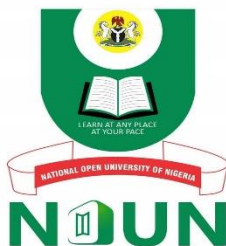


COURSE GUIDE

EDU321 PSYCHOLOGY OF LEARNING

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**MAIN
COURSE**

CONTENTS		PAGE
Module 1	Conceptual Clarification.....	1
Unit 1	Concept of Learning and Learning Process	1
Unit 2	Study of Psychology of Learning and its Importance to the Teacher 5.....	7
Unit 3	Factors Affecting Learning	12
Module 2	Theories of Learning and their Educational Implications	18
Unit 1	Overview of Learning Theories.....	18
Unit 2	Pavlov's Theory of Classical Conditioning	22
Unit 3	Thorndike's Theory of Connectionism.....	30
Unit 4	Skinner's Theory of Operant Conditioning	37
Unit 5	Applications of Operant Conditioning	51
Unit 6	Bandura's Social Learning Theory.....	59
Unit 7	Cognitive Fields Theory of Learning	67
Module 3	Permanency in Learning	77
Unit 1	Motivation in Learning	77
Unit 2	Theories of Motivation in Learning.....	88
Unit 3	Transfer of Learning.....	100
Unit 4	Retention in Learning: Memory, Remembering and Forgetting	110

MODULE 1 CONCEPTUAL CLARIFICATION

Module Structure

Unit 1	Concept of Learning and Learning Process
Unit 2	Study of Psychology of Learning and its Importance to the Teacher
Unit 3	Factors Affecting Learning

UNIT 1 CONCEPT OF LEARNING AND LEARNING PROCESS

Unit Structure

- 1.1 Introduction
- 1.2 Learning Outcomes
- 1.3 Concept of Learning and Learning Process
 - 1.3.1 Definition of Learning and its Attributes
 - 1.3.2 Five Stages of Learning Process
- 1.4 Summary
- 1.5 References/Further Reading/Web Sources
- 1.6 Possible Answers to Self-Assessment Exercises



1.1 Introduction

When you hear the word Learning, what comes to your mind? How would you describe learning? Have you ever thought about what goes on in the process of learning? How does an individual learn a set of knowledge, skills, habits, interests, attitudes and similar other things in life? Such questions have always been a subject of enquiry and investigation before psychologists. This unit will introduce you to what Psychologists refer to as Learning. Here, we will define and clarify the concept of learning and discuss some of its attributes. We will also look at the processes through which learning can take place i.e., how an individual acquires learning.



1.2 Learning Outcomes

By the end of this unit, you will be able to:

- define the concept of learning and discuss some of its attributes
- discuss the five stages of learning process.



1.3 Concept of Learning and Learning Process

1.3.1 Definition of Learning and its Attributes

An Overview of Learning

Learning is a psychological concept that cuts across psychology and education. Learning is the most important factor in understanding human behaviour. You are learning, as you read your course materials, watch videos, and engage in a discussion. Learning is also involved in many other aspects of life. You learn to ride a bicycle, drive a car, cook, and to play football. Learning influences behaviour to such a great extent that it is one of the most important concepts that psychologist's study. In fact, learning occupies a very important place in our lives. Most of what we do or do not do is influenced by what we learn and how we have learnt it.

Learning occurs right from the birth of the child and proceeds until he/she dies. Learning is acquired due to the prior experience one has gained. A child may learn from their environment consciously or unconsciously, and in the process, their behaviour is being modified either negatively or positively. However, the essence of enrolling in the school is to acquire desirable/positive behaviour under the tutelage of the teacher. Learning involves acquiring knowledge and skills through experience (Lumen Learning, 2020). To this end, learning can be described as a process by which an individual:

- i. acquires a novel idea or experience to a situation;
- ii. retains and applies the idea, skills and knowledge in solving the confronting problems.
- iii. modify one's behaviour by the experience gained in the past and making the change permanent.

What is Learning?

Learning has been defined in many ways: To a layman learning refers to knowing something. 'We learn what we are taught. To some, it is the process of acquiring knowledge. Psychologists do not agree with the simplistic layman's view about learning. We need to have a clear understanding of what psychologists refer to as learning. From a psychological point of view, learning is defined as a relatively permanent change in behaviour that occurs as a result of experience or practice. Note the key words in this definition – 'permanent' 'change' 'behaviour' 'experience'.

This definition emphasises four attributes of learning:

1. Learning involves change in behaviour, be it good or bad.
2. The change in behaviour must be relatively permanent. For instance, a temporary change in behaviour due to fatigue, illness, alcohol, drugs are not considered learning.
3. Only change in behaviour acquired through experience or practice is considered learning. Experience may be acquired directly through practice or observation or indirectly through reading. The child brings changes in their behavior after gaining experiences from the environment. Let us look at the term learning from this scenario:

While a child is approaching a burning match stick, he/she gets burnt and withdraws. The next time when the child faces a burning match stick, they would waste no time in withdrawing themselves away. The child learns to avoid not only the burning match stick but also all burning things. When this happens, we say that the child has learnt that if one touches a flame, one gets burnt. In this way, we say that the experience gained brings a change in the behaviour of that child.

4. Finally, learning is universal and continuous. It is not confined to our schooling only. As a matter of fact, learning is a life-long process. It is not limited to any age, sex, race or culture.

What is NOT considered learning?

- A change in behaviour due to fatigue, illness, alcohol, drugs are not considered learning. Why? That is because it is not permanent. For instance, the change in the behaviour of a drunkard cannot be regarded as learning since such a change in behaviour is not permanent.
- Some behaviour cannot be described as being learnt because they occur at the moment of anatomical maturation. This type of learning occurs as one matures physically. For example, a child does not learn how to walk, eat or talk but acquires these skills as he/she advances in age. This behaviour is regarded as “specie-specific behaviour” (Ayeni, 1991).

In other words, learning does not include the changes in behaviour on account of maturation. However, maturation must take place before learning can take effect. For instance, when you look at the stages of a

child's development, you can see that the child first knows how to eat, then knows how to sit, to crawl about, stand, walk, run about, and knows how to speak. The child is now capable of doing some things which they could not do earlier in life. Would you consider those changes that occur in the stages of that child's development (being able to eat, sit, crawl, stand, walk, run and speak) as learning? No, they are not considered learning because those changes in the behaviour of the child came about as a result of maturation.

Self-Assessment Exercises 1

1. From a psychological viewpoint define the concept of learning
2. Mention five changes in behaviour that cannot be regarded as learning

1.3.2 Five Stages of Learning Process

In order for learning to take place in the school, the teacher plays a significant role in guiding the learner by motivating him towards learning activity through which he can achieve a purposeful goal. To achieve this, there are defined and clear processes of learning through which the desired changes will take place. These include:

1. **Sensation** – This is the process of receiving, translating and transmitting message from the environment to the brain. This process normally goes through bodily senses of sight, hearing, feeling, touching, smelling, tasting etc. These bodily senses are generally referred to as gateways to knowledge.
2. **Perception** – This is the process of organising and interpreting information received from the outside world. Sensation and perception are closely interrelated. Sensation causes the individual to turn his head, eyes or body in a particular direction while perception maintains the length of attention or consideration focused upon the direction of thing.
3. **Association** – This is the third stage in learning process. It is the ability of connecting one's new experience with his previous experience. Integrating the new knowledge or skills to previous experience
4. **Generalisation** --. This is the fourth stage in learning which involves the establishment of principles, theories, inferences, laws,

conclusions or rules based on the knowledge and skills one has acquired.

5. **Application** – This is the final stage in the learning process. It is the process of using or applying the new knowledge or skills to solve problems in actual life situation.

Self-Assessment Exercises 2

Explain the first stage of learning process



1.4 Summary

This unit has exposed you to the definition of learning and its attributes. You also learnt the five stages of learning process. Now that we have examined the concept of learning and identified its attributes, I will expect that you begin to think about how this knowledge can guide you in helping your learners adjust to the learning process.



1.5 References /Further Readings/Web Sources

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1.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. From a psychological viewpoint learning is defined as a relatively permanent change in behaviour that occurs as a result of experience or practice.
2. Five changes in behaviour that cannot be regarded as learning include change in behaviour due to the following factors: fatigue, maturation, illness, drugs, and alcohol.

Answers to SAEs 2

1. The first stage of learning process is **Sensation** – This is the process of receiving, translating and transmitting message from the environment to the brain. This process normally goes through bodily senses of sight, hearing, feeling, touching, smelling, tasting etc. These bodily senses are generally referred to as gateways to knowledge.

