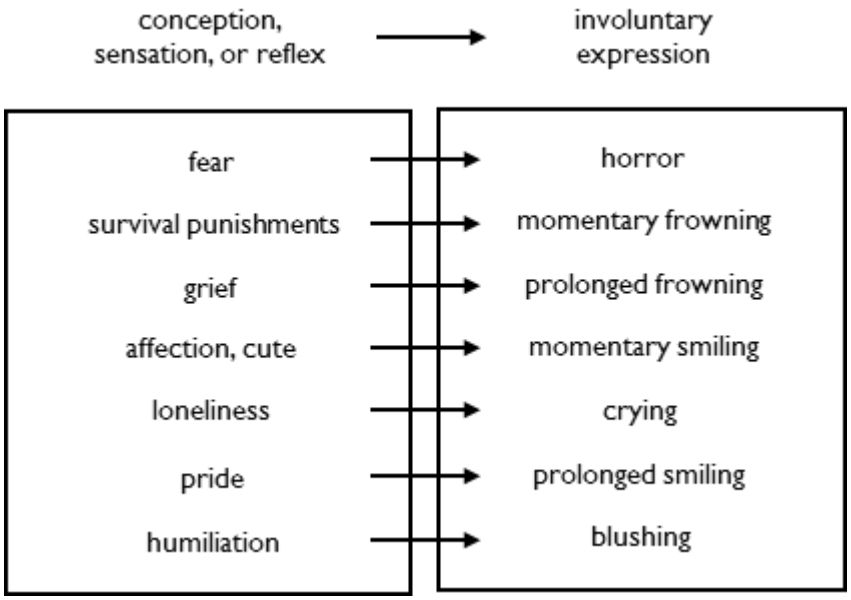


Learned Behavior

- Based on _____
- Modified by trial and error
- _____ within population
- Affected by environment
- _____ may be product of natural selection
- e.g. _____ response to predators

INNATE VS LEARNED BEHAVIOR

Innate Behavior	Learned Behaviors
Examples: • Suckling in newborns • Migration • Hunting instincts	Examples: • Language acquisition • Social Skills • Domesticated behavior in pets • Trained dolphins



What is the Learning Curve?

Learning process is not always similar. There is more progress in sometimes, sometimes less and sometime absolutely nil. So, we cannot find out the rate of learning. But, psychologists have attempted to measure the progress in learning. They described the progress in learning by drawing a line on the graph paper. This line is curve, and not straight. So, it is called Learning curve.

The first scientific study of the learning curve was performed by German psychologist Hermann Ebbinghaus in 1885

and introduced in his book Über das Gedächtnis (About Memory). The earliest known use of the English phrase "learning curve" is in Edgar James Swift's "Studies in the Psychology and Physiology of Learning" .Ebbinghaus learned nonsensical three letter words such as "WID" "KOR" "ZIF" etc. and recorded his progress. He found that when learning lists of such nonsensical words the time spent learning a given number of words increases drastically with the number of words. He found that the time required memorizing a nonsense syllable increased sharply as the number of syllables increased.

Psychologist, Arthur Bills gave a more detailed description of learning curves in 1934. He also discussed the properties of different types of learning curves, such as negative acceleration, positive acceleration, plateaus.

Definition

- According to Skinner, a learning curve is a progress representation of person's improvement or lack of improvement in a given activity.
- Raimers et.al defined the learning curve as a method of partial learning of a given activity.
- A learning curve is a graphical representation of how learning takes place in a particular situation – S.K.Mangal.
- A learning curve refers to the graphical relationship between the amount of learning and the time it takes to learn.
- A learning curve is the representation in graph form of the rate of learning something over time or repeated experiences. Learning curves are a visualization of the difficulty estimated in learning a subject over a period of time as well as relative progress throughout the process of learning. The learning curve provides a way to show a subject's learnability.
- A learning curve is a graphical representation of how an increase in learning (measured on the vertical axis) comes

from greater experience (the horizontal axis); or how the more thing does something, the better they get at it.

- A learning curve is recording the success over a number of trials. Presents diagrams of learning against trial number. Notice that: the score can decrease, or even oscillate.
- A learning curve is a concept that graphically depicts the relationship between independent variable and dependent variable over a defined period of time.
- A learning curve reflects the relationships which exist between trials of a skill and the success or performance rate. Show performances but can give a good indication of learning. Useful for goal setting and recognizing the actual ability of the performer.
- A concept that describes how new skills or knowledge can be quickly acquired initially, but subsequent learning becomes much slower. At first, a minimal investment of resources yields significant results, but the payback from continuing effort is smaller.

In the learning curve there are two scales: horizontal and vertical. The horizontal scale is called x-axis and the vertical scale is called y-axis. For drawing the learning graphs we divided the horizontal scale (x-axis) into units of time or the numbers of trials required for learning and the vertical scale (y-axis) into units of achievement, material studied or problem solved, etc.

In psychology the learning curve denotes a graphical representation of the rate at which you make progress learning new information. When you learn something new repetition is essential. Through repetition you become more efficient and more effective at any challenge, which you pose yourself.

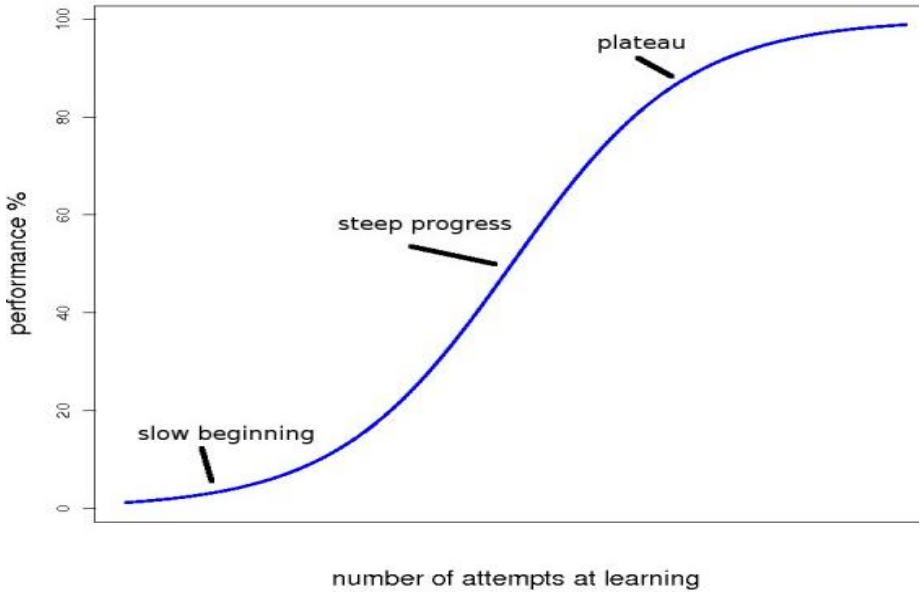
The typical plotting of a learning curve shows the time (or experience) for learning on the x axis and the percentage of learning on the y axis. In science (and contrary to popular usage of the term) a steep learning curve represents a quickly-learned subject. Difficult subjects will have a longer duration to complete

learning and, as such, a shallower curve. The relative percentage of learning can show how some subjects can be mostly learned quickly while some difficult aspects may remain resulting in plateaus in the graph where learning stalls.

Furthermore, learning curves are used by psychologists, students, teachers, employees and employers to plot progress and set expectations on how much time, training and study might be required to attain competent knowledge of a subject. In IT, learning curves are considered in user interface and product design.

The progress you make during the learning and repetition phases can be represented graphically like in the plot below. Scientific studies on memory and acquisition of motor skills have shown that the learning curve looks as follows: in the beginning, when what you have to learn is very new, the progress you make is very slow. However, if you keep training and repeating something interesting happens. Your brain starts adjusting to the challenge and suddenly the progress becomes much more accelerated. This is the phase, where you make the most progress. Once you reach a certain level of skill and knowledge you enter the phase of diminishing returns. The better you become at the task the less you still can make progress in the learning curve. You start mastering the new knowledge or skill and your brain has adapted and adjusted to the challenge – you hit the bounds of the skill or you know all there is to know in that field – you have reached a plateau.

The plateau is generally not flat; it is just much, much harder to make significant progress. Most people then are satisfied with the results and say that they have learned the new knowledge or skill as well as it can be learned. You could call it the individual maximum competence for a given skill.



Most likely you have experienced the learning curve first hand. Whenever you delve into a new and very complex field your progress at the beginning of the learning curve is very slow. This is mostly due to the fact that you first have to familiarize yourself with the topic, get an overview what's going on, understand the basic definitions and terminology etc.

Once you are over this initial phase, whatever you learn starts slowly making sense. In fact, once you learned the basic vocabulary, your understanding improves significantly and you make a lot of progress learning what really matters in that field. This is when all the scattered facts begin to interconnect and you start "putting it all together". You continue making fast progress until you reached the end of what there is to learn in the given field and when all is left are the boring details, which do not change the big picture any more. Then your progress in the learning curve slows down until you reach your individual plateau.

