

SECTION B
MUSIC, EDUCATION AND DEVELOPMENT

CHAPTER FOUR

MUSIC PEDAGOGY AND THEORIES OF LEARNING: IMPLICATIONS FOR CLASSROOM TEACHING AND LEARNING

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Abstract

The paper investigates music pedagogy and theories of learning with an emphasis on implications for classroom teaching and learning. The methodology for the study surveys, which according to Nworgu 2006 is “one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be representative of the entire population” (pp. 72-73). The theories of learning investigated include the Trial and Error propounded by Edward Thorndike, Classical Conditioning by Ivan Pavlov, Operant Conditioning by B. F. Skinner and the Cognitive learning propounded by Koffka, Kohler, and Wertheimer. Findings reveal that each learning theorist emphasizes what the teacher should do to help the learner achieve the objectives of the teaching/learning process. Based on the findings, some recommendations are made among which is that teachers should go through these theories of learning to equip themselves better for their interaction with the learners in the classroom.

Keywords: Pedagogy, Theories of learning, Trial and error, Classical conditioning, Operant conditioning and Cognitive learning theory.

Introduction

There are two broad divisions under which Psychology is divided. These are Psychology I: Child Development and Psychology II: Learning Theories. During the first phase of child development, the teacher is acquainted with the stages of development of the child. The teacher is also acquainted with the different characteristic developmental traits of the child at each stage of development. Children undergo various changes in terms of physical, speech, intellectual and cognitive development gradually until adolescence. Specific changes occur at specific ages of life, known as developmental milestones, these changes can help you track whether your child is developing at the correct pace. Failure to reach these milestones may indicate developmental disorders or genetic conditions.

Some developments, in behaviour and thought, are very similar for all children. Around the world, most infants begin to focus their eyes, sit up, learn to walk at comparable ages, and children begin to acquire language and develop logical reasoning skills at approximately the same time. These aspects of individual growth are highly predictable. Other aspects of development show a much wider range of individual differences. Whether a child becomes outgoing or shy, intellectually advanced or average, energetic or subdued depend on many unique influences whose effects are difficult to predict. (Ross A. Thompson; Microsoft © Encarta © 2009. © 1993-2008 Microsoft Corporation.)

Experts differ in their division of child development into different stages. Some have described children's development in four stages, some in five stages and others in six stages. Although the number of stages differs, what remains essentially the same are the changes that take place at a particular age or age range. Most developmental disorders or genetic conditions are diagnosed by the time a child reaches adolescence.

According to medicine.net, Child development can be described in the five stages below:

- 1. Newborn:** During the first two months of life, newborns react automatically to external stimuli. A newborn can move their head from side to side, see close-up objects, turn towards sounds and cry to indicate a need. By the third month of life, newborns start to smile at people.
- 2. Infant:** A lot of new abilities develop quickly by the time a child turns one year old. At 3 to 6 months of age, infants can recognize familiar faces, begin to babble, control their head movements and bring their hands together. By 6 to 9 months of age infants start sitting without support, may bounce when held in a standing position and respond to people calling their names. Infants start communicating with gestures. Between 9 and 12 months old, children point at things, pick up objects, crawl and even stand with support. Children can imitate sounds and gestures.
- 3. Toddler:** When children are between one and three years of age, they can stand alone, learn to walk without help, begin to run and climb stairs with short steps. Children can wave bye-bye, hold a pencil or crayon, draw a circle, learn to say several words and even short sentences and even follow simple instructions. Children can sing simple songs imitating adolescents or adults.
- 4. Preschool:** Between 3 and 5 years of age, children's motor skills become refined. Children can throw and catch a ball, skip and hop, learn to dress themselves and draw proper structures such as a flower. They can speak a complete, long sentence and even two to three sentences in a stretch easily with toilet training, they begin to go to the toilet in the bathroom and use the facility all by themselves by the age of four years.
- 5. School-age:** School-age is the age between 6 to 17 years old. During this age, children learn to become independent and form their own opinions. Learning, speaking and writing become well established. Children develop various emotions such as jealousy, love and many more and can express them through words and gestures. They develop friendships and usually make best friends at this stage. Sexual development around and after puberty makes children interested in dating.