UNIT 2 STUDY OF PSYCHOLOGY OF LEARNING AND ITS IMPORTANCE TO THE TEACHER

Unit Structure

- 2.1 Introduction
- 2.2 Learning Outcomes
- 2.3 Study of Psychology of Learning and its Importance to the
 Teacher
 - 2.3.1 Concept of Psychology
 - 2.3.2 Relevance of the Study of Psychology of Learning
- 2.4 Summary
- 2.5 References/Further Reading/Web Sources
- 2.6 Possible Answers to Self-Assessment Exercises



2.1 Introduction

In the previous unit, we focused on clarifying the concepts of learning and some of its attributes. I believe you can now describe and define the concept of learning from your own understanding. In this unit you will be exposed to the concept of psychology and understand why the study the psychology of learning is of importance to the teacher. Have you ever wondered why people behave the way they do and why they do the things they do? Psychology as a branch of knowledge is devoted to the study of behaviour of human beings and animals. To this end, the relevance of psychology cannot be doubted, more importantly that the well-trained teachers will need it to understand the behaviour of their students in relation to the learning process.



2.2 Learning Outcomes

By the end of this unit, you will be able to:

- define the concept of psychology
- discuss the need for the study of psychology of learning



2.3 Study of Psychology of Learning and its Importance to the Teacher

2.3.1 Definition of Psychology

What is psychology? Psychology is the scientific study of the mind and behaviour. It is the study of the mind, how it works, and how it affects behaviour. A human being usually exhibits moods of joy and anger, have different learning ability and interact differently. When all these happen, we are eager in finding the circumstances that are surrounding these actions and make judgment in our own way. Psychology provides clues to these phenomena in a more scientific way. Therefore, Oladele (1998) describes psychology as a science subject which seeks to comprehend, predict and control the behaviour of man and lower animals. Psychology is premised on logical ways for knowing, explaining, controlling and improving behaviour. Psychologists attempt to find answers to (a) how human beings and animals receive stimuli from their environment and their perceptions about such stimuli (b) how organisms learn and remember experiences (c) how they differ in their characteristics and (d) cope with various problems in life in order to understand the complex nature of organism and to contribute to better standard of living of organisms.

Self-Assessment Exercises 1

1. What do you understand by the term Psychology?
2. Why do we need to study psychology?

2.3.2 The Relevance of the Study of Psychology of Learning

The relevance of the study of psychology of learning can never be over-emphasised. This is because since the main objective of the school as an institution is to bring about desirable changes in the behaviour of the learner through the process of learning, it demands therefore that all those who will engage in bringing about these changes should understand the approaches of learning in order to develop effective teaching strategies and be able to manage their classrooms competently.

The need for the study of psychology of learning includes the following:

- **To understand the theories of learning:** There is the need to understand the theories of learning so that the teacher will be able to apply the principles of those theories in classroom situations.
- **To understand Individual differences:** There is the need to understand the individual differences in learning among learners so that the teaching methods selected by the teacher can care take care of the individual differences existing among the learners.
- **To master the concept of motivation:** There is the need for the teacher to master the concept of motivation developed by various theorists of learning in order to understand the needs and motives of the learners at different age levels and be able to organise those activities which create interest and motivation in them.
- **To understand the process of remembering and forgetting:** The teacher needs to understand the process of remembering and forgetting so that they can utilise efficient methods to minimise the percentage of forgetfulness.
- **To help the learner to transfer skills:** With the knowledge gained from the study of psychology of learning, the teacher can help the learners to transfer skills and information acquired in classroom to life situations outside the school.

Self-Assessment Exercises 2

As a teacher in training, give three reasons why you need to study psychology of learning



2.4 Summary

An attempt has also been made to define the concept of psychology. The importance of psychology of learning to the teacher was also discussed. There is a vital need for the study of psychology of learning most especially by those who engage in imparting knowledge. This is because the more they understand the principles of learning, the more efficiently they become in guiding classroom teaching and learning



2.5 References/Further Reading/ Web Sources

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2.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. Psychology is the scientific study of human behavior. Psychology is a science subject which seeks to comprehend, predict and control the behaviour of man and lower animals.
2. We need to study psychology for us to understand why humans behave the way they do and to find the circumstances that are surrounding their actions and make judgment in our own way. Again, we need to study psychology to find answers to (a) how human beings and animals receive stimuli from their environment and their perceptions about such stimuli (b) how organisms learn and remember experiences (d) how they differ in their characteristics and (d) cope with various problems in life in order to understand the complex nature of organism and to contribute to better standard of living of organisms.

Answers to SAEs 2

1. Three reasons why the study of psychology of learning is of importance to the teacher
 - To understand the theories of learning: There is the need to understand the theories of learning so that the teacher will be able to apply the principles of those theories in classroom situations.
 - To understand Individual differences: There is the need to understand the individual differences in learning among learners so that the teaching methods selected by the teacher can care take care of the individual differences existing among the learners.
 - To master the concept of motivation: There is the need for the teacher to master the concept of motivation developed by various theorists of learning in order to understand the needs and motives of the learners at different age levels and be able to organize those activities which create interest and motivation in them.

UNIT 3 FACTORS AFFECTING LEARNING

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcomes
- 3.3 Identification and Classification of Major Factors Affecting Learning
 - 3.3.1 Factors Resident in the Learner (Personal Factors)
 - 3.3.2 Factors Resident in the Teacher
 - 3.3.3 Factors Resident in the Environment
- 3.4 Summary
- 3.5 References/Further Reading/Web Sources
- 3.6 Possible Answers to Self-Assessment Exercises



3.1 Introduction

In the previous unit, we discussed the concept of psychology and the relevance of psychology of learning to the teacher. In this unit we shall focus our attention on Factors affecting learning. Have you ever wondered on why some learners excel at school, while others struggle? Well, it may interest you to know that in the learning environment, there are three variables that affect the efficiency of learning, namely; the learner, the teacher and the environment. You are going to learn how each of these variables can affect the way a learner learns.



3.2 Learning Outcomes

By the end of this unit, you will be able to:

- discuss the factors resident in the learner that can affect learning
- explain in what ways the factors resident in the teacher can affect the way a learner learns
- discuss the environmental factors that can affect the learner.



3.3 Identification and Classification of Major Factors Affecting Learning

3.3.1 Factors Resident in the Learner (Personal Factors)

Certain factors are innate or personal to the learner that are specifically unique to him/ her. These factors include intelligence, physical health,

personality patterns, attitudes, maturation, and motivation, which affect the way students learn. Let's take a closer look at these factors.

Intellectual ability

Whatever genetic traits that the learner has inherited at conception become very crucial in the rate of learning of the child. Research studies revealed that intelligence is positively related to learning ability of the children, hence intellectual ability affects learning. Pupils with low intelligence often encounter serious difficulty in mastering schoolwork. Some students can readily understand abstract concepts, while others need extra effort to grasp the meaning of concepts. Everyone has different intellectual strengths and weaknesses.

Physical health

Under this group are included such factors as visual and physical defects and ill health. It is generally recognised that ill health retards physical and motor development and ultimately interferes with learning. The health of the learner will likely affect his ability to learn and his power to concentrate. Children suffering from visual, auditory, and other physical defects are seriously handicapped in developing skills such as reading and spelling.

Personality patterns and attitudes

The learner's self-worth and personality have been found to affect learning. We have many likes and dislikes and beliefs and opinions which predispose us to behave in certain ways. Our attitudes may be positive, negative or neutral. For instance, if we are inclined towards reading books, we will have a positive attitude towards books. Thus, the positive or negative predisposition within a person has important motivational components. When students have a positive attitude towards the school, they will like school and are likely to endeavour to do well in school.

Maturation for readiness to learn

Learning is directly dependent on maturation. i.e., maturation determines the readiness for learning. No learning can take place unless the individual is matured enough to learn. The child will not learn if he/she is not prepared and matured mentally to start learning. Readiness is an important condition for learning. It has been observed that some parents like to push their children to school even when such children are not yet matured to

start school, parents should wait for the child to be mentally ready before the child is allowed to start school.

Motivation

Motivation also affects learning. Motivation refers to the drive to action. Motivation is at the heart of learning process. It generates the will in an individual to do something. A learner's motivation and will power to learn is a great deciding factor of his/her success in learning. It is presumed that if an individual has will to learn, then automatically he/she will find ways for effective learning. When teaching a concept, always consider how the material is relevant to your students' lives, because when individuals see the reason for learning, their motivation increases, which would ultimately affect the way the learning process of students.

Learning Factors

Factors owing to lack of mastery of what has been taught, faulty methods of study, and learning style may affect the learning process of any child.