While the learning curve originally used in psychology and memory research has a clearly defined meaning, it has become increasingly popular in other fields as well. Therefore different

terminologies have been coined such as “experience curve”, “progress function”, “progress curve”, “improvement curve”, “cost improvement curve”, “start-up curve”, and “efficiency curve”. These different names however denote essentially the same behavior. A slow beginning followed by an accelerated rate of increase and a subsequent reaching of a plateau. All these processes are described by a so called S-curve.

Stages of Learning Curve

Normally learning curve comprises of four stages:

1. Initial stage- It is also called lag phase. In lag phase the learning is merely zero for first few practices.
2. Steep up stage- This is the second stage. It is also called log or exponential phase. In this stage the learning is suddenly increased and rate of improvement is substantial.
3. Intermediate stage-It is also called Stationary Phase. Now, there is no progress in learning or improvement is arrested. So, it is called Plateau. Skinner says ‘a plateau is a horizontal stretch indicative of apparent progress’. It places an important role in learning process because when such a stage is reached, a learning curve becomes almost flat.
4. Final stage: little learning or no learning takes place.

Characteristics of learning curve

- There is an initial improvement whether it is slow or rapid.
- No stage learning progress is uniform. There are various ups and downs (spurts) in the learning curve even a general acceleration is recorded.
- In between the beginning and end of the learning curve, there is no improvement in learning is called plateau (flat or stationary stage).
- At the final stage in the learning curve, we can find whether there is any little learning or no learning takes place.
- After reaching the stationary stage or plateau the learning curve again shows some improvement with spurts.

Different types of Learning curves

Learning is a complex process governed by so many internals as well as external factors. Consequently we find a number of learning curves depending upon the nature or the type of the learner, the nature of the task or the learning material and the time available as well as the conditions under which the learning takes place. It is difficult to classify these curves into some definite types. Whenever we learn something we learn it at different rates and we have different levels of success. These can be illustrated through performance curves:

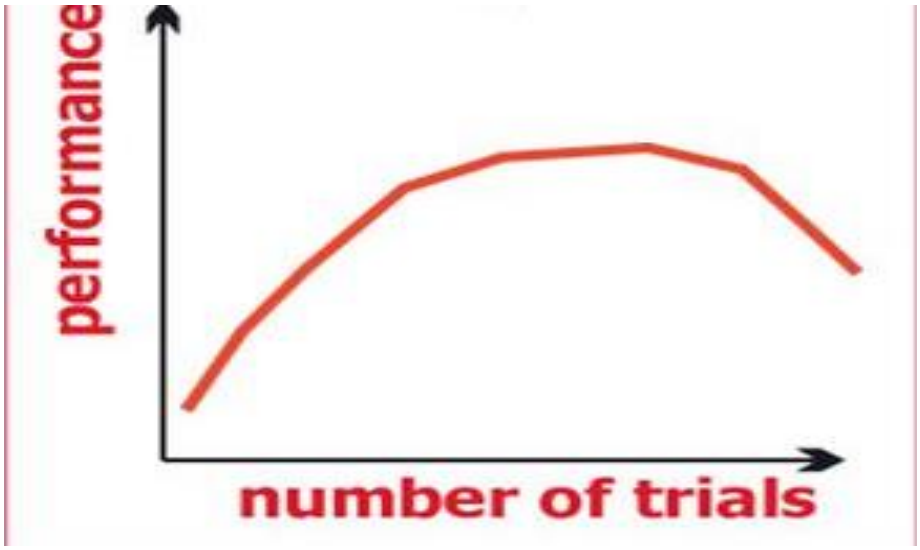
Positive Acceleration

Positively accelerated learning curve is also called concave curve. It depicts slow initial improvement in learning that increases with time ultimately leading towards the mastery of learning materials. At the initial the rate of progress may be slower, but at the final the learning rate increases noticeably. This learning curve is often occurring in the learning situation. Here the task may be new / difficult one to the student at the beginning or when the learner has not got any prior practice of performing such task. But with the increasing practice he is mastery over that at the end.

Negative Acceleration

Negatively accelerated learning curve is also called convex curve. It depicts rapid initial improvement in learning that slow down or decreases with time. At the initial the rate of progress maybe faster, but at the final the learning rate slows down noticeably. This learning curve is occurring in the learning situations where the task is simple or learner has had previous practice on a similar task, usually come across such learning curves.

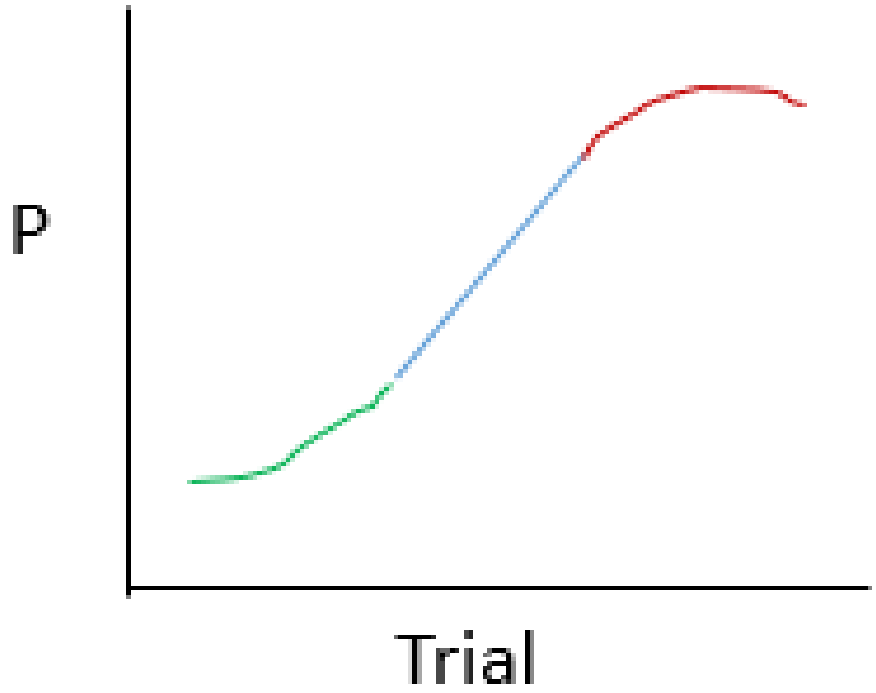
Abstractly, the curve involves good early performances but poorer performances in later trials. Rate of increase of performance will gradually reduce (learn it quickly and then slow down-plateau).



S shaped learning curve

Concave and convex curve- The third curve involves the combination of the first two concave and convex curves, is known as Concave-Convex Curve. It looks like an English letter 'S'. So called S-shaped curve. In the beginning this is depending upon the nature of the learner, learning material and the learning environment. It is normally obtained where the situation the learner study the entire learning from zero performance to its mastery. Usually there are fluctuations or ups and downs in the curve depending upon the variable which influences the learning process.

Abstractly, we can say that S-shaped learning curve is a combination of little improvement, rapid improvement, and learning plateau according to the following figure:

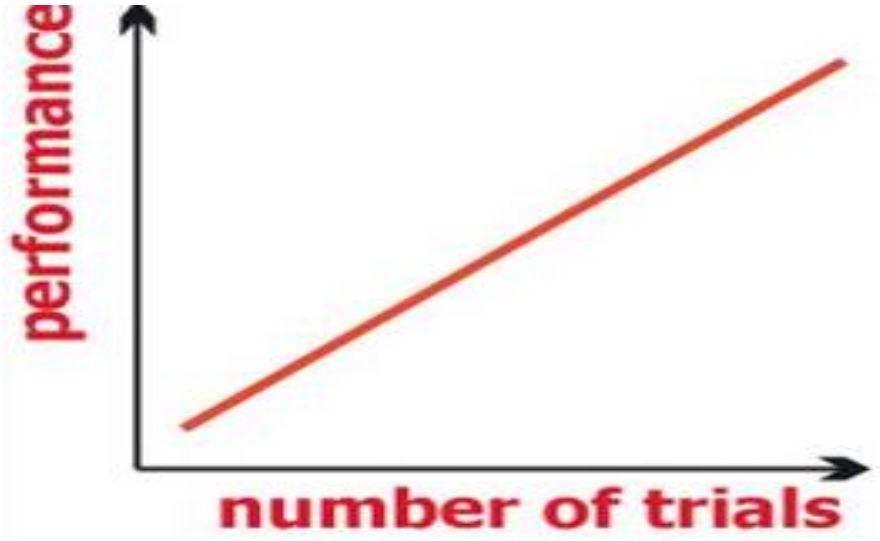


In both, S-shaped learning curves were observed, which were most obvious if the subjects were not very familiar with the materials and if they were slow learners. With prolonged learning, the S shapes disappeared.

S shaped is a typical curve of learning of a gross motor skill : learning is slow to start with he/she gets to grips with the skill, then the learner begins to be motivated by success and to practice more hence a rapid improvement, and finally, improvement slow down as difficulties are encountered requiring more cognitive effort .