Psychology II

This area deals with the major theories of learning, their origin, their protagonists, the basic experiments conducted and their results, the elements of learning in other words the conditions that favour learning. The second section of the learning theories deals with the actual learning itself or the concept of learning, the process of learning, the criteria of learning, the fundamentals of learning, the implications and applications of the theories of learning whose origins are studied to the educational situations. In other words, how do we apply these theories of learning to the actual learning situation in the classroom? This means detailed examination and application of the major theories of learning.

Concept of Learning: Definitions of learning can be different according to the type of learning,

the learning process, the learning situation and the learners themselves. The definition adopted for this study is that by Ezeanolue (1982): “Many psychologists feel that the most comprehensive definition of learning is that learning is a relatively permanent change in behaviour resulting from activity, training or experience.”

He went on to explain the fact that the last word indicates that learning is also experiencing. However, the comprehensive definitions above have three distinct components: (a) that learning is a behaviour change, but this component is not complete in itself. This is so because not all changes in behaviour can be regarded as learning. When a child is born, his behaviour or activities gradually change from sitting to crawling to standing, to walking and to running. These are certain changes in behaviour. (b) The second component of the definition above is that the change must be relatively permanent. The momentary changes in behaviour cannot be regarded as learning. A change in behaviour that can be regarded as learning must persist for a span of time. (c) The third component of the above definition according to Ezeanolue is that “the change must be due to activity or training.” Changes due to fatigue or frustration cannot be regarded as learning. Changes due to alcoholic drinks cannot be regarded as learning. Emotional changes in behaviour cannot be regarded as learning and changes in behaviour due to accidents cannot be regarded as learning.

The Theories of Learning:

There are two major groups of theories of learning. They are as follows:

1. The Associative Learning Theories or Behaviorists Theorists:
Under the Associative Learning theories we have (a) The Trial and Error propounded by Edward Lee Thorndike (b) Classical Conditioning propounded by Ivan Pavlov (c) Operant Conditioning Learning Theory propounded by B. F. Skinner.
2. The Cognitive Learning Theory: The Cognitive Learning Theory was propounded by Kofka, Kohler and Wakemia.

We have to survey these learning theorists to find out their origins, their experiments and emphasize their different aims in carrying out these experiments and the educational implications.

1. The Associative Learning Theorists:
 - a. The Trial and Error: The Trial and Error Learning theory was propounded by Edward Lee Thorndike (1874 - 1949). He was the first American Psychologist who propounded the Trial and Error theory of learning. As a result of his contributions, he was regarded as the Father of Psychology. He was born in America in the year 1874 and by 1898 at the age of 24 years, he was a Doctor and a Professor of Psychology. According to Thorndike “all learning takes place because of formation of bond or connection between stimulus and response.” He further says that learning takes place through a process of approximation and correction. A person makes a number of trials until he gets satisfactory responses. Thorndike conducted a number of experiments on animals to explain the process of learning.
Aim: He wanted to experiment with how organisms can learn by doing. This learning by doing he refers to as Trial and Error.

Thorndike's Experiment: Edward Thorndike had a Puzzle Box. Inside the puzzle box, he had a hungry organism. The box was locked and the organism was inside. Thorndike placed food outside the box in such a way that the food was visible but inaccessible to the organism. The hungry animal made several efforts (trial and error) until accidentally, it pressed the button that

opened the box and when the box opened, he jumped out or escaped. It pounced on the food and ate it. After eating the food, Thorndike sent the animal back to the puzzle box. After some time, the animal became hungry again, it pressed the button and the box opened. The experiment aimed to see how organisms can learn by doing. It learned the appropriate button to be pressed in order to open the box.

The significance of the Thorndike puzzle box is that learning can occur through trial and error, it showed that the connection between stimulus and response is not always obvious and may need to be discovered through trial and error. (Study.com)

According to Ezeanolue (1982), Thorndike's experiment can be related to the fundamentals of learning namely:

a) Drive: Drive is one of the fundamentals of learning. This means that it is one of the factors which stimulate the organism to behave, act, and participate to try to learn. A drive is something like hunger and thirst. When the organism is hungry, it will be stimulated to start seeking food as a need to satisfy the drive. The drive is hunger while food is the need. It is the drive that makes activities possible. The drive helps to set goals, goals help to initiate the effort. Effort leads to the satisfaction of a drive. A reward to satisfy the drive- a reward for effort made in the right direction.