Self-Assessment Exercises 1

Discuss how the physical health of a child can affect his/her learning process?

3.3.2 Factors Resident in the Teacher

Teacher's behaviour and personality

The teacher's personality is an important element in the success and failure of the learner. The teacher's personality is composite of his physical appearance, his mental capacity, his emotional behaviour and his attitudes. If the teacher is one that uses the cane frequently or shouts angrily at pupils, the efficiency of learning will be negatively affected. If the teacher shows a preference towards certain students or uses derogatory and humiliating language, that can also affect the learning process of the child. Teachers must therefore recognise that in all the activities in the classroom they are directly affecting the behavior of learners.

Instructional Factors

The teacher's method of teaching and mastery of subject matter are instructional factors that affect learning in school. If the teacher proceeds too rapidly and does not constantly check up on the extent to which the pupil is mastering what is being taught, the pupil accumulates a number of deficiencies that interfere with successful progress.

Self-Assessment Exercises 2

Explain how the teacher's personality can affect the way a learner learns

3.3.3 Factors Resident in the Environment

One of the factors that affect the efficiency of learning is the environment in which learning takes place. The environment includes the learner's home, school and the entire society.

Physical environment (home/school)

Certain unpleasant events in the home or school which are stored in the memory of the child throughout life could affect the child's learning process. An unhealthy home environment adversely affects the learning of the students. Dilapidated school buildings and schools without adequate equipment and instructional materials may affect the learning of the child in life. Whether at home or in school, the learning conditions must be favourable and adequate if teaching is to produce the desired results.

Socio-economic background

The impact of mother, father, other children, uncles and aunties on the learning of the child is enormous. Socio-economic background refers to the level of education of the parents, income, where they reside etc. Students come from various backgrounds. Some are poor while others come from affluent households. Students from affluent households will most likely have more educational support and resources to help them through school.

Society/cultural background

An individual's learning is mostly affected by his/her cultural background and the opportunities provided for informal and formal education. The socio-cultural environment within which the child lives has a significant impact on his/her learning. For instance, a child who comes from a society

where education is not valued may not be favourably disposed toward learning. In fact, all learning occurs with special reference to the cultural context of an individual.

Self-Assessment Exercises 3

Briefly explain how parental socio-economic status of a child can affect his/her learning.



3.4 Summary

Student learning is a multi-faceted system, which can be affected by many factors. In this unit you have become acquainted with some of the factors affecting learning. A thorough knowledge and understanding of these factors is very essential for the teachers and parents in providing and guiding learning among the children. If you are cognisant of these factors, then you will know what you can do to help your students succeed in class. Getting to know your students as individuals will help you to learn which factors might affect their learning.



3.5 References/Further Reading/Web Sources

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3.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. How the physical health of a child can affect his/her learning process

It is generally recognised that ill health retards physical and motor development and ultimately interferes with learning. The health of the learner will likely affect his ability to learn and his power to concentrate. Children suffering from visual, auditory, and other physical defects are seriously handicapped in developing skills such as reading and spelling.

Answers to SAEs 2

2. How the teacher's personality can affect the learning efficiency of her student

The teacher's personality is an important element in the success and failure of the learner. The teacher's personality is composite of his physical appearance, his mental capacity, his emotional behaviour and his attitudes. If the teacher is one that uses the cane frequently or shouts angrily at pupils, the efficiency of learning will be negatively affected. If the teacher shows a preference towards certain students or uses derogatory and humiliating language, that can also affect the learning process of the child. Teachers must therefore recognise that in all the activities in the classroom they are directly affecting the behavior of learners.

Answers to SAEs 3

1. Briefly explain how parental socio-economic status of a child can affect his/her learning.

Socio-economic background refers to the level of education of the parents, income, where they reside etc. Students come from various backgrounds. Some are poor while others come from affluent households. Students from affluent households will most likely have more educational support and resources to help them through school; while children from poor background may not have such an opportunity.

Seminar Topic

Each student is expected to present seminar paper on this topic:

“The teacher's personality is an important element in the success and failure of the learner”. Discuss”

MODULE 2 THEORIES OF LEARNING AND THEIR EDUCATIONAL IMPLICATIONS

In the units of the previous Module, we focused on clarifying the concepts of psychology, learning and the importance of psychology of learning to the teacher. In Module 2, we will turn our attention to Theories of Learning and their Educational Implications. First, we shall have a brief overview of theories of learning and then take a closer look at some of the key theories of learning and discuss how the principles of the theories can be applied to classroom practices.

Module Structure

Unit 1	Overview of Learning Theories
Unit 2	Pavlov's Theory of Classical Conditioning
Unit 3	Thorndike's Theory of Connectionism
Unit 4	Skinner's Theory of Operant Conditioning
Unit 5	Applications of Operant Conditioning
Unit 6	Bandura's Social Learning Theory
Unit 7	Cognitive Fields Theory of Learning

UNIT 1 OVERVIEW OF LEARNING THEORIES

Unit Structure

- 1.1 Introduction
- 1.2 Learning Outcomes
- 1.3 Overview of Learning Theories
 - 1.3.1 What are Learning Theories?
 - 1.3.2 Classification of Learning Theories
- 1.4 Summary
- 1.5 References/Further Reading/Web Sources
- 1.6 Possible Answers to Self-Assessment Exercises



1.1 Introduction

In the previous module, we focused on clarifying the concepts of learning and psychology. In this unit, we shall have a brief overview of theories of learning and the classification of these theories into two major camps of learning theories. As you already know that people learn differently, and that's exactly where learning theories come into play. These theories explain how the learning process happens, and understanding them will help you deliver knowledge to students in a very effective way



1.2 Learning Outcomes

By the end of this unit, you will be able to:

- define learning theories
- classify the two major camps of learning theories and outline their basic assumptions.



1.3 Overview of Learning Theories

1.3.1 What are Learning Theories?

A theory is a set of generalised statements supported by experimental evidence. A learning theory is an attempt to describe how people learn, thereby helping us to understand the inherently complex process of learning (Sivakumar, 2017). Psychologists have tried to explain how people learn and why they learn. They have conducted many experiments and on the basis of these experiments they have developed several principles and theories about how people learn. In a nutshell, learning theories are different sets of principles that explain how people learn. Why are learning theories important?

Self-Assessment Exercises 1

What do you understand by Learning theories?

1.3.2 Classification of Learning Theories

Several theories have evolved about how people learn. In the broad sense, the theories of learning may be classified into two major groups - Behaviourist theories and Cognitive field theories.

Behaviourist theories of learning focus only on external observable behaviours to explain how learning takes place. Behaviourists defined learning simply as an observable change in behaviour. They regard learning as the connection between stimulus and response (S-R), which is why they are also commonly referred to as stimulus-response (S-R) theories. They believe that all behaviours are learnt through interaction with the environment. The main proponents of these theories include Pavlov (1927), Thorndike (1928), Skinner (1968), and of course, Bandura.

Cognitive-field theory of learning pay more attention to what goes on in the learner's mind and focus on mental processes rather than observable behaviours. They emphasise the importance of perception in learning/insight learning

Self-Assessment Exercises 2

- 1.
2. What are the two major camps of learning theories?
3. Outline their basic assumptions about learning



1.4 Summary

In this unit, we have looked at definition of learning theory and identified the two major camps of theories of learning with their basic assumptions.



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1.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. A learning theory is an attempt to describe how people learn and why they learn. Psychologists have conducted many experiments and on the basis of these experiments they have developed several principles and theories about how people learn. Hence, learning theories are different sets of principles that explain how people learn

Answers to SAEs 2

1. The two major camps of the theories of learning are Behaviourist theories and Cognitive field theories.
2. Basic assumptions about Behaviourist theories:
 - Behaviourist learning theories focus only on external observable behaviours to explain how learning takes place. Behaviourists defined learning as an observable change in behaviour. They interpret learning in terms of association between stimulus and response, which is why they are also commonly referred to as stimulus-response (S-R) theories. They believe that learning occurs through interaction with the environment.