Linear learning curve

Performance is directly proportional to the number of practice trials. Rate of improvement remains constant.



Plateau of Learning

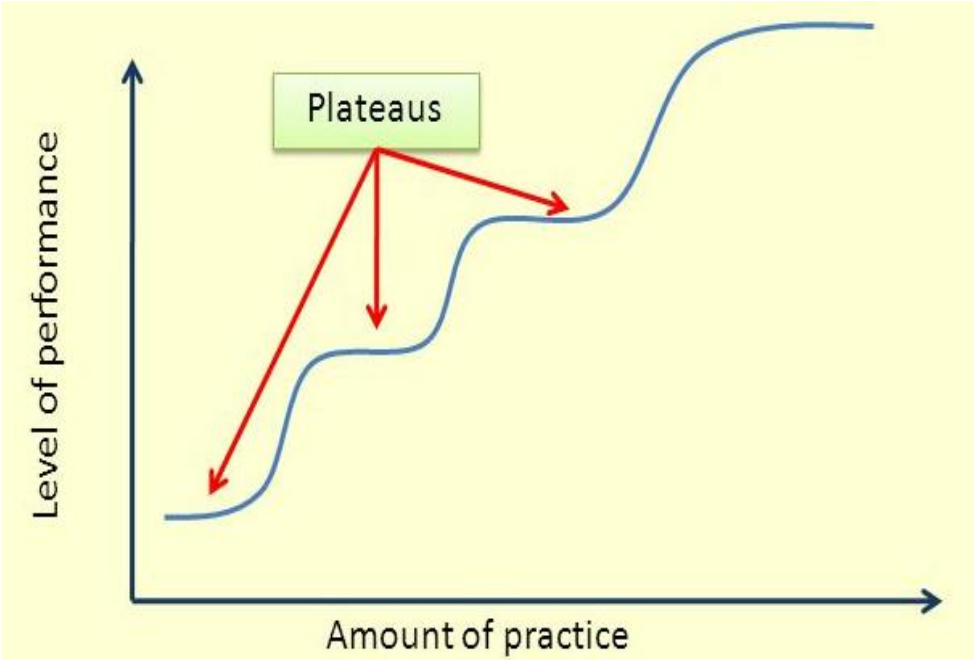
When a skill is learnt, initially rapid progress is made by the learner, however, after some time the progress is stopped and no amount of training makes any improvement. This, stage is called "plateau of learning". Not much change if at all in performance over a number of trials. is a common phenomenon, it may occur again & again. Is generally not flat, it is just much, much harder to make significant progress.

A learning plateau occurs when there is no improvement in performance despite practice still occurring (or when the learner stops progressing and no improvement in skill is evident). This can be a very demonstrating period of the performer when practice do is not improving performance.

A plateau can represents a period of consolidation of a newly acquired skill. With ongoing training, performers will continue to improve as long as the plateau has not occurred as a result of the performer having reached the limit of their ability e.g. the athlete can't run any faster and has reached the physical limit of their performance.

Also, can represents a time in learning whenever the learning curve flattens due to the rate of increase stopping temporarily, frequently due to tiredness, boredom, loss of willingness, or a modification in the level of ability necessary.

Abstractly, as the number of trials increases, the number of errors decreases rapidly until a learning plateau is reached, after which further improvement comes slowly. So, learning plateau means not much change if at all in performances over number of trails.



Causes of a learning plateau

Reasons for plateau in learning are:

- Lack of concentration.
- Toughness of the skill.
- Physical and mental fatigue or boredom / or staleness.
- Poor coaching or training.
- Environmental pollution.

- Loss of motivation or Lack of proper motivation and loss of interest of the learner.
- Less interest.
- Practice under poor conditions.
- Perfectionism.
- Overstress and tensions.
- Technical deficiencies.
- Poor or faulty method of learning.
- Satisfaction of the learner with moderate achievement.
- Too much difficulty or complexity of the learning material
- Distraction and inattention of the learner
- Final stage- This is the final stage. Here the learner has reach the maximum limit of the improvement.
- Poor and unfavorable environment.

To avoid plateau… advices for Teacher

- Give new goals that can be reached.
- Give praise that is deserved.
- Ensure that there are regular rest intervals.
- Maintain motivation and employ positive cognitive techniques.
- Vary and re-establish physical fitness.
- Look at technical development for possible variations or improvements.

Learning Level

Equal the invested time (number of mistakes) at the last three trials (attempts) which included in the learning curve.

Comment on a learning curve

Comment on any learning curve should Includes:

- Specifying the kind of learning curve according to its starting (type of acceleration: fast or slow beginning).

- Specifying the middle part of the curve (intermediate learning plateau, sudden improvement, oscillational point, trough point, and decline part).
- Describing the end of the learning curve (final learning plateau or learning level).

Educational implications

- The teacher should keep in his mind the individual differences of the learners.
- The teacher has to choose or use proper method of teaching and techniques and environment by the guidance of the learning curves of his students.
- The students may acquaint with their own progress in learning. It can give them the opportunity of self-appraisal.
- The unusual spurt reveals about the fatigue, poor motivation, poor method of teaching and other personality characters of the learner. The teacher can make use of his knowledge in studying the behavior of the student and eliminate the plateau.
- Efficient methods creating interest, making aware of the goals, moving simple to complex, providing motivation, minimizing the distraction factors are used to eliminate the plateau.

Practical Problems

Problem

After studying constructive views of learning you may agree with that many constructivist practices can be incorporated into any class (outline?).

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Problem

According to the law of figure-ground specify the role of teacher inside the classroom?

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Problem

Specify some guidelines to lead class discussion in the light of constructivism?

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Problem

Does learning progress at a uniform rate throughout the period of learning? Does equal amount of practice at various stages of the learning process result in equal amount of learning?

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Problem

Draw the learning curve and make comments on the different parts of it according to the below data:

Trials	1	2	3	4	5	6	7	8	9	10	11
Time	90	85	80	75	75	70	85	60	55	55	55

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Problem

Draw the learning curve and make comments on the different parts of it according to the below data:

attempts	1	2	3	4	5	6	7	8	9	10	11
recall	45	40	35	30	30	25	35	20	10	10	10

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Problem

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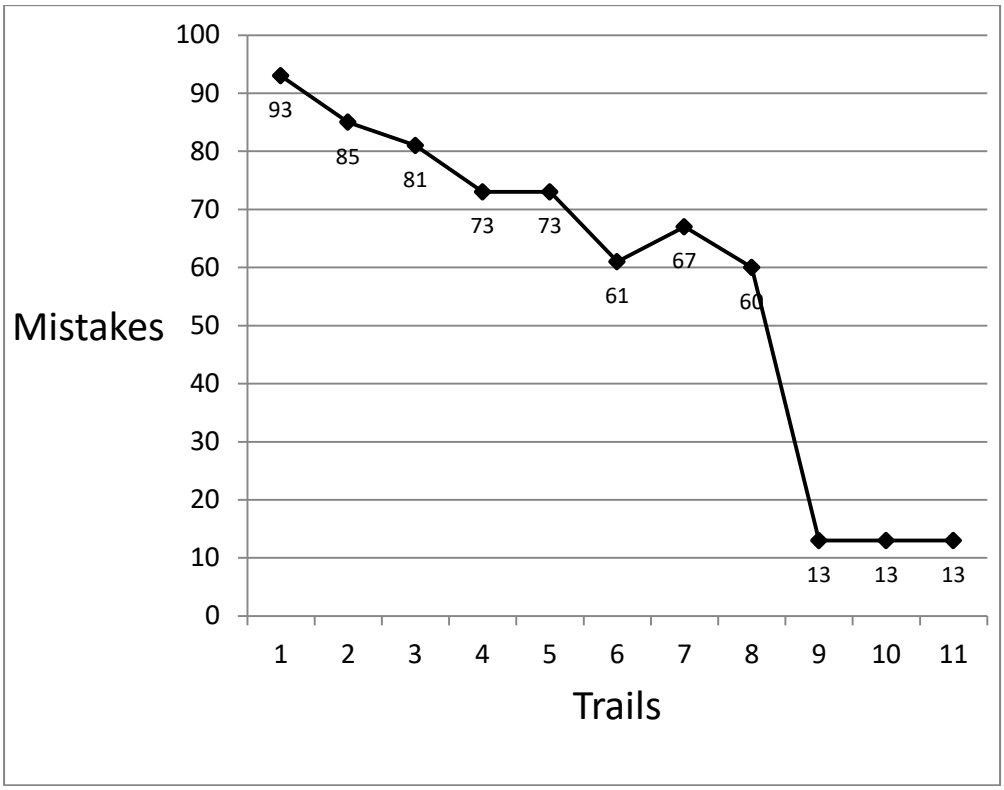
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Problem