b) Response: Response is one of the important fundamentals of learning. An effort is made according to the drive or the motivation or stimulating factor. This effort is the exercise of the activity of the organism in an attempt to satisfy the need. The response is made to the environment which stimulates the organism. The environment constitutes the stimulus and the activity or exercise on the environment constitutes the response and so we have stimulus-response. When the exercise is performed rightly, it is rewarded or reinforced but if the exercise is performed wrongly, it is negatively instead of positively reinforced. In order for that response may be well directed, there is the need for a cue.

c) Cue: A cue is an attraction like colour-white or anything that directs your movement purposefully. It is the cue that directs your response towards the goal.

d) Reward (Reinforcement): When a response or exercise is performed in the right direction or appropriately, it rightly achieves the goal, and when it gets at the goal it is rewarded. This reward is a reinforcement or an encouragement. The response which receives a reward is repeated and learned but the response which is not rewarded is eliminated and not learned. The implication is that the teacher has to motivate or stimulate the child to want to learn.

The laws of learning

Thorndike, Edward Lee initiated three important laws of learning which include:

1. The Law of Readiness

Readiness in relation to maturation simply means ripening or functioning properly. It means developing the ability to perform. In other words maturing the necessary parts for proper functioning like developing the ability to stand, walk, crawl and run etc. However, readiness under Thorndike's law is a little different. Here it means having the appropriate experience to perform. It means preparedness, the entering behaviour for a new lesson. There are two types of readiness. One refers to maturation while the other one refers to the acquisition of the necessary experiences to serve as entry behaviour to the new lesson.

2. The Law of Exercise

Thorndike propounded the law of exercise. According to him, the learner must do in order to learn. He must exercise, participate, explore, think, answer questions, discuss, illustrate, demonstrate, summarize, write, play, sing, dance etc. Learning by doing is very important because it encourages active and not passive learning. It promotes understanding through exploration. It helps the memory and makes for retention. When the child is stimulated (Stimulus) he responds or exercises (R). This gives us the S-R Bond. Listening is no learning but doing or exercising is learning. If the learner is being taught the keyboard, for instance, the best opportunity for the application of the law of exercise is the provision of a pianoforte keyboard that the learner will actually play. It is the learner that will enhance learning since the keyboard is a concrete representation of reality in the teaching/learning process.

3. The Law of Effect

Edward Thorndike initiated the law of effect. By this, he meant the feedback after a response, in other words, he meant the effect of the exercise performed by the learner. If this exercise attracts a failure or is not rewarded then the effect is negative. Effective learning does not occur because the exercise will not be repeated. But if the exercise succeeds and is rewarded, it is therefore repeated and learned. If the exercise is rewarded the S-R Bond is strengthened, but if it is not rewarded, the S-R Bond is weakened.

The Actual Learning Theory

The second experiment of the Associative Learning theory is Classical Conditioning.

(b) Classical Conditioning

This learning theory was propounded by Ivan Pavlov and can also be called respondent learning. The classical conditioning learning or S-R Bond theory can also be called signal learning. It was the aim of Pavlov to find out how to present instruction for effective learning. Pavlov experimented with the following apparatus (i) a dog, (ii) food (iii) a bell and (iv) a soundproof room. It was natural for the hungry animal to satisfy its need for food because it had a drive-hunger.

Step 1: When the dog was hungry, Pavlov presented food to the hungry dog. When the food was presented, the hungry dog salivated. The food represents stimulus while salivation is the response. This can be represented diagrammatically thus:

S-----R
 Food-----Salivation
 Stimulus-----response

It is natural for the animal to salivate and the response is a natural response because food is natural for any living organism. Step I shows a natural process.

Step II: Pavlov sounded the bell and presented the food simultaneously. The organism responded to the sounding of the bell paired with the presentation of the food. Diagrammatically represented we have:

S	S-----	R
Stimulus, Stimulus		Response
Bell	Food	Salivation

Step III: Pavlov sounded the bell and presented the food simultaneously a second time. The dog responded similarly the same way by salivating.

S S----- R
 Bell Food Salivation

Step IV: The next step was as before and there was

S S----- R
 Bell food Salivation

Step V: Step V came up differently:

S----- R----- S----- R
 S1----- R1----- S2----- R2
 Stimulus 1 Response 1 Stimulus 2 Response 2

Sounding of the bell

Here, the aim is to find out whether the bell has acquired the power to elicit saliva and whether the animal can respond to the sound of the bell without presentation of food.