Basic assumptions about Cognitive-field theory

- Cognitive-field theory of learning pay more attention to what goes on in the learner's mind and focus on mental processes rather than observable behaviours. They emphasize the importance of perception in learning/insight learning

UNIT 2 PAVLOV'S THEORY OF CLASSICAL CONDITIONING

UNIT STRUCTURE

- 2.1 Introduction
- 2.2 Learning Outcomes
- 2.3 Behaviourist Theories of Learning and their Classroom Implications (1)
 - 3.3.1 Pavlov's Theory of Classical Conditioning
 - 2.3.2 Classroom Implications of Classical Conditioning Theory
- 2.4 Summary
- 2.5 References/Further Reading/Web Sources
- 2.6 Possible Answers to Self-Assessment Exercises



2.1 Introduction

Theories are the foundations for most of the discoveries in psychology. Several learning theories have since been developed to explain how the learners respond to particular stimuli under certain influences. In the previous unit, you learnt that the learning theories are classified into two major groups – the behaviourist theories, with Pavlov, Thorndike, Skinner and Bandura as the main proponents; and the cognitive field theories. We said the behaviourist theories of learning focus only on external observable behaviours to explain how learning takes place and that the cognitive-field theory pays more attention to what goes on in the learner's mind and focus on mental processes rather than observable behaviours. In this unit and in the units that follow you will be exposed to some of the key theories within the two camps of learning theories and how the principles of the theories can be applied to classroom practices. We will begin our discussion with those of behaviourist theories, starting with Pavlov's theory of classical conditioning.



2.2 Learning Outcomes

By the end of this unit, you will be able to:

- explain the basic principles of classical conditioning theory
- discuss the classroom implications of classical conditioning theory.



2.3 Behaviourist Learning Theories and their Classroom Implications (1)

2.3.1 Pavlov's Theory of Classical Conditioning

Ivan Pavlov (1849-1936), was a renowned Russian Psychologist. He propounded the theory of classical conditioning in learning. Classical conditioning theory explains how an organism's behaviour becomes paired with some stimuli/factors in the environment. This theory, sometimes referred to as "stimulus-substitution", represents a condition where through contiguity and repetition in a presentation of a stimulus, a learner generalises an existing stimulus-response connection to some new stimuli.

How classical conditioning works

In order to understand how classical conditioning works, it is important to become familiar with the basic principles of the process. In classical conditioning a person or animal learns to associate a neutral stimulus with an unconditioned stimulus (UCS) that naturally produces an unconditioned response (UCR). As a result of this association, the previously neutral stimulus comes to elicit the same response and thus becomes a conditioned stimulus (CS) capable of eliciting a conditioned response (CR) by itself. There are three basic phases of this process. Let's consider Pavlov's experiment.

In Pavlov's experiment, the dog salivated each time food was presented to the dog. The food in this situation is an unconditioned stimulus (UCS): a stimulus that elicits a reflexive response in an organism. The dog's salivation is an unconditioned response (UCR): a natural reaction to a given stimulus. This kind of reaction or response was referred to as unlearned/reflex action. Pavlov believed that the food (UCS) would naturally produce salivation (UCR) in dogs. This is the first stage in the process of classical conditioning.

In stage 2, a sound of the bell was presented to the dog and it did not salivate. The sound of bell is a neutral stimulus (NS), which is a stimulus that does not naturally elicit a response. When Pavlov paired the sound of the bell with the food repeatedly, the dog would produce salivation. This is what he called the conditioning stage.

At Stage 3, after sometime Pavlov then withdrew the food and presented the sound of the bell alone (CR). the dog salivated to the sound of bell alone. Wow! the sound of the bell began to elicit salivation from the dog. Thus, the sound of the bell which was previously a neutral stimulus

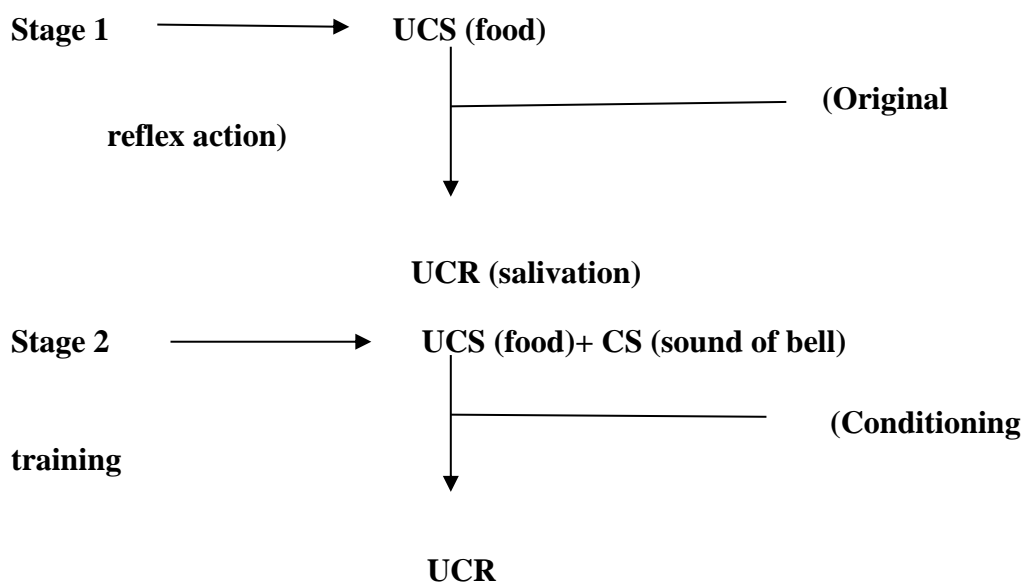
became a conditioned stimulus (CS) capable of eliciting the conditioned response by itself. At this stage learning has occurred. The dog learned to salivate at the sound of the bell. This kind of learning could be referred to as Learning by association.

As you can see, there are three basic steps/phases of this process. Let's summarise the steps as follows:

Steps in the Process of Classical Conditioning

- When food (UCS) is placed in a dog's mouth, salivation takes place (UCR): food is UCS, and the salivation UCR. (unlearnt/reflex action)
- Next, Pavlov paired the sound of the bell and food to the dog and the dog salivated CS + UCS = UCR.
- After some time, Pavlov then withdrew the food and presented the sound of the bell alone (CS). The dog salivated which is the conditioned/learnt response (CR).
- After sometime, when the sound of bell was no longer accompanied with the food, the tendency of the dog to salivate gradually diminishes until it finally stopped (Extinction Stage).
- To make the dog recover from extinction, it must be presented with food (UCS) again.

Thus, the experiment is summarised below with these graphic illustrations:



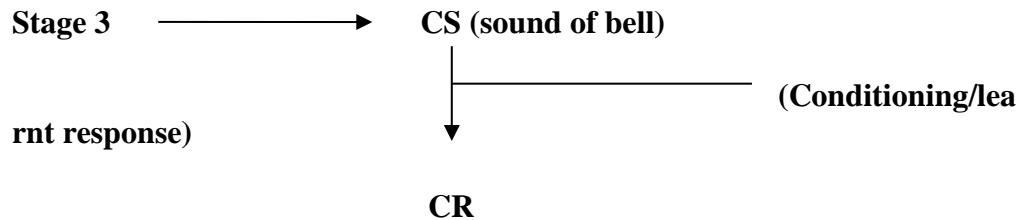


Fig. 1: Graphic illustrations of the three stages in classical conditioning

From the above illustrations the following revelations were made:

1. That when UCS alone was presented to the dog, the dog only produced UCR. i.e., the behaviour of the organism was a reflex or natural one.
2. By the time the UCS was associated with CS (bell), the dog started to condition itself to the sound of bell.
3. When CS alone was presented to the dog, it had already conditioned its response to the sound of the bell, hence, conditioned response was emitted.
4. When bell was no longer accompanied with the food, the tendency of the dog to salivate gradually diminishes until it finally stopped (Extinction Stage).
5. To make the dog recover from extinction, it must be presented with UCS again.

SELF-ASSESSMENT EXERCISES 1

- 1) Briefly describe the three steps in the process of classical conditioning
- 2) What is the meaning of Extinction stage in classical conditioning?
- 3) Fill in the missing words:
In the classical conditioning experiment, the unconditioned stimulus is __, the conditioned stimulus is the __, the unconditioned response is the __, and the conditioned response is the ____.

2.3.2 Classroom Implications of Pavlov's Theory

1. Classical conditioning primarily influences emotional behaviour. Things that make us happy, sad, angry etc. become associated with neutral stimuli that gain our attention. For example, if a teacher beats any child excessively then that child will begin to fear that teacher even after hearing his name only. On the contrary, if teacher exhibits love and affection for students, in return, the students will show full regard for that teacher.
2. Many of our fears and phobias may be traced back to some kind of conditioning. For instance, a student will feel a great deal of fear or anxiety after being punished excessively. And when he experiences the fear, he gets associated with other things in the situation. Thus, the student's fear gets tied up with taking tests, with certain teachers and in extreme cases, with school itself. In other words, punishment will discourage such students from attending the school
3. Classical conditioning has been used to remove the fear response in a child who learnt to associate painful experiences with school. Teachers are able to apply classical conditioning in the class by creating a positive classroom environment to help students overcome anxiety or fear.
4. Most of the emotional responses can be learned through classical conditioning. A negative or positive response comes through the stimulus being paired with. For example, providing the necessary school material for primary school pupils will develop good feelings about school and learning in them.
5. The principles of classical conditioning can be used in various areas of teaching-learning in the classroom. A child learns through conditioning.
6. Principles of classical conditioning are very helpful in developing good habits in children cleanliness, punctuality and respect for others. Bad habits can be eliminated through conditioning. Classical conditioning can be used for developing a favourable attitude to subjects, teachers and above all the school.
7. Some school subjects are learnt more adequately through the process of conditioning, e.g., reading, writing, spelling, and mathematics (multiplication tables) are learnt more effectively through the process of conditioning.