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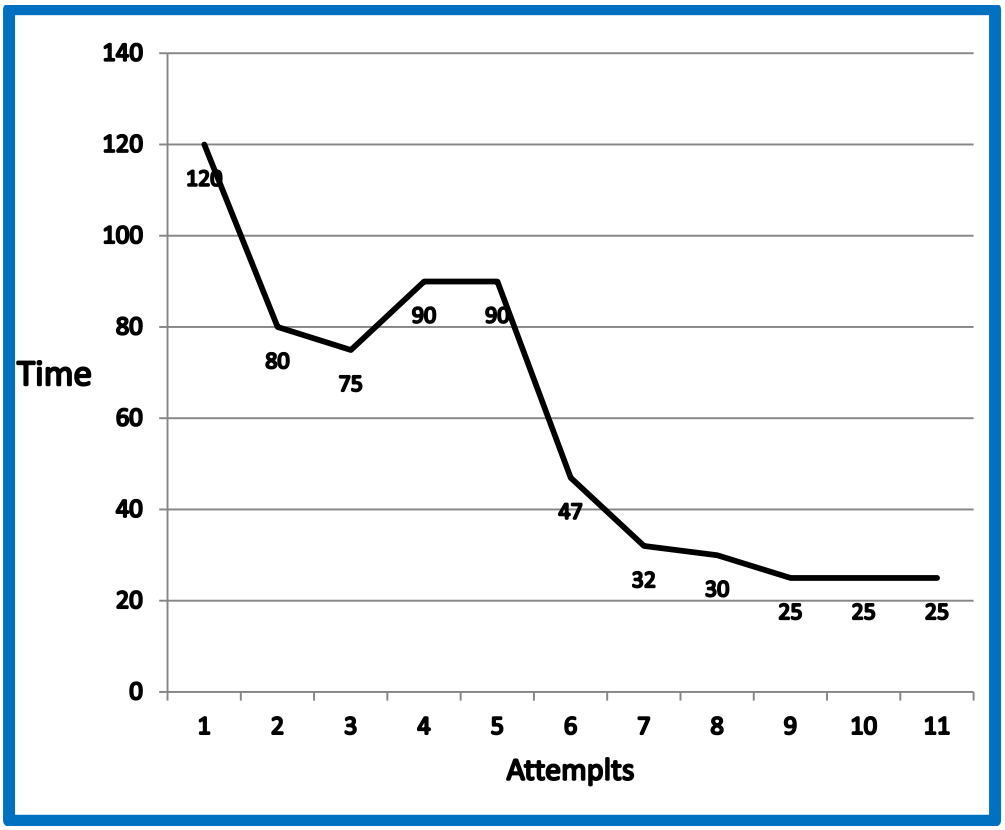
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Problem
Does learning progress at a uniform rate throughout the period of learning? Does equal amount of practice at various stages of the learning process results in equal amount of learning?
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Problem
Enlist three strategies to overcome learning plateau?
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Problem

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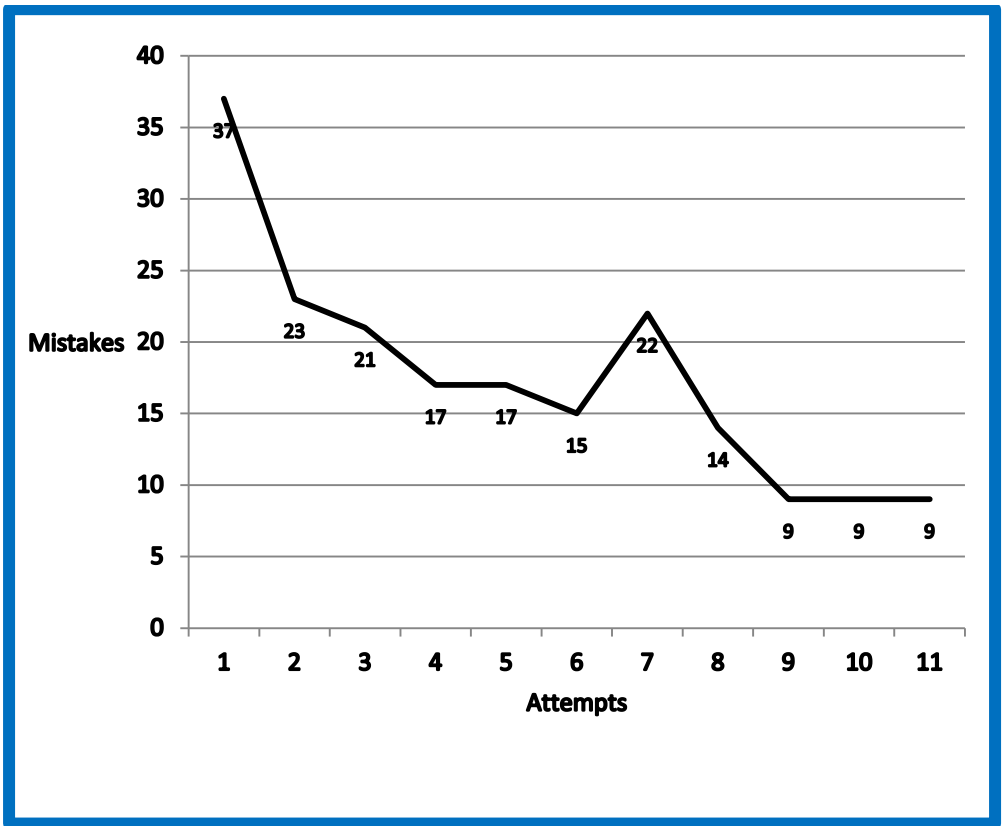
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Practical Problem

How to break through any learning plateau and never stop growing?

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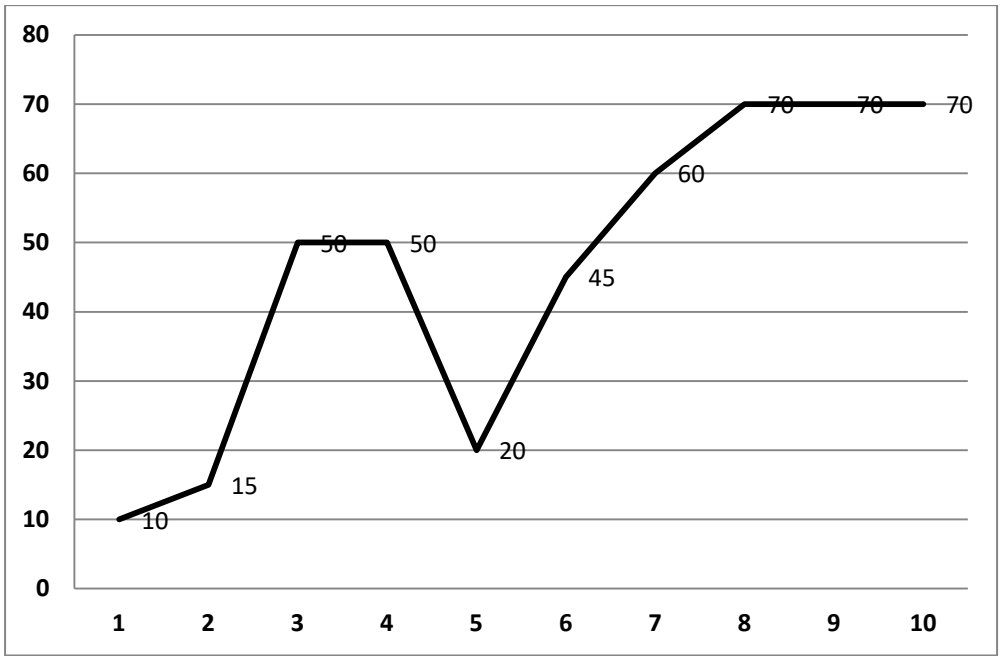
Problem

Outline the different parts of the below learning curve: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Problem

Show by drawing how can you pairs bad subject/mornings -> dislike of mornings

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Practical Problem

Write the scientific term of each of the following:

1. If UCS, CS no longer paired --> animal's response rate decreases --> pair is brought back, animal spontaneously recovers conditioned reflex ……………………………
2. Most recent thing an organism does is the most likely thing they'll do again ……………………………
3. When one CS is paired with a US, it will become conditioned to that US. If, after initial conditioning, CS is

paired with a second CS (B) and presented to the organism as a compound stimulus, little or no conditioning occurs to CS (B). It is as if the initial conditioning to CS (A) somehow blocked any conditioning to CS (B). …….

4. B=f(P,E) Nature and nurture interact in the shaping of individuals. ……
5. Identifying forces which drive people toward a goal, and hindering forces which block movement toward a goal. ……
6. Three styles or climates of leadership, usually associated with groups or management Authoritarian, democratic, Laissez faire…….
7. Association of two events because of repeated pairing……
8. Event that activates behavior ……..
9. Observable reaction to stimulus …….
10. Gradual disappearance of a learned response……..
11. Responding in the same way to similar stimuli.……
12. Changes in behavior, thinking or emotions that occur through observing another person – a model ……
13. Interpretation of sensory information ……..
14. Focus on a stimulus ……
15. Parts of the human body that receive sensory information …….
16. System of receptors holding sensory information very briefly ……
17. View that emphasizes the active role of the learner in building, understanding, and making sense of information……

Problem

Give examples within your subject matter regarding conditional, procedural, and declarative knowledge?