S----- R----- S----- R
 S1----- R1----- S2----- R2
 Sounding of the bell Response Presentation of food Response 2
 Stimulus Salivation Stimulus 2 Salivation

Since conditioning has taken place, the power of the bell to elicit saliva has been transferred to the bell. This refers to the law of exercise. As the teacher experiments, the learner is doing the same thing.

Step VI: At this stage, the bell is sounded without food and therefore there is less salivation.

Step VII: At this stage, the bell is sounded without food again and there is no salivation at all. Here is the level of extinction.

Classical conditioning is learning through association and was first demonstrated by Ivan Pavlov. Pavlov showed that dogs could be conditioned to salivate at the sound of a bell if that sound was repeatedly presented at the same time that they were given food. First, the dogs were presented with the food, they salivated. The food was the unconditioned stimulus and salivation was an unconditioned (innate) response. Then Pavlov sounded the bell (neutral stimulus) before giving the food. After a few pairings, the dogs salivated when they heard the bell even when no food was given. The bell had become the conditioned stimulus and salivation had become the conditioned response. The dogs had learnt to associate the bell with the food and the sound of the bell and salivation was triggered by the sound of the bell. Pavlov showed that classical conditioning leads to learning by association. Watson and Rayner showed that phobias can be learnt through classical conditioning in the "little Albert (little-albert.html)" experiment. (Simplypsychology.org-Pavlov.pdf)

Educational Implications of the Classical Conditioning

From the illustrations above, we can deduce the following educational implications of this theory. However, classical conditioning is centred on the critical basic skills necessary for learning. It is not very useful for classroom teaching and learning but it is indeed applicable where there is the absence of a critical basic skill that deters the learner from effective learning of the new lesson or instruction. The basic skills form the foundation on which the new lesson is to be taught and learned. The teacher is to identify the critical basic skills required by the learner and break them down into sub-skills.

How is this related to Pavlov's experiment?

It should be noted that in presenting the skills, Pavlov did not present them all at the same time.

Steps by the teacher

1. The first step by the teacher is to identify the critical basic skills required by the learner and break them down into sub-skills. These basic skills must be easily observable and measurable.
2. The teacher should identify the terminal goal or skill which must also be easily observable and measurable. Skills are meant to be seen practised and evaluated.

Assumptions

The basic assumption underlying the associative learning theory is that the associative bonds (ties) in learning involve the pairing of stimulus events and response events in time so that from the associative bond conditioning or learning will occur. For effective learning to take place, there must be the pairing of similar events or contiguity.

Principles of the Associative Learning Theory

The associative learning theory or classical conditioning has some principles underlying it.

1. The associative bond increases in strength as a function of repeated pairings of S-R events.
2. Associative bond decreases in strength as a function of disuse.
3. Once associative bonds have been acquired, they can influence the learning of subsequent associative bonds.
4. Subsequent learning can affect the retention of prior or previous learning. This is referred to in psychology as Retro-Active Inhibition. The present learning goes back to affect the previous learning.
5. Learning is progressively arranged from simple to more complex learning.

Implications for the Teacher:

1. From the above, it is clear that the associative learning theory is designed for the teaching of the basic skills necessary for the understanding of the lesson.
2. It was the aim of the experimenter to discover how to present lessons so that effective learning will occur.
3. The experiment indicates that learning moves from low-level skills to high-level skills. Furthermore, an association of abstract terms with concrete objects will ensure effective learning, example in music the word recorder is associated with the object shown, the word ekwe is associated with the object (musical instrument, Slit-wooden drum) shown. In teaching the English Language, the word hand is pronounced with the object hand presented which means that the word is associated with the object. This learning theory is adequate for the teaching of foreign language where the child learns the skill of speaking that language example I am jumping associated with the action jumping. In mathematics, the symbol is associated with an object or a picture say 2 is associated with two pots example 002, 0003 etc.

Operant Conditioning

Operant conditioning was propounded by Dr B. F. Skinner around 1904. It was his aim to discover how reinforcement can enhance learning. This means therefore that this learning theory is centred on reinforcement.

This learning theory was designed to illustrate the shaping of habits and how reinforcement could be used in the classroom to ensure effective learning. The operant learning theory emphasizes habit formation. The operant conditioning or instrumental conditioning which is related to skinner's programmed instruction had some experimental or teaching aid namely:

Apparatus

1. The Skinner box
2. Rats and Pigeon
3. Food and flour or pellets of food.
4. Lever or bar

The organism in the experiment was hungry. In order to satisfy this drive, he started operating upon its environment hence the title operant conditioning operation.