Self-Assessment Exercises 2

Describe two classroom implications of classical conditioning theory



2.4 Summary

We have seen that classical conditioning is a process in which an organism learns to respond in a particular way to a stimulus that previously did not bring about that response. This shows that behaviour of an organism can be manipulated using some environmental factors. In classical conditioning a person or animal learns to associate a neutral stimulus with an unconditioned stimulus (UCS) that naturally produces an unconditioned response (UCR). As a result of this association, the previously neutral stimulus comes to elicit the same response and thus becomes a conditioned stimulus (CS) capable of eliciting a conditioned response (CR) by itself. The key relevance of the theory to learning is that it emphasises learning by association. It is believed that you have greatly benefited from Pavlov's classical conditioning theory. You should be familiar with this theory and apply it to teaching-learning activities where applicable.



2.5 References /Further Reading/Web Sources

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2.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. The three steps involved in the process of classical conditioning:
 - Step 1 - Before conditioning, an unconditioned stimulus (food) produces an unconditioned response (salivation), and a neutral stimulus (bell) does not produce a response.
 - Step 2 - During conditioning, the unconditioned stimulus (food) is presented repeatedly just after the presentation of the neutral stimulus (sound of the bell).
 - Step 3 - After conditioning, the neutral stimulus alone produces a conditioned response (salivation), thus becoming a conditioned stimulus.
2. Extinction is the decrease in the conditioned response when the unconditioned stimulus is no longer presented with the conditioned stimulus.
3. In the classical conditioning experiment, the unconditioned stimulus is *food*, the conditioned stimulus is the *sound of bell*, the unconditioned response is the *salivation*, and the conditioned response is the *salivation*.

Answers to SAEs 2

Two classroom implications of classical conditioning theory:

- Some school subjects are learnt more adequately through the process of conditioning, e.g., reading, writing, spelling, and mathematics (multiplication tables) are learnt more effectively through the process of conditioning.
- Classical conditioning can be used to remove the fear response in students who learnt to associate painful experiences with school. Teachers are able to apply classical conditioning in the class by creating a positive classroom environment to help students overcome anxiety or fear.

UNIT 3 THORNDIKE'S THEORY OF CONNECTIONISM

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcomes
- 3.3 Behaviourist Theories of Learning and their Classroom Implications (2)
 - 3.3.1 Thorndike's Theory of Connectionism
 - 3.3.2 Thorndike's Laws of Learning
 - 3.3.3 Classroom Implications of Thorndike's Theory
- 3.4 Summary
- 3.5 References/Further Reading/Web Sources
- 3.6 Possible Answers to Self-Assessment Exercises



3.1 Introduction

In the previous unit we focused on Pavlov's theory of classical conditioning. In this unit, you will learn about Thorndike's theory of connectionism, who is also a behaviourist. Here, we will look at the principles of the theory and learn about the three laws of learning propounded by Thorndike and also discuss the classroom implications of his theory. He reveals that the foundation of learning is the association between sense impressions and impulses to action.



3.2 Learning Outcomes

By the end of this unit, you will be able to:

- describe the basic tenets of Thorndike's theory of connectionism
- describe Thorndike's Laws of learning
- enumerate classroom implications of Thorndike's theory.



3.3 Behaviourist Theories of Learning and their Classroom Implications (2)

3.3.1 Thorndike's Theory of Connectionism

Edward Thorndike was an American psychologist, who lived between 1874 and 1949. Thorndike titled his theory "Connectionism". He derived

this theory by using cats, puzzle box and food. According to Thorndike, the fundamental of learning is the association between stimuli and responses. These associations become strengthened, or weakened by the nature and frequency of the stimuli-responses pairings. This means that an organism will repeat the behaviour if it obtains a pleasant or satisfying stimulus after first demonstrating it. He therefore postulated that learning is a product of the relationship between stimulus and response. This connection between stimulus and response is called a stimulus-response bond, or an S-R bond. The stronger the S-R bond, the better a person has learned the lesson. Thorndike described this type of theory as learning by “trial and error”.

To establish his claim, he conducted an experiment in which a hungry cat was placed in a cage, with food outside the cage. The logic was that the cat has to escape before it could get the food. There was a release mechanism inside the cage which the cat would operate before it could get outside. At first, the cat made a series of effort trying to escape to get food. Eventually, it succeeded in operating the mechanism, which allowed it to escape and obtain food. On subsequent attempts, the random movement was reduced, and the cat concentrated much on the direction of the release mechanism until it was able to escape again. The time of escape decreased until the cat eventually operated the release mechanism as soon as it found itself in the cage. In this ‘trial and error’ fashion, the cat hit on the release mechanism to get the food.

Self-Assessment Exercises 1

Describe the basic tenets of Thorndike’s theory of connectionism?

3.3.2 Thorndike’s Laws of Learning

Thorndike propounded three laws of learning on the basis of his theory. These are the law of readiness, the law of exercise and the law of effect.

- 1. The Law of Readiness** states that a particular state of affairs will prove to be satisfying to the extent that the subject is ready for it. E.g., food is a satisfier only when the animal is hungry i.e., a child will learn best only when he/she is ready to learn. The child will not learn if he/she is not prepared and matured mentally to start learning. Schools cannot force students to learn if they are not biologically and psychologically prepared. Basic needs of students must be satisfied before they are ready to learn. Students who are exhausted or in ill health cannot learn. They can learn only when they are ready. They can learn only when they are ready. The law

is indicative of the learner's state to participate in the learning process. According to Thorndike, readiness is preparation for action. Readiness is an important condition for learning.

Educational Implications

Teachers should prepare the minds of the students to be ready to accept the knowledge, skills and aptitudes. For this, he should provide opportunities for those experiences in which students can spontaneously participate. 'Simple to Complex' is the important maxim. The teacher should assess the readiness of the learner before presenting content by identifying the knowledge the learner already has, his skills, his abilities, his motives, his experiences and make this the starting point.

2. **Law of Exercise:** This law states "Any response to a situation will, other things being equal, be more strongly connected with the situation in proportion to the number of times it has been connected with that situation and to the average vigour and duration of the connection." That is, repetition strengthens S-R bonds. According to this law, the more something is repeated, the longer it will be retained. Thorndike explained that repetition promotes learned associations (stimulus and response). Constant practice is necessary if an action is to be strengthened. Lack of practice may weaken an event.

The Law of Exercise has two parts: (a) the law of use and (b) the law of disuse.

- Law of use- the more often an association between stimulus and response (S-R) is made the stronger the connection will be. i.e., the more you do something, the better you are good at it. That is, 'practice makes perfect'.
- Law of disuse- the longer an association between stimulus and response (S-R) is unused the weaker it becomes. When a connection between stimulus and response is not made over a period of time, the strength of that connection is weakened. i.e., the lack of practice brings about forgetting.

Educational implications

More and more opportunities should be provided to the students to use and repeat the experiences they get in the classroom.

3. **Law of Effect:** This law states that if a stimulus results in a positive outcome, it strengthens the S-R bond, while if it results in a negative outcome, the S-R bond is weakened. That is, behaviours

that are followed by positive responses are likely to be repeated and those that are followed by negative responses, not repeated. This law states that learning occurs only when responses are followed by reward and satisfaction. On the other hand, if frustration or punishment is experienced by the learner, the connection between stimulus and response becomes weakened. Think about Mary who gets good grades when she studies. Every time she gets a good grade after studying, the S-R bond is strengthened, and the student learns even more that studying results in getting a good grade. On the other hand, if Mary gets a bad grade after not studying, the S-R bond between not studying and good grades is weakened. The student learns that not studying does not result in good grades.

Educational Implications

A pleasing environment should be created in the classroom. Experiences provided to the students should be satisfying and meaningful. They should be organised in the order of increasing difficulty. Material should be provided in a number of interesting ways including the use of instructional aids.