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Practical Problem

Select the correct answer:

Learning may be defined as a …… change in behavior that occurs as the result of experience.

A. Relatively permanent
B. Sensitization
C. Fixed
D. Continuous

If the UCS is subsequently omitted, the CR will experience

A. Reinforcement
B. Extinction
C. Learning
D. Association

Two performance characteristics can be observed with performance curves: Improvement and consistency.

A. True
B. False

It reflects the preservation of the original CS-UCS association after extinction training.

A. Reinforcement
B. Spontaneous recovery
C. Generalization
D. Discrimination

The best description for UCS is..

A. A stimulus that automatically elicits a response
B. A previously neutral stimulus that comes to elicit a conditioned response
C. Produced by association
D. Influenced by the intensity of learned response

In Pavlov's experiment …… is considered an unconditioned response.

A. Meat powder

B. Sleeping
C. Food
D. Salivation

Generalization is a reaction to ……..

A. Pairing
B. Similarities
C. Differences
D. Association

For classical conditioning, which of the following statement is true?

A. The CS must be a reliable predictor of the UCS
B. There must be a higher probability that the UCS will occur when the CS has been presented than when it has not
C. Both statements are correct
D. Neither of the two statements is correct

The child may expect playfulness only from dogs that look like hers. This refers to……...

A. Association
B. Discrimination
C. Generalization
D. Extinction

Punishment is the ……. of reinforcement.

A. Opposite
B. Principle
C. Basis
D. Equivalent

A hungry cat is placed in a cage whose door is held fast by a simple latch and a piece of fish is placed just outside the cage. If the cat has learned to open the latch to obtain food and repeats that behavior, it is known as ……...

A. Law of effect
B. Stimulus aversion
C. Reinforcement
D. Habituation

You are absent from school for an afternoon. When you return, you read the report left by your substitute. The report states that half of your class behaved wonderfully and completed their entire assignment. The other half of the class misbehaved and did not finish their assignment. For the students who behaved, you give them free time on the computer. For the students who misbehaved, you give them an extra, more difficult assignment to accomplish. In this situation, you provided……

A. Positive reinforcement and positive punishment.
B. Positive reinforcement and negative punishment.
C. Negative reinforcement and negative punishment.
D. Negative reinforcement and positive punishment.

Behaviorism is measured on external behavior, as opposed to internal like thinking and emotion

C. True
D. False

If a teacher is consistent and repetitive with stimuli, eventually the students will come to learn to behave probably through classical conditioning?

A. True
B. False

Which of the following is part of the definition of learning?

A. Change in behavior
B. Disrupting others
C. None of the above

The class all received a chocolate bar for getting over 70% in the pop quiz ……. this is which conditioning?

A. Operant

B. Classical

The teacher rings a bell when she wants the class to stop talking. This is operant conditioning.

A. True
B. False

A primary school teacher uses a snakes and ladder reward chart you go up the ladder if you are well behaved and down the snake if you are badly behaved. Which reinforcement is it?

A. Negative reinforcement
B. Positive reinforcement
C. Both of the above

Learning is generally considered a lasting change in behavior based on ..

A. Practice and experience
B. Practice and challenge
C. Challenge and experience
D. Challenge and reinforcement

Ivan Pavlov's theory of how people learn or acquire uncomplicated habits and reflexes is called……..

A. Positive reinforcement
B. Classical conditioning
C. Operant conditioning
D. Modeling

B.F. Skinner's theory of learning through the consequences of our behavior is called …….

A. Classical conditioning
B. Operant conditioning
C. Modeling
D. Positive reinforcement

Operant conditioning is based on the following type of reinforcement……

A. Positive
B. Negative
C. Continuous
D. All of the above

All of the following are examples of negative reinforcement except …….

A. Punishment
B. Taking away an unpleasant stimulus
C. Being rewarded by being relieved of discomfort
D. Avoidance learning or motivation

Two broad types of schedules of reinforcement are …….

A. Continuous and intermittent
B. Steady and random
C. Primary and secondary
D. Implicit and explicit

All of the following are true about learning through modeling except……

A. Skills are learned by observing another person perform the skill
B. It is commonly used to learn simple habits and reflexes
C. It is considered a form of social learning
D. Skills are learned in the presence of others

All of the following are true of informal learning except

A. It is planned learning that occurs without a formal classroom or teacher
B. It is unplanned learning that occurs without a formal classroom or teacher
C. It is a way of learning complex skills in the workplace
D. It is only helpful for learning simple skills in the workplace

Which of the following statements is part of Thorndike's Law of Effect?

A. Behaviors caused by intrinsic motivation are more likely to lead to reinforcement
B. Behaviors followed by reinforcements or punishments are equally likely to occur again in the future
C. Behaviors followed by punishments are more likely to occur again in the future
D. Behaviors followed by reinforcements are more likely to occur again in the future

Soheil tries a new study strategy to prepare for an important test, and then gets an A on that test. According to Thorndike's Law of Effect, how is Soheil most likely to react?

A. Soheil will probably believe his teacher is simply rewarding effort, not his mastery of the subject
B. Soheil will probably attribute his good grade to external factors, such as luck
C. Soheil will be less likely to use that study strategy the next time he prepares for a test
D. Soheil will probably use that study strategy the next time he prepares for a test

Thorndike is best known for the experiments where he ……..

A. used cats in puzzle boxes to study the effect of reinforcement and punishment on behavior
B. used dogs in puzzle boxes to study the effect of reinforcement and punishment on development
C. used cats in cages to study the effect of reinforcement and punishment on development
D. used dogs in cages to study the effect of reinforcement and punishment on behavior

Gestalt is a word of

A. German language

B. Latin language
C. Persian language
D. None of these

Gestalt approach has been duly acknowledged in methodology and teaching of……

A. Sports
B. Learning attitudes
C. Teaching and learning
D. None of these

If you 'fill in' the lines to complete an abstract graphic image - such as all the black spaces suggesting a full picture of a panda - you are applying the principle of …….

A. Similarity
B. Proximity
C. Closure
D. Abstraction
E. Figure-ground

According to Vygotsky, what is the process of constructing an internal representation of external physical objects or actions?

A. Accommodation
B. Scaffolding
C. Internalization
D. Naive psychology

A cornerstone of Vygotsky's theory of cognitive development is that society and culture play a key role in promoting development. What type of perspective is this considered to be?

A. A naive psychology perspective
B. An autonomous learning perspective
C. A linguistic perspective
D. A socio-cultural perspective.

Many children in kindergarten enjoy playing 'house.' How does the value of play benefit young children, according to Vygotsky?

A. Play should be encouraged because it allows the teacher a chance to assess the students
B. Play should be encouraged because it allows children time to have fun
C. Play should be encouraged because it promotes new cognitive skills
D. Play should be discouraged because allowing children to pretend slows cognitive development

What is the "Zone of Proximal Development"?

A. When children are influenced by culture
B. The ability to keep attention span
C. Playing with dolls and cars
D. The compactly to learn, by one self, with the help of an adult.

Vygotsky belief that children construct knowledge.

A. True
B. False

Vygotsky postulates that learning cannot be separated from its social context.

A. True
B. False

Within the Constructivist Theory, language does not place a central role in mental development.

A. True
B. False

According to Constructivist Theorist, "Collaborative learning is highly beneficial to the mental development of a learner.

A. True
B. False

Who discovered that people can learn new information and behaviors by watching other people, also known as Social Learning Theory?

A. Erik Erikson
B. Albert Bandura
C. Jean Piaget.
D. Abraham Maslow.

In order for observational learning to occur, the observer must pay attention to the occurring behavior, be able to remember observed behavior, and be motivated to produce the behavior. Which of the following is missing from the above list?

A. Recognize the behavior
B. Describe the behavior
C. Ignore the behavior
D. Replicate the behavior

Which of the following is NOT one of the four elements of observational learning?

A. Attention
B. Retention
C. Defiance
D. Motivation/Reinforcement

Modeling, rewards/reinforcements, and promoting self-efficacy are all ways to apply social learning theory in which environment?

A. classroom
B. Daycare
C. Friend's House
D. Home

Determining human behavior can be influenced by all factors EXCEPT which of the following?

A. Cognitive factors
B. Environmental factors
C. Behavioral factors
D. Physical factors

Which of the following is one way a teacher can model a skill or behavior by giving verbal instructions on a daily basis?

A. Verbal instruction modeling
B. Live modeling
C. Symbolic modeling
D. No modeling is being used

Extrinsic and intrinsic are two types of what?

A. Behavior
B. Languages
C. Motivation
D. Punishment

Mary receives a piece of bubble gum for turning in her homework with all correct answers, while another student turns in his homework expecting a piece of bubble gum but does not have all correct answers. What type of reinforcement is the teacher providing?

A. Negative reinforcement.
B. Self-reinforcement.
C. Direct reinforcement.
D. Vicarious reinforcement.

The three types of observational learning effects include all of the following EXCEPT?