Skinner hid a pellet of food below a lever which was a part of the environment. When the rat was operating upon its environment, it pressed on the lever. The pressing led to the appearance of food.

Skinner's experiment can be illustrated diagrammatically thus:

S1-----	R1-----	S2-----	R2
Stimulus 1	Response 1	Stimulus 2	Response 2
Lever	Pressing	Food	Salivation
Unidentifiable	Operant	Discriminative	Discriminative
Stimulus	Response	Stimulus	Response
		A Reinforcer	
		(Food)	

Why discriminative stimulus and response? The actual stimulus must be the right thing or a specific thing. The discriminating thing/object is food. The learner, the learning process and the situation is the learner's environment. Because of the stimulating and challenging environment, the pressing occurred. The lever challenged him and there was a response by the pressing of the lever. The appearance of the food was reinforcement. The only stimulus that will satisfy the need for pressing was the food and that is why it is called a discriminative stimulus.

Educational Implications of Operant Conditioning

From the experiment illustrated above, the following implications may be deduced.

Generally, the learner must do or operate in order to learn. When the learner performs appropriately it would be rewarded or reinforced positively, but if the learner behaves inappropriately, it will be reinforced negatively. In the above experiment, the concept of reinforcement is illustrated and emphasized. It is also noteworthy that reinforcement depends upon the activity or the response of the learner. This can psychologically be said that "Reinforcement is contingent upon response." In other words, rewards depend upon the learner's activity or participation.

In classical conditioning, the organism was rewarded without participation. But in the operant or instrumental conditioning, the organism was not reinforced or rewarded until he participated by pressing the lever. It can be observed that instead of stimulus variation, operant conditioning emphasizes response variation. It is the learner who should vary his activities to ensure understanding. Finally, the learning situation was carefully laid out and the learner was thrown in to explore and discover the hidden facts for himself.

Specific Educational Implications:

Other specific educational implications involved the educational situation where

1. Operant conditioning can be applied to the classroom situation
2. Secondly, the assumptions underlying operant conditioning.
3. Thirdly the principles underlying operant conditioning
4. The application of operant conditioning to a classroom situation.

The Teaching Techniques of the Operant Conditioning

This involves the systematic use of reward and punishment to:

1. Decrease the occurrence of undesirable students' behaviour.
2. Increase the occurrence of the desirable students' behaviour. However, the ultimate intention of operant learning conditioning is to ensure effective learning through judicious use of reinforcement.

Characteristics

The operant or instrumental conditioning is formally applied only where:

1. Procedures for dealing with students' problems do not work i.e. (a) The problem must have existed for sometimes (b) that other procedures must have been tried out before the application of the technique based on the operant learning theory. The problem must involve an observable student's behaviour which can be modified through the use of the techniques based on the operant learning theory. Example aggressiveness in the classroom is a disruptive student's behaviour. The behaviour must continue for a long time and many other methods have been used and failed. Then use negative reinforcement. The teacher does not have to punish at the first instance, correct the child through suggestibility.

Principles

There are some principles underlying the operant learning theory. These principles are:

1. That behaviour followed by reinforcing events increase in frequency.
2. Those behaviours not followed by reinforcing events decrease in frequency.
3. Those behaviours followed by punishment decrease in frequency.

The Cognitive Learning Theory

The cognitive learning theory was propounded by the following psychologists:

1. Kohler
2. Koffka
3. Tallman
4. Wakemia

The theory emerged as a result of criticisms against the formal learning theories like:

1. Trial and error
2. Classical conditioning
3. Operant conditioning learning theory.

These former theories were criticized in the sense that their experiments involved simple learning for humans who are complex beings. Learning by humans should be a complex one. Learning should not be a product of reflexes. Man should not learn in parts. Rote learning is not good for man. Meaningless learning is not good for human beings. The learner should not allow the teacher to think for him and to give him directives at every stage of his action. Learning should not depend on trial and error because of its obvious disadvantages.

Principles of Cognitive Learning Theory

The cognitive learning theory is based on the principles of insightful learning, learning in wholes, perceptive thinking, understanding, self-motivation, imagery, complex learning and above all application.