Self-Assessment Exercises 2

- 1) What is the relevance of Law of Effect on student's learning?
- 2) Which of the laws of learning can be said to reflect the adage 'practice makes perfect'?

3.3.3 Classroom Implications of Thorndike's Theory

1. The teacher should know that the students learn better when their needs and interests are considered, hence the teacher should ensure that the learning activities revolve around the students.
2. Readiness is a prerequisite for learning; the teacher is therefore advised to consider the mental or cognitive capability of the learners when planning the curriculum or instructional contents.
3. The teacher should recognise the fact that the students will like to repeat the actions for which they received positive regards. Hence, the teacher should always use various motivational strategies to sustain the interest of the students in the classroom.
4. The teacher should always present his/her materials in a logical and more coherent way. This is the major way of arresting and sustaining the interest of the learners in educational activities.

5. The teacher should consider the use of punishment as a last option in reducing the undesirable behaviour in his /her classroom. This is because the punishment cannot actually address the problem it rather hardens the students and makes them to be more violent in the classroom and it also creates behaviour problems.
6. The teacher should recognise the importance of practice in the learning process. Learning may not occur unless practice is reinforced. This means that the teacher should engage their students in assignment or homework, if a meaningful learning must be achieved.

Self-Assessment Exercises 3

List four contributions of Thorndike's Theory to classroom situations



3.4 Summary

The basis of Thorndike's theory is that learning is strengthened when accompanied by a pleasant or satisfying feeling, and weakened when associated with an unpleasant feeling. The theory stresses readiness, exercises (repetition) and effect as the conditions for learning. Every learning experience should contain elements that leave the student with some good feelings. A student's chance of success is definitely increased if the learning experience is a pleasant one. It is believed that you must have understood the tenets of the theory and the importance of readiness, exercise, and effect on the learning process.



3.5 References /Further Reading/Web Sources

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3.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. Thorndike believed that all learning is explained by connections that are formed between stimuli and responses. This connection between stimulus and response is called a stimulus-response bond, or an S-R bond. The stronger the S-R bond, the better a person has learned the lesson. In Thorndike's view, learning is the process of forming associations or bonds. Learning is achieved when an individual is able to form associations between a particular stimulus and a response.

Answers to SAEs 2

1. According to the law of effect, all learning involves the formation of S-R connections and connections are strengthened or weakened according to their consequences. Responses to a situation that are followed by satisfaction are strengthened; responses followed by discomfort are weakened. Thus, learning is strengthened when accompanied by a pleasant or satisfying feeling, and weakened when associated with an unpleasant feeling. The learner needs to have success in order to have more success in the future. It is important for the instructor to create situations designed to promote success. That is, behaviours that are followed by positive responses are likely to be repeated and those that are followed by negative responses, not repeated.
2. The law that reflects the adage 'practice makes perfect' is the Law of Exercise with specific reference to the Law of use

Answers to SAEs 3

Four contributions of Thorndike's Theory to classroom situations:

List out any four of the classroom implications described under subsection 8.3.3.

UNIT 4 SKINNER'S THEORY OF OPERANT CONDITIONING

Unit Structure

- 4.1 Introduction
- 4.2 Learning Outcomes
- 4.3 Behaviourist Theories of Learning and their Classroom Implications (3)
 - 4.3.1 Skinner's Theory of Operant Conditioning
 - 4.3.2 Reinforcement versus Punishment
 - 4.3.3 Schedules of Reinforcement
 - 4.3.4 Classroom Implications of Operant Conditioning Theory
- 4.4 Summary
- 4.5 References/Further Reading/Web Sources
- 4.6 Possible Answers to Self-Assessment Exercises



4.1 Introduction

In the previous unit you learned about Thorndike's theory of connectionism. In this unit, you are going to learn Operant conditioning theory of B.F. Skinner, who is also a behaviourist. Here, you will get to learn basic principles of the theory, different forms of reinforcement and punishment, schedules of reinforcement and, of course, also discuss the classroom implications of the theory.



4.2 Learning Outcomes

By the end of this unit, you will be able to:

- describe the basic principles of operant conditioning theory
- discuss the different forms of reinforcement and punishment
- explain the schedules of reinforcement
- discuss the classroom implications of operant conditioning theory.



4.3 Behaviourist Theories of Learning and their Classroom Implications (3)

4.3.1 Skinner's Theory of Operant Conditioning

Operant conditioning (or instrumental conditioning) is a type of learning in which an individual's behaviour is modified by its consequences.

Operant conditioning theory of learning was formulated by B.F. Skinner who was an American Psychologist. His theory came based on the lapses discovered in the classical conditioning theory. Skinner believed that classical conditioning explained only how behaviour that has already been acquired can occur in the presence of a new stimulus (Lumen Learning, 2020). Skinner, however, believed that most learning consists of acquiring new behaviour. He believed that behaviour is an outcome of response that follows the action. The learner will possibly repeat the action of a particular behaviour if it is followed/ rewarded with a pleasant consequence.

Skinner explained two types of responses in his theory. One can be elicited only by a known stimulus which he called as respondent or reflexive behaviour. For example, stepping on a sharp object or touching a hot metal will automatically make someone to produce reflex response. The second type is the response that an individual emits following his/her own decision, which he called as operant behaviour. Operant behaviours are under conscious control. Operant behaviour emits voluntary response. Skinner attaches greater importance to operant behaviour which is primarily concerned with response rather than stimuli. It is based on the fact that behaviour operates upon the environment and which are in turn, controlled by their environmental consequences i.e., their future probability of occurrence is either increased or decreased by the events that follow their emission. Operant conditioning believes that behavioural responses become connected to environmental stimuli largely as a result of what happens after the response occurs.

Skinner developed his operant conditioning theory as an expansion of Thorndike's Law of Effect. Skinner revealed in his theory that learning is a function of change in overt behavior. Changes in behaviour, according to Skinner, are the result of an individual's response to events (Stimuli) that occur in the environment. Our behaviour is either strengthened or weakened by the immediate presence of a reward or punishment. That is, any response followed by reward is strengthened; any response followed

by pain is weakened. Therefore, learning is a function of the result of the response.

To establish his claims, Skinner conducted an experiment. Skinner constructed a box with a small lever inside it. He placed a hungry rat in the box. In the box, the rat moved around tirelessly and each time the lever is pressed, a pellet of food dropped out. The rat becomes persistent in pressing the lever so that the food could fall. The food that comes down for the rat reinforces its action. In contrast, if the food is not accompanied with the pressing of lever, the number of presses would fall gradually to the lowest point

In this type of theory, it is the result or consequence of a behaviour that makes that behaviour more likely to be repeated. If the result of behaviour is gratifying, one is likely to respond the same way the next time one encounters that stimulus. In the above experiment, the pressing of lever becomes instrumental as the organism is instrumental in securing its own reward.

Skinner's theory is built on the concepts of reinforcement and punishment. We shall take a look at the two concepts in more detail.

Self-Assessment Exercises 1

Discuss the main features of operant conditioning theory
--

4.3.2 Reinforcement versus Punishment

Reinforcement

Skinner in this theory identified the two types of reinforcers, they are positive and negative reinforcers. He believed that you can control human behaviour by the use of reinforcers. The stimulus that occurs after a response is called a reinforcer.

- Example: A teacher gives a pleasant or complimentary remark to a student for scoring a good mark in an assignment. The pleasant remark the student receives is a positive reinforcer to reinforce the behaviour of scoring a good mark. By this action, it is likely that such a student will want to continue doing his/her assignment promptly.

There are two types of reinforcement: positive reinforcement and negative reinforcement. **Positive reinforcement** involves adding something

pleasant to the person after the desired behavior is exhibited, making the behavior more likely to happen in the future. Simply put, positive reinforcement involves adding something positive in order to increase a behavior. Positive reinforcement includes a wide variety of methods such as praise, thumbs up, nods of approval, smiles, hugs, handshakes, and social recognition.

Positive reinforcement can be:

- verbal for example saying “good” “well-done” “fantastic” to a child, commending students for completing their work.
- non-verbal for example smiling or nodding at a student after a correct response; applauding the child, thumbs up, or patting a child on the back.
- material rewards for example giving a child a book, pencil, crayon, etc.

In **negative reinforcement**, an undesirable stimulus is avoided or removed to increase the desired behaviour.

- Example: A company has a policy that if an employee completes their assigned work by Friday, they can have Saturday off.

Working Saturday is the negative reinforcer, the employee's productivity will be increased as they avoid experiencing the negative reinforcer.

- Example: A parent removed restrictions from a child when she follows the rules.