A. Inhibition
B. Disinhibition
C. Mimicking
D. Facilitation

Constructivism is a teacher centered theory.

A. True
B. False

The ideal learner is innovative and self-directed.

A. True
B. False

Students working and learning together is not a part of constructivism.

A. True
B. False

Teaching lessons that can relate to students' life experiences is a good method according to constructivism.

A. True
B. False

In constructivism, learning is ……..

A. Passive
B. Assertive
C. Active
D. Fun

What is a teaching strategy in which the teacher helps the student gain new skills and builds on prior knowledge called?

A. Repetition
B. Role plying
C. Scaffolding
D. Cooperative learning

Anchored instruction is a model for what kind of learning?

A. Social-based
B. Reading-based
C. Project-based
D. Cooperative learning
E. Technology-based

Bandura believed that behavior is learned from the environment.

A. True
B. False

When the likelihood of carrying out a behavior is increased by simply watching the behavior and its consequences being reinforced by someone else, this is known as:

A. Social Learning Theory
B. Modeling
C. Vicarious reinforcement
D. Vicarious punishment

…….. occurs when the likelihood of an observer performing a particular behavior decreases after having seen a models behavior being punished.

A. Social learning
B. Modeling
C. Vicarious reinforcement
D. Vicarious punishment

Social Learning can be direct via instruction or indirect (eg., role models with no direct instruction)…..

A. True
B. False

Motivation is influenced by a number of factors: According to Bandura we are more likely to imitate models when:

A. We like the model, we identify with the model, we are familiar with the model and the model is consistent
B. We like the model, the model shows us affection, we are familiar with the model, we are familiar with the model and the model is consistent
C. We like the model, we identify with the model, we are familiar with the model and the model is inconsistent
D. We like the model, the model shows us affection, we are familiar with the model, we are familiar with the model and the model is inconsistent
E. We like the model, the model shows us affection, we are familiar with the model, we are unfamiliar with the model and the model is consistent.

What is the definition of a gestalt?

C. reason or explanation for change
D. portion of truth
E. part of a society
F. part of a whole

Practical Problem

According to Bandura there are four elements that account for observational learning: a……, r……., rep…… and m……... Bandura suggests that all of these elements are essential if observational learning is to occur.

Match the following aspects of Social Learning theory to the correct definition:-

1. The observer must be able to remember the behavior of the model that has been observed….

A. Retention
B. Attention
C. Reproduction
D. Motivation

2. The person must closely watch the models behavior.

A. Retention
B. Attention
C. Reproduction
D. Motivation

3. The observer has to have the ability to replicate the observed behavior.

A. Retention
B. Attention
C. Reproduction
D. Motivation

4. Learners must want to demonstrate what they have observed.

A. Retention
B. Attention
C. Reproduction
D. Motivation

Practical Problem

Complete the following table:

	Social learning	constructivism	Cognitive perspective	behaviorism
Knowledge				
Learning				
Teaching				
Role of teacher				
Role of peers				
Role of student				

	Social learning	constructivism	Cognitive perspective	behaviorism

Practical Problem: choose the correct answer:

The "Aha experience' is associated with:
(a) Classical Conditioning
(b) Insightful learning
(c) Operant conditioning
(d) Sign Learning
(e) Perceptual Learning

The first psychological research concerned with associative learning was conducted by E. L. Thorndike on:
(a) Animals
(b) Human beings
(c) Dogs
(d) Cats
(e) Chimpanzees

The theory of E. L. Thorndike reveals that the most characteristic form of learning in both lower animals and men is:
(a) Instrumental Conditioning
(b) Classical Conditioning
(c) Insightful Learning
(d) Trial and Error Learning
(e) None of the above

A principle in Thorndike's theory reveals that the strength of the bond decreases proportionately with the non-use of a particular bond or a connection over a period of time. What is the name of this principle?
(a) Law of Effect
(b) Law of Recency
(c) Law of Disuse
(d) Law of Frequency
(e) None of the above

'Negative Reinforcement' and 'Punishment' are:

(a) Similar terms
(b) Dissimilar terms
(c) Similar to some extent
(d) Similar depending on the situation
(e) None of the above

Negative reinforcement involves the termination of a pleasant situation while punishment involves causing an unpleasant condition in an attempt to eliminate:
(a) Any response
(b) Desirable Behavior
(c) Undesirable Behavior
(d) Any Stimulus
(e) None of the above

Active avoidance learning is an operant procedure in which a particular response allows the animal to avoid:
(a) Punishment
(b) Stimulus
(c) Response
(d) Reinforcement
(e) None of the above

B. F. Skinner's learning theory was based largely on "laboratory experiments" whereas Hull's theory based on:
(a) Hypotheses
(b) Mathematical Deduction
(c) Experiments outside the laboratory
(d) Social Learning
(e) None of the above

According to Hull, habit strength ($S^{H}R$) is considered as an expression of:
(a) Inhibitory Potential
(b) Excitatory Potential
(c) Associative Intensity
(d) Reaction Potential
(e) None of the above

Reactive Inhibition is the result of reduction in the:
(a) Drive Strength

(b) Reaction Potential
(c) Habit Strength
(d) Inhibitions
(e) None of the above

The theorists who emphasize that learning essentially involves a change in cognition and not merely the acquisition of a response are popularly known as:
(a) Gestalt Psychologists
(b) Psychoanalysts
(c) Cognitive Theorists
(d) Functionalists
(e) Structuralists

Which type of theory of learning emphasizes the role of perception and the changes in perception during the learning process?
(a) Cognitive Theory
(b) Sign-Gestalt theory
(c) Imprinting
(d) Conditioning
(e) Insightful Learning

Clark Hull's concepts of drive reduction and incentive were borrowed by scientists investigating:
(a) Emotional Process
(b) Motivational Process
(c) Personality
(d) Perceptual Processes
(e) None of the above

The process of learning to make one response to one stimulus and a different response or no response to another stimulus is called:
(a) Generalization
(b) Successive Approximation
(c) Discrimination
(d) Behavior Modification

(e) None of the above

In Operant Conditioning, when a positive reinforcement is withdrawn following a response, it is called:
(a) Discrimination
(b) Omission Training
(c) Higher-Order Conditioning
(d) Generalization
(e) None of the above

Acquisition of material is the central objective of the:
(a) Class-room Learning
(b) Insightful Learning
(c) Latent Learning
(d) Imitation
(e) Imprinting

The very term “Social Learning” was first introduced by:
(a) Gestalt Psychologists
(b) Functionalists
(c) Behaviorists
(d) Structuralists.
(e) Psychoanalysts

Wolfgang Kohler (1887-1967) was a/an:
(a) American Psychologist
(b) German Psychologist
(c) Spanish Psychologist
(d) Swiss Psychologist
(e) Russian Psychologist

The gradual weakening of a conditioned response by repeated stimulations without reinforcement is:
(a) Extinction
(b) Generalization

(c) Discrimination
(d) Adaptation
(e) None of the above

When experimentally extinguished response reappears again after a period, it is called:
(a) Generalization
(b) Extinction
(c) Discrimination
(d) Spontaneous recovery
(e) None of the above

If the unconditioned Stimulus did not evoke the Unconditioned Response, the Conditioned Stimulus would not have the opportunity to become associated with the:
(a) Unconditioned response
(b) Conditioned response
(c) Unconditioned stimulus
(d) Similar stimuli
(e) None of the above

I. P. Pavlov (1927) chose to study the salivary response in dogs because it can be measured precisely and age has:
(a) No effect on it
(b) Considerable effect on it
(c) Negligible effect on it
(d) Some contributions towards the development of salivary glands
(e) None of the above

Extinction often only temporarily suppresses to:
(a) UCR (Unconditioned Response)
(b) UCS (Unconditioned Stimulus)
(c) CR (Conditioned Response)
(d) CS (Conditioned Stimulus)
(e) None of the above

Conditioning occurs due to close temporal contiguity between:
(a) The CS-UCS presentation
(b) The CR-UCR presentation
(c) The CS-CR presentation

(d) The UCS-UCR presentation
(e) None of the above

The interfering effects of stimulus generalization can be overcome by:
(a) Generalized Discrimination
(b) Unconditioned Discrimination
(c) Conditioned Generalization
(d) Conditioned Discrimination
(e) None of the above
Disordered behaviors are also understood in terms of:
(a) Trial and Error Learning
(b) Conditioning
(c) Insightful Learning
(d) Latent Learning
(e) None of the above
Thorndike's Law of Effect was found acceptance in theories of learning by later psychologists named:
(a) Hull and Skinner
(b) Pavlov and Watson
(c) Kohler and Koffka
(d) Barry and Schwartz
(e) None of the above
Who was awarded the Nobel Prize in Medicine in the year 1904 for his experimental investigations into the physiology of digestion, particularly the reflex secretions of the salivary, gastric and intestinal glands?
(a) I. P. Pavlov
(b) J. B. Watson
(c) Sigmund Freud
(d) C. G. Jung
(e) None of the above
A conditioned response (CR) is established by a series of contiguous pairings of:
(a) UCR and CR
(b) UCS and CR