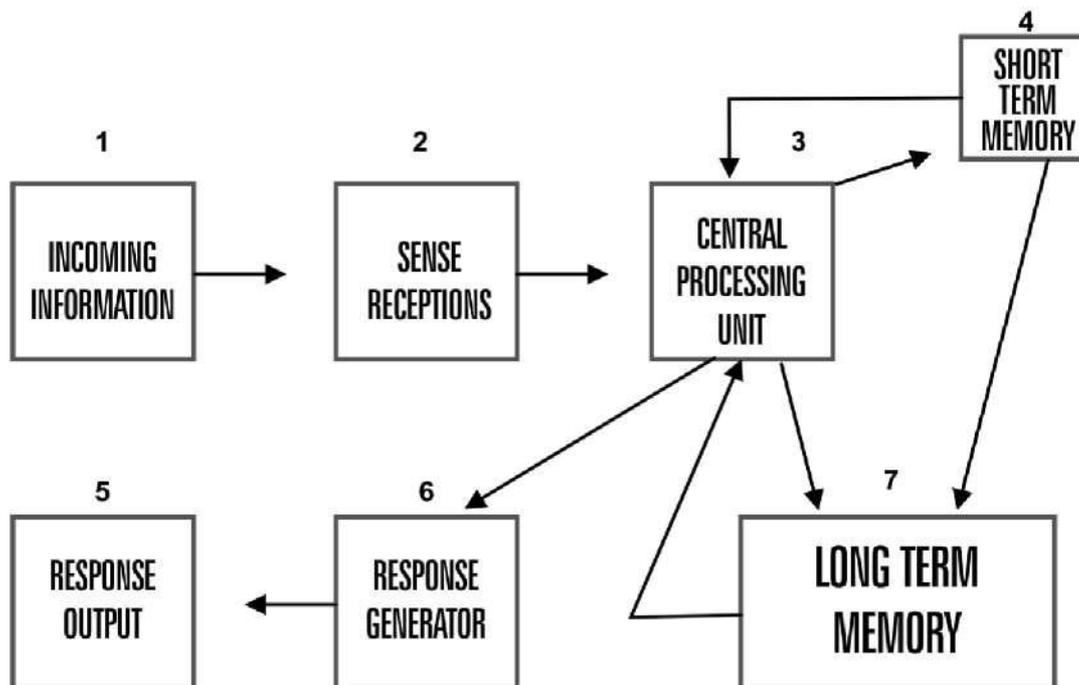
Insightful Learning

An experiment was conducted by Kohler to find out how an organism can solve a problem through a sudden flash of a solution to the problem. Kohler used the most intelligent inhabitant of an island which he called Sultan. Kohler prepared a cage or a stimulating environment and allowed the hungry Sultan to move into it. With the teaching aid available, Sultan was able to explore its environment. Sultan perceived the problem of inaccessibility to the hanging bunch of bananas at the ceiling. After thinking, the solution flashed into its mind. Consequently, it restructured the environment and was able to solve this problem.

The Cognitive Learning Model

The cognitive learning theorists also wanted to find out how information can be processed in the brain. They discovered that information passes through seven stages before retrieval.

1. Incoming information
2. Sense Receptors
3. Central Processing Unit
4. Short Term Memory
5. Long Term Memory
6. Response Generator
7. Response output



The Cognitive Learning Model
Ezeanolue (1982)

The Cognitive Learning Model

The above diagram can be grouped into 3

A: 1-3 Sector: The Processing Sector

B: 4-5 Sector: The Storage Sector

C: 6-7 Sector: The Retrieval Sector

The Elements

The elements of the Cognitive Learning Model can be briefly described as follows:

1. The Incoming Information

This is anything that the learner perceives through the senses. It could be words sentences, symbols, and signs which stimulate him.

2. Sense Receptors

These are the sense organs of seeing, hearing, smelling, tasting and touching. These organs receive the incoming information immediately after they are stimulated. They pass this information to the manager. In any learning situation, two or more of the senses may come into play for effective learning to take place. In a keyboard classroom situation, for instance, three of the senses of seeing, hearing, and touching are involved. One does not necessarily need the senses of tasting and smelling to be able to learn the keyboard.

3. Central Processing Unit

This is the manager of the whole processing unit. The manager determines the type of information that has come in. It decides whether the information is in its exact form or whether it is in its general form. Furthermore, the manager sends a rapid message to the short and long term memory to find out whether there is similar information already existing in the knowledge structure. In addition, it decides where the information should be stored. Moreover, it is responsible for the retrieval of stored information. In other words, the manager interprets the information and decides its processing, its storage and its retrieval.