Something unpleasant (a set of restrictions) is removed to encourage the child's good behavior (following the rules).

- Example: A lecturer tells students that if they have perfect attendance all semester, then they do not have to take the final comprehensive exam.

By removing an unpleasant stimulus (the final test), students will try to attend class regularly.

- Example: removing furniture in a room so a baby can have space to learn how to crawl.

Both positive and negative reinforcements serve to increase a desired behaviour. In fact, if appropriately used negative reinforcement can play the role of reward

It is important to note that positive and negative do not mean good and bad. Instead, *positive* means you are adding something, and *negative* means you are taking something away.

Punishment

Like reinforcement, punishment also comes in two forms: positive punishment and negative punishment. Positive and negative punishment serves to decrease a behavior.

In **positive punishment**, you add an undesirable stimulus to decrease or stop a behavior. That is, positive punishment gives something learners do not want. One common example of positive punishment is spanking/beating.

- Example: Spanking a student to get the student to stop texting in class.

In this case, an unpleasant stimulus (spanking) is added in order to decrease the undesirable behavior (texting in class).

However, this notion has been revised on the assumption that positive punishment (or the more familiar term of corporal punishment) does not decrease a behaviour. You will get to know why? Keep reading!!

In **negative punishment**, you remove a pleasant stimulus to decrease/stop the undesirable behavior. That is, negative punishment takes away something learners want. Negative punishment might include taking away recess, taking away time to play, taking away a favourite activity, or removing the teacher's positive attention. Here, you identify what the child likes and deprive him or her of that 'thing'.

- Example: Taking away a child's electronics privileges for one week if she misbehaves.
- Example: If your student loves a particular activity (such as playing football in recess/break time), taking it away in response to poor grades or bad behaviour may encourage such student to do better.

Here, the teacher might decide to have the student miss his time in recess for one week to make him lose the privilege of playing football. Taking away his favourite activity (playing football) may encourage such student to behave well in the future. This technique has been shown to be more effective than using corporal punishment. No amount of beating, slapping, verbal abuse, and shaming can modify a bad behaviour. Another example of negative punishment is:

- Example: When a child misbehaves, a parent can take away the child's favorite toy for one week.

A pleasant stimulus (the toy) is removed in order to decrease/stop the child's misbehavior. Here, you identify what the child likes and deprive them of that 'thing'. You should return the toy when the child starts behaving well, thereby reinforcing the changed behaviour.

- You and your brother are fighting over the PS4. Your parents take it away for two weeks.

A pleasant stimulus (the PS4) is removed to decrease/stop the unwanted behavior (fighting).

Now let's combine these four terms: positive reinforcement, negative reinforcement, positive punishment, and negative punishment as shown in Table 1.

Table 1. Positive and Negative Reinforcement and Punishment

	Reinforcement	Punishment
Positive	Something (pleasant) is <i>added</i> to <i>increase</i> the likelihood of a desired behaviour.	Something (unpleasant) is <i>added</i> to <i>decrease</i> the likelihood of an undesired behaviour
Negative	Something (unpleasant) is <i>removed</i> to <i>increase</i> the likelihood of a desired behaviour	Something (pleasant) is <i>removed</i> to <i>decrease</i> the likelihood of an undesired behaviour.

Source: Lumen Learning (2020)

Remember, we mentioned that in positive punishment /corporal punishment, you add an undesirable stimulus to decrease a bad behavior; e.g., beating a child for misbehaving in the class. It has been found that instead of decreasing a behaviour, corporal punishment yields unpredictable consequences. In other words, there are many problems associated with the use of corporal punishment. Let's dwell more on this.

Corporal punishment

Corporal punishment of children is a common practice in many Nigerian classrooms. It is also widely used in most homes. Some researchers have identified various forms of corporal punishment used in Nigerian schools which include:

- Beating

- Slapping
- Knocking child's head with the knuckle
- Asking students to kneel down on hard surfaces
- Threatening to beat but did not
- Yelling
- Verbal abuse
- Ridicule
- Name calling, and
- Other forms of punitive practices

According to education experts, corporal punishment has been shown not to result in the desired outcome of improved behavior and even sometimes results in escalation of unwanted behaviours (Merrette & Merrette, 2013). A study by Rahimi and Karkami (2015) found that in classes where teachers managed disruptive behaviors by using punitive strategies, students had problems in learning as punitive strategies lowered students' motivation.

It has been observed that the only positive outcome of corporal punishment is that it leads to immediate compliance, although temporary; and that punished behavior is never eliminated, it is suppressed for a short period of time, meaning that the bad behavior may return when punishment is no longer present. For this reason, Skinner (1972) argued that corporal punishment is a very bad technique for controlling behaviour. He advocated for the frequent use of positive reinforcement. He believed that positive reinforcement was more effective than corporal punishment when trying to change and establish behaviours.

Given the above scenario, it is therefore important to be aware of some of the drawbacks in using corporal punishment on children. Numerous research studies including Gershoff (2017) and Opeyemi, (2017) have shown that corporal punishment is an ineffective method of discipline and has major harmful consequences on children and students. The following are some of the negative effects of corporal punishment:

- Corporal punishment may cause children to become more aggressive and prone to antisocial behavior and delinquency. They learn to use physical violence to bully and control people.
- Corporal punishment may lead to lying, children learn to tell lies instead of admitting their mistakes in order to avoid punishment.
- Corporal punishment creates hostility and damages the relationship between the punisher and the child.
- Corporal punishment reinforces the punisher, not the punished.
- Corporal punishment hardens the child instead of correcting them. May increase the behaviour it seeks to eliminate. Punishment

suppresses the bad behaviour only for it to find expression in other problem behaviours.

- Corporal punishment does not guide the child towards the desired behaviour.
- Corporal punishment causes fear, anxiety, withdrawal and timidity. Children who are punished by teachers may come to fear the teacher and try to avoid school.
- Corporal punishment has a negative impact on children's cognitive development, it interferes with learning. Punishing a child because he or she performed poorly in a test or exam is totally wrong; you are destroying the child's cognitive development.
- Corporal punishment causes physical injury
- Corporal punishment can cause emotional as well as mental health problems.

Because of these problems, corporal punishment should be avoided, while positive reinforcement should be emphasised.

You may find yourself asking “Does giving up corporal punishment mean giving up discipline”? The answer is capital ‘NO’. There are quite a number of behaviour modification techniques that teachers can use to discipline students without using corporal punishment. We will cover this in more detail in Module 3, where you will learn about techniques for managing student behaviour, which are found to be safer, non-violent and more effective than corporal punishment.

Meanwhile, let's continue with our discussion on Skinner by looking at the concept of reinforcement schedules.

Self-Assessment Exercises 2

- 1) Can you identify the negative reinforcers in each of these examples?
 - You decide to clean up your mess in the kitchen to avoid getting into a fight with your roommate.
 - You leave the house early to avoid getting stuck in traffic and being late for work.
- 2) Fill in the missing word with the options provided.
 - -----is when you take away a pleasant stimulus to stop a behavior.

positive reinforcement (b) negative reinforcement (c) positive punishment (d) negative punishment
- 3) Discuss any three negative effects of corporal punishment on students

4.3.3 Schedules of Reinforcement

Remember, Skinner's theory focuses on a system of reinforcement. Also, remember that the best way to teach or modify a behavior is to use positive reinforcement. Skinner came up with the idea of reinforcement schedule. Reinforcement schedule is simply a rule that specifies when and how often a desired behaviour will be reinforced. It is an arrangement to determine when to reinforce a desired behavior, in terms of the time or number of responses.

A reinforcement schedule can be divided into two broad categories: continuous schedules and partial schedules (also called intermittent schedules). In a continuous schedule every desired behavior is reinforced, whereas partial schedules only reinforce the desired behavior occasionally. Both types of schedules are explained below:

- A. Continuous reinforcement:** In this reinforcement technique, every correct response or behaviour is rewarded/reinforced. For example, a student may be rewarded for every correct answer he gives to the questions asked by their teacher. This reinforcement schedule is the quickest way to teach someone a behavior, and it is especially effective in training a new behavior.
- B. Partial/Intermittent reinforcement:** In this type of reinforcement, the person does not get reinforced every time they perform the desired behavior.

There are four types of partial reinforcement schedules:

- i. Fixed ratio reinforcement schedule:** It is an arrangement of providing reinforcement after a set (fixed) number of responses has occurred. For example, a student may be rewarded for every 5 mathematical problems solved.
- ii. Fixed interval reinforcement schedule:** This is when a behaviour is rewarded/reinforced at a set amount of time. For example, you praise your students after every 5 minutes.
- iii. Variable ratio reinforcement schedule:** It is an arrangement of providing reinforcement after a varying number of responses has been made. Here, the number of responses needed to gain the reinforcement is not consistent. The individual does not know when they are going to be rewarded and consequently, they remain motivated throughout the learning process in the wait for reinforcement. For example, a student may be rewarded after 3, 5, 10 and 15 mathematical problems solved.

- iv. Variable interval reinforcement schedule:** This is a kind of schedule in which reinforcement is provided at a varying amount of time from the previous reinforcement. i.e., behavior is rewarded after a varying period of time have passed, which are unpredictable. In this case, reinforcement is irregular. For example, when the school principal has to visit classes unexpectedly to check those teachers that are doing their work in order to reward them. Here, there is no scheduled time for the visits, therefore the teachers' productivity will be increased as they do not know when the principal will show up to reward them.

It is to be noted that different types of reinforcing schedules generate different results. Among the four partial schedules, variable ratio and variable interval have been recognised as the most powerful schedule. They are the most unpredictable of the four types. All students operate on different schedules of reinforcement. A high achieving student will be more likely to work effectively for a longer period of time between reinforcements. In contrast, the student who has had little success in the past may need reinforcement more often to keep going.

Self-Assessment Exercises 3

Categorise the four schedules of reinforcement into schedules that deal with passage of time and those associated with number of responses

4.3.4 Educational Implications of Skinner's Theory

1. Reinforcement is an essential factor if the students must perform well in a given task. To this end, the teacher should not neglect the use of positive reinforcement. This reinforcement will stimulate the efforts of the students in the classroom.
2. Teacher should reinforce positive behaviours through variety of incentives such as verbal praise, a smile, social recognition, a pat on the back, prize or by giving marks.
3. For the desirable behaviour in the learner to be demonstrated and repeated, it must be immediately reinforced. The time lag between reinforcing the demonstrated behaviour should not be too long.
4. Provide negative consequences for unacceptable behaviours. Use appropriate techniques to punish bad behaviour. Do not use corporal punishment or humiliation to correct bad behaviour, it will backfire.

5. If a student engages in a disruptive behaviour, the teacher should not reinforce such behaviour with corporal punishment. Corporal punishment can inhibit learning. There are positive approaches for correcting unwanted behaviours.
6. The whole atmosphere of our school is dominated by fear and unpleasant experiences because of the frequent use of corporal punishment. The school can use the principles of operant conditioning to eliminate the element of fear from school atmosphere by using positive reinforcement more often.
7. Use an appropriate reinforcement schedule. Teachers must be alert to their students because all students operate on different schedules of reinforcement. A student who has achieved success for longer period of time will be more likely to work effectively for a longer period of time between rewards. In contrast, the student who has had little success in the past may need reinforcement more often to keep going (Basmah, 2004). In other words, highly motivated students are usually actively and spontaneously involved in activities and find the process of learning enjoyable without expecting any external rewards (Skinner & Belmont, 1993). On the other hand, students who exhibit low levels of motivation to learn will often depend on the rewards to encourage them to participate in activities they may not find enjoyable (Yount, 2001).
8. Provide clear informative feedback on student work. Feedback is most effective when it involves both praise (positive reinforcement) for correct answers and corrective information for wrong answers (Yount, 2001).

Self-Assessment Exercises 4

What are the contributions of Skinner's theory to educational process?



4.4 Summary

This unit has discussed the basic principles of operant conditioning theory. Skinner's theory of operant conditioning revealed that behaviours are strengthened or weakened based on the consequences of that behavior. Reinforcement plays a vital role in the operant conditioning process. The relevance of reinforcement to students learning was also discussed in this unit. We discussed the many problems associated with the use of corporal

punishment and advocated for the use of positive reinforcement. The schedules of reinforcement were also discussed. Reinforcement may be either continuous or partial. Partial reinforcement schedules are determined by whether the reinforcement is presented on the basis of the time that elapses between reinforcement (interval) or on the basis of the number of responses that the organism engages in (ratio), and by whether the reinforcement occurs on a regular (fixed) or unpredictable (variable) schedule (Stangor, 2012). Also, the implications of the theory to educational settings were discussed.



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4.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. Skinner developed the operant conditioning theory. The basic premise of the theory was that behaviors are strengthened or weakened based on the consequences of that behaviour i.e., any response followed by reward is strengthened; any response

followed by pain is weakened. That is, their future probability of occurrence is either increased or decreased by the immediate presence of a reward or punishment. Through operant conditioning, an individual makes an association between a particular behavior and a consequence.

Answers to SAEs 2

1. A fight with your roommate and being late for work are the negative reinforcers that were avoided by performing a specific behavior.
2. *Negative reinforcement* is when you take away a pleasant stimulus to stop a behavior.
3. Three negative effects of corporal punishment on students:
 - Corporal punishment may lead to lying, children learn to tell lies instead of admitting their mistakes in order to avoid punishment.
 - Corporal punishment creates hostility and damages the relationship between the punisher and the child.
 - Corporal punishment causes fear, anxiety, withdrawal and timidity. Children who are punished by teachers may come to fear the teacher and try to avoid school.

Answers to SAEs 3

Schedules of reinforcement that deal with the passage of time are fixed interval reinforcement schedule and variable interval reinforcement schedule. Those that are associated with the number of responses are fixed ratio reinforcement schedule and variable ratio reinforcement schedule

Answers to SAEs 4

See sub-section 7.3.4 for the answers

Seminar Topics

Each student is expected to present seminar paper on one of the following topics:

1. Identify two shortcomings in our educational system which Skinner's theory can help to correct.
2. How is Skinner's theory relevant to teaching/learning activities?
3. How would you apply operant conditioning in trying to teach or encourage a child to do her homework

UNIT 5 APPLICATIONS OF OPERANT CONDITIONING

Unit Structure

- 5.1 Introduction
- 5.2 Learning Outcomes
- 5.3 Applications of Operant Conditioning in Everyday Life
 - 5.3.1 Aspects of Human Behaviour that Operant Conditioning Affects
 - 5.3.2 Distinction between Classical Conditioning and Operant Conditioning
 - 5.3.3 Key Terms and Concepts in Classical Conditioning and Operant Conditioning
- 5.4 Summary
- 5.5 References/Further Reading/Web Sources
- 5.6 Possible Answers to Self-Assessment Exercises



5.1 Introduction

In the previous unit, we discussed Skinner's theory of operant conditioning and the theories to classroom practices. Now you will learn aspects of human behaviour that operant conditioning affects and the applications of operant conditioning in everyday life.



5.2 Learning Outcomes

By the end of this unit, you will be able to:

- describe aspects of human behaviour that operant conditioning affects
- state difference between classical conditioning and operant conditioning
- explain key terms and concepts in classical conditioning and operant conditioning.



5.3 Applications of Operant Conditioning in Everyday Life

5.3.1 Aspects of Human Behaviour that Operant Conditioning Affects

- Operant conditioning affects many aspects of human behaviour. We smile, help others, and go to work every morning because we are reinforced for these behaviours.
- Operant conditioning can be responsible for the development of abnormal behaviours but can also be systematically used in very positive ways.
- Let us consider instances of how operant conditioning is used to (1) modification of abnormal behaviour, (2) modify a variety of behaviours, (3) enhance the educational process, and (4) develop new drugs.

(1) Learned Helplessness and Depression

- Martin Seligman has shown how one form of abnormal behaviour, depression, can be acquired through operant processes.
- He delivered electric shock to two dogs simultaneously. The Group A dog could turn off the shock by pressing a button and thus had some control over the situation. The Group B dog received the same shocks as the Group A dog but had no control, it was helpless. Both groups were then moved to a shuttle box.
- Each dog was placed in one compartment, where a signal was followed by shock. Group A dogs soon learned to jump the barrier when the signal sounded in order to avoid the shock, but Group B dogs did not. This was so because the Group B dogs had previously learned that they had no control over the shock thus did not try to make the avoidance response. Seligman called this phenomenon **learned helplessness**.
- Lacking operant control over the environment can produce a state of helplessness in humans.

(2) **Modifying Human Behaviour**

- The application of Skinnerian principles in an effort to alter human behaviour is called **behaviour modification**.
- Operant techniques can be helpful in correcting problem behaviour in children.
- A problem behaviour is behaviour that digresses from what the majority approves of, or a variation of a normal behaviour.
- Examples of problem behaviours include disobedience, stealing, fighting, truancy, rioting, drug addiction, destructive tendency, aggressiveness, restlessness, cheating.

In one study, frustrated parents whose children watched an average of 21 hours of TV per