(c) CS and US
(d) CS and UCR
(e) None of the above

If CS is repeated without reinforcement, CR gradually:

(a) Becomes established and static
(b) Shows an increase
(c) Calls for a generalization gradient
(d) Weakens and disappears
(e) None of the above

In the basic experiment of Pavlov on conditioning, food is the:

(a) Unconditioned Stimulus (US)
(b) Conditioned Stimulus
(c) Generalized Stimulus
(d) Discriminating stimulus
(e) None of the above

The process which increases the strength of the response (CR) as a result of presenting the CS in association with the US is known as:

(a) Token Economy
(b) Contiguity
(c) Reinforcement
(d) Auto-shaping
(e) None of the above

In classical conditioning experiment, the reinforcer is not viewed as a reward for good work and reinforcement is just an inevitable arrangement of presenting the:

(a) CS accompanied by the US
(b) CR accompanied by the UCR
(c) UCS accompanied by UCR
(d) CR accompanied by CS
(e) None of the above

In experiments of Classical Conditioning, as the training proceeds, CR amplitude:

(a) Increases
(b) Decreases
(c) Remains constant

(d) Is converted into auto-shaping
(e) None of the above

A well established CR gradually weakens and ultimately fails to occur if the CS is repeatedly presented:

(a) With the reinforcement of US
(b) Without the reinforcement of US
(c) With biological constraints
(d) Without biological constraints
(e) None of the above

Extinction refers to CR decrement following omission of the:

(a) Incentive
(b) Food
(c) Reinforcer
(d) Contingency
(e) None of the above

Extinction is:

(a) Temporary
(b) Permanent
(c) Also a reinforcer
(d) A secondary motive
(e) None of the above

According to Pavlov, the excitatory process was supposed to be connected with the occurrence of:

(a) Contiguity
(b) Biofeedback
(c) Spontaneous Recovery
(d) Reflexes
(e) None of the above

Classical Conditioning theory reveals that the inhibitory process (inhibition) is supposed to be connected with the non-occurrence of the:

(a) Reflexes
(b) Contiguity between CR and UCR
(c) Contiguity between CS and UCS
(d) Contiguity between CR and UCS

(e) None of the above

If reinforcement is given at regular intervals:
(a) The CR may appear at the usual time although the US is not presented
(b) The CS may appear at the usual time although the US is not presented.
(c) The CR may appear at the usual time although the UCR is not presented
(d) The UCS may appear at the usual time although the UCR is not presented
(e) None of the above

It is likely that word meanings are learned by way of:
(a) Operant conditioning
(b) Trial and Error Learning
(c) Insightful Learning
(d) Classical Conditioning
(e) None of the above

Skinner (1935) distinguished two classes of responses. These are:
(a) Positive and Negative
(b) Respondents and Operants
(c) Permanent and Temporary
(d) Formal and informal
(e) None of the above

Who thought that conditioning is not only the prototype of all learning but that the most complex human behavior and experience could be reduced to Pavlovian conditioned reflexes?
(a) J.B. Watson
(b) W. Kohler
(c) B. F. Skinner
(d) Clark L. Hull
(e) None of the above

The return in strength of conditioned response (CR) after an interval of time following extinction is called:
(a) Spontaneous recovery
(b) Generalization
(c) Association
(d) Revival
(e) None of these

Which one of the following psychologists is associated with a theory of learning?
(a) Sigmund Freud
(b) C. G Jung
(c) E. L. Thorndike
(d) Fechner
(e) Binet

Reward or punishment is a/an:
(a) Motivating Factor
(b) Distracting Factor
(c) Enhancing Factor
(d) Reinforcing Factor
(e) Facilitating Factor

In Operant conditioning, the innate behavior is instrumental in bringing out the:
(a) Conditioned Response
(b) Conditioned Stimulus
(c) Unconditioned Stimulus
(d) Unconditioned Response
(e) None of the above

In Pavlovian conditioning:
(a) Neither stimulus nor response changes
(b) For the same stimulus, a different response is made
(c) The same response is made to a different stimulus
(d) Both stimulus and response change

(e) None of the above

Once a conditioned response (CR) has been established with a given stimulus, similar stimuli will also evoke that response. In Classical Conditioning this phenomenon is called:
(a) Primary Reinforcement
(b) Secondary Reinforcement
(c) Discrimination
(d) Generalization
(e) None of the above

Sudden perception of the relationship between the learner, the goal and the intervening obstacles occurs in:
(a) Pavlovian Conditioning
(b) Insightful Learning
(c) Operant Conditioning
(d) Transfer of Training
(e) Trial and Error Learning

A response may be more resistant to extinction if reinforcement in conditioning trials has been:
(a) Continuous
(b) Never given
(c) Periodic
(d) Temporary
(e) None of the above

"Programmed instruction" is based on the principle of:
(a) Operant Conditioning
(b) Pavlovian Conditioning
(c) Verbal Learning
(d) Insightful Learning
(e) Trial and Error Learning

The theory of "Insightful Learning" was propounded by the:
(a) Behaviorists
(b) Gestalists
(c) Structuralists

(d) Functionalists
(e) None of the above

Most human behavior is governed by the principle of:
(a) Latent Learning
(b) Trial and Error Learning
(c) Classical Conditioning
(d) Instrumental Conditioning
(e) None of the above

Conditioning can be established to stimuli which are:
(a) Both pleasant and unpleasant
(b) Only pleasant
(c) Only unpleasant
(d) Only previously conditioned
(e) None of the above

Acceptable behavior can be brought into the open by:
(a) Feedback
(b) Generalization
(c) Punishment
(d) Reward
(e) Discrimination

Reinforcement for a response is necessary in:
(a) Trial and Error Learning
(b) Latent Learning
(c) Operant Conditioning
(d) Insightful Learning
(e) None of the above

Gradual disappearance of a conditioned response in the absence of reinforcement when the conditioned stimulus is presented leads to:
(a) Discrimination
(b) Generalization
(c) Spontaneous Recovery
(d) Experimental Extinction

(e) None of the above

Learning means:
(a) A set
(b) Imitation
(c) Temporary change in behavior
(d) Readiness to read
(e) Relatively permanent modification in behavior

Learning is an association between stimulus and:
(a) Animal
(b) Organism
(c) Past Experience
(d) Response
(e) None of the above

Suppose in an experiment, Stimulus (S_1) is food, response for S_1 is salivation (R_1); Stimulus S_2 is bell, response for S_2 is listening i.e. R_2; Classical Conditioning of salivation will relate:
(a) Si to R_1
(b) S_2 to R_2
(c) S, to R_2
(d) R, toR2
(e) S_2 to R_1

The law of learning that an act which has a satisfying effect will be learned more quickly than one which had a satisfying effect is called:
(a) Law of Exercise
(b) Law of Readiness
(c) Law of Effect
(d) Law of Intensity
(e) None of the above

Which one of the following method is not used in verbal learning?
(a) Paired-associate learning
(b) Serial learning
(c) Cognitive Learning
(d) Discrimination Learning

(e) Verbal-Discrimination learning

Specialization in any field of study involves more and more:
(a) Discrimination
(b) Generalization
(c) Punishment
(d) Reinforcement
(e) Feedback

The meaning of motor-skill is:
(a) Manipulation
(b) Learning to operate machines
(c) Learning to drive motor cars
(d) Learning which involves mainly the use of muscles
(e) None of the above

In Classical Conditioning, reinforcement is not contingent on response, but it is quite definitely so in:
(a) Instrumental Conditioning
(b) Latent Learning
(c) Trial and Error Learning
(d) Insightful Learning
(e) None of these

Many learning theorists have believed that Pavlovian conditioning is based on the principle of association by contiguity, whereas instrumental training is accomplished through the:
(a) Law of Exercise
(b) Law of Intensity
(c) Law of Effect
(d) Law of Contiguity
(e) None of the above

In Instrumental Conditioning, the response is actually instrumental in producing the:
(a) Punishment
(b) Stimulus
(c) Reward
(d) Extinction

(e) None of the above

The organism is not reinforced unless it makes the correct response in:

(a) Classical Conditioning Learning
(b) Instrumental Conditioning
(c) Trial and Error
(d) Auto-shaping
(e) None of the above

Who recommended the term "Operant Conditioning" which means behavior operates upon the environment to produce reinforcement?

(a) E. L. Thorndike
(b) W. Kohler
(c) I. P. Pavlov
(d) B. F. Skinner
(e) None of the above

A negative reinforcer is one which the organism generally:

(a) Avoids and rejects
(b) Produces and preserves
(c) Perceives and learns
(d) Attends and responds
(e) None of the above

The crucial feature of instrumental conditioning is that:

(a) It always uses a Skinner box
(b) Response is followed by reward accordance with some definite plan
(c) Stimulus is followed by reward accordance with some definite plan
(d) It is only applicable for human beings
(e) It is only applicable for animals

Practical Problem

Based on the example below, identify the components of classical conditioning.

"You dislike your study because it is very stressful, and you are having trouble getting everything done on time and feel incompetent. You notice that every time you start to get ready for study and put on your materials, you feel nauseated".

UCS: ……

UCR: ……

CS: ……

CR: ……..

Practical Problem

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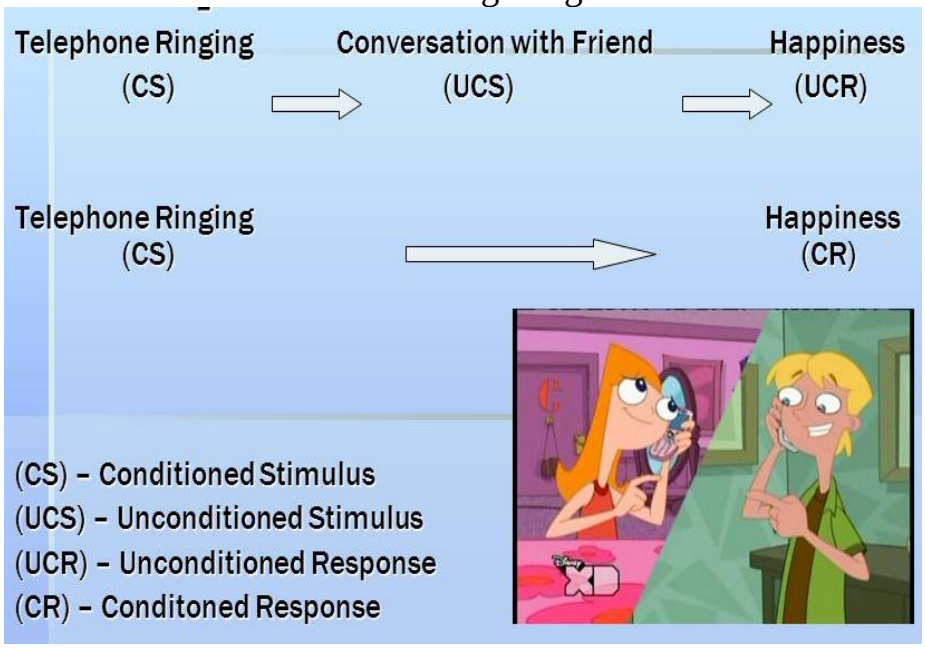

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Practical Problem

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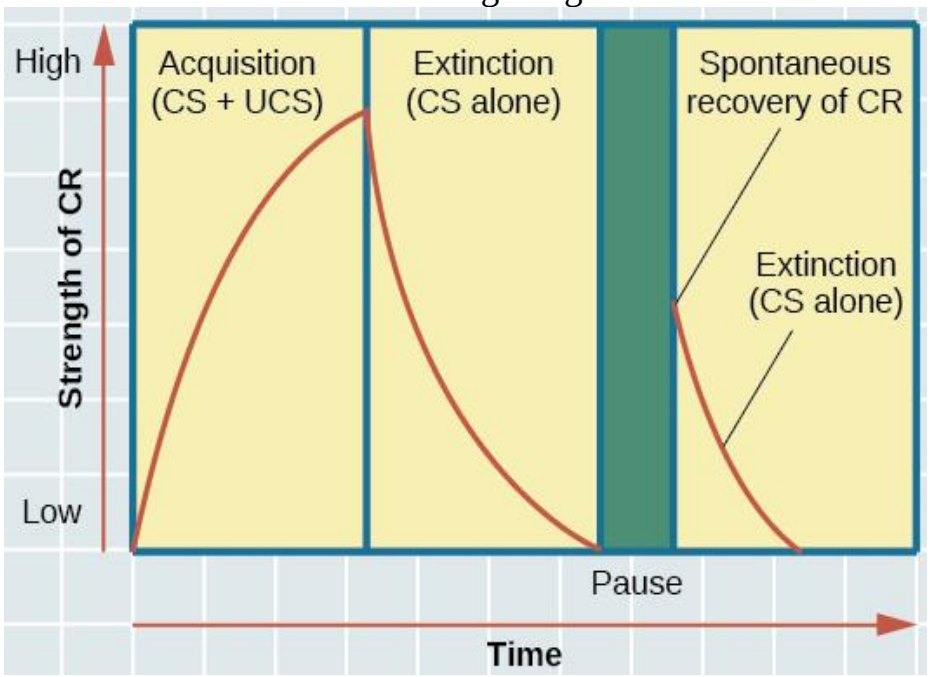

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Practical Problem

Sample Problem

George failed to make his first payment toward his student loan after graduating from Kentucky Technical College, and as a result he receives frequent phone calls from a bill collector. The bill collector is never nice, nor is he very compassionate about George's financial situation. After a few minutes of arguing with the bill collector, George's typical response is to hang up on the bill collector. Over time, George comes to associate the sound of the ringing telephone with a feeling of dread.

1. The ***ringing phone*** represents what part of George's learning?
   a. Unconditioned stimulus (US)
   b. Conditioned stimulus (CS)
   c. Unconditioned response (UR)
   d. Conditioned response (CR)

2. George's ***conversation with the bill collector*** represents what part of his learning?
   a. Unconditioned stimulus (US)
   b. Conditioned stimulus (CS)
   c. Unconditioned response (UR)
   d. Conditioned response (CR)

3. After George argues with the bill collector, he ***hangs up the phone***. This represents what part of his learning?
   a. Unconditioned stimulus (US)
   b. Conditioned stimulus (CS)
   c. Unconditioned response (UR)
   d. Conditioned response (CR)

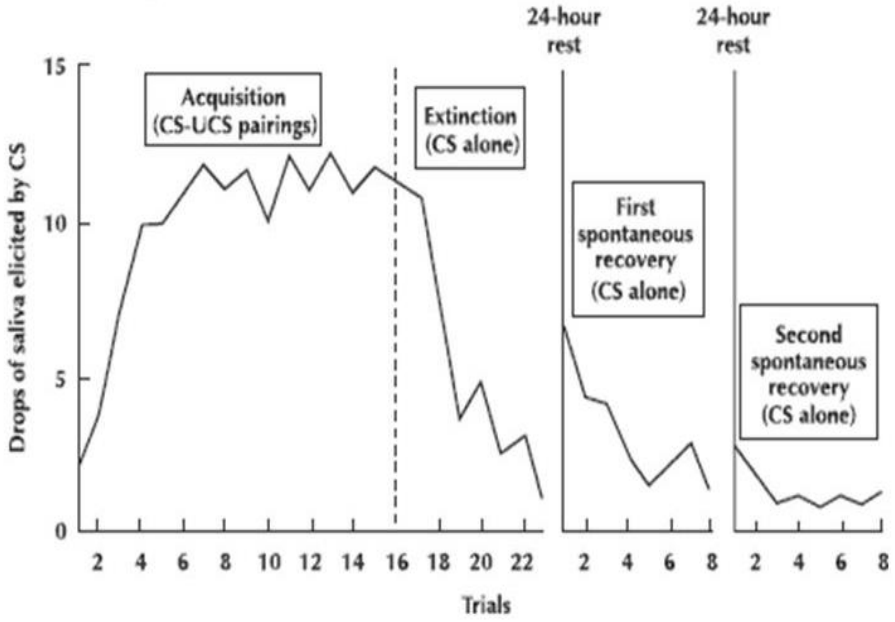
Graph analysis exercise

Identify when the graph (during which trial), the following events happen:

Acquisition

Extinction

Spontaneous recovery



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Practical Problem

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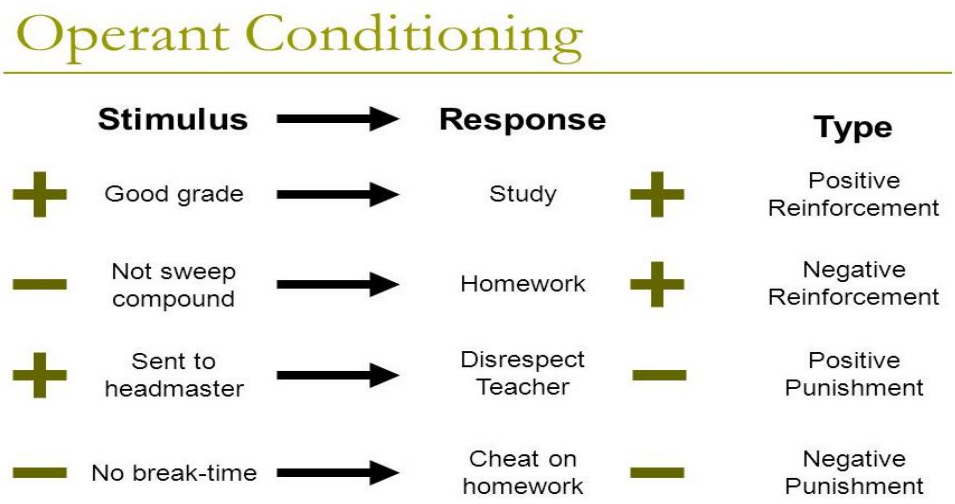

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