4. Short Term Memory

This sector has a limited storage capacity of about seven words. It has a limited storage period of about half a second. It stores information that is in its exact form. Its main function, therefore, is to rehearse such information until it makes meaning before it is transferred to long term memory. Any information that does not make meaning decays here.

5. Long Term Memory

This is the main storehouse of knowledge. It has unlimited storage capacity. It has an unlimited storage duration. After the manager has sent a query to the long term memory, the long term memory sends the answer back to it and it then sends it to the response generator.

6. Response Generator

The response generator could be the vocal organs or the motor system. When the response is generated here, it is pushed down to the response output.

7. Response Output

This is the retrieval section. The response here may come in form of words, blows, kicks etc.

Principles

The following principles underlie the cognitive learning theory. Humans are considered to be very actively involved in the learning process. That means they are the active processors of the incoming stimulus information.

Summary:

· A critical survey of the learning theories reveals that Edward Lee. Thorndike's aim in carrying out the experiments was to find out how organisms can learn by doing. This learning by doing he refers to as Trial and Error.

Pavlov's Classical Conditioning Learning theory or Stimulus – Respond (S - R) bond theory is also called Signal Learning. It was the aim of Pavlov to find out how to present instruction for effective learning. In presenting the skills, Pavlov did not present them all at the same time. The experiment indicates that learning moves from low level to high-level skills. The first step by the teacher is to identify the critical basic skills required by the learner. When these skills have been identified, the teacher can then break them down into sub-skills. These basic skills must be easily observable and measurable. Skills are meant to be seen practised and evaluated. To summarize, classical conditioning (classical-conditioning.html)(later developed by Watson, 1913) involves learning to associate an unconditioned stimulus that already brings about a particular response (i.e., a reflex) with a new (conditioned) stimulus, so that the new stimulus brings about the same response.

Operant Conditioning by B. F. Skinner was aimed at discovering how reinforcement can enhance learning. The learning theory was designed to illustrate the shaping of habits and how reinforcement could be used in the classroom situation to ensure effective learning.

In Classical conditioning, the organism was rewarded without participation. But in the Operant or Instrumental conditioning, the organism was not reinforced or rewarded until he participated by pressing the lever. It can also be observed that instead of stimulus variation, operant conditioning emphasizes Response variation. It is the learner who should vary his activities to ensure understanding. Finally, the learning situation was carefully laid out and the learner was thrown in to explore and discover the hidden facts for himself.

The Cognitive Learning Theory was propounded by Kohler, Koffka, Tallman and Wakemia as has been earlier discussed. The theory emerged as a result of criticisms against the formal learning theories like trial and error, classical conditioning and operant conditioning learning theories. These former theories were criticized in the sense that their experiments involved simple learning for humans who are complex beings. Learning should not be a product of reflexes. Man should not learn in parts. The rote learner is not good for man. The learner should not allow the teacher to think for him and to give him directives at every stage of his action. Learning should not depend on trial and error because of its obvious disadvantages.

The Cognitive learning theory is based on the principles of insightful learning, learning in wholes, perceptive thinking, understanding, self-motivation, imagery, complex learning and above all application. The Cognitive learning theorists also wanted to find out how information is processed in the brain. They discovered that information passes through seven stages before retrieval in the following order: 1. Incoming information; 2. Sense receptors; 3. Central processing unit; 4. Short term memory; 5. Long term memory; 6. Response generator and 7. Response output.

The following principles underlie the Cognitive learning theory. Humans are considered to be very actively involved in the learning process. That means they are the active processors of the incoming stimulus information.

Recommendations:

Based on the above findings, the following recommendations are made:

- Teachers should go through these theories of learning to equip themselves better for their interaction with the learners in the classroom.
- A teacher who is knowledgeable in identifying the critical basic skills required by the learner and can break them down into sub-skills is more equipped for helping the learner achieve better results in the classroom situation.
- Teachers who are aware of the importance of reinforcement are ready to apply both positive and negative reinforcement when necessary. They should bear in mind that negative reinforcement can only be applied when all the efforts towards the application of positive reinforcement have failed to yield good results.
- Workshops should be organized for teachers from time to time by the government. This will make them abreast of the social commitments that may emerge as a result of sudden changes in society.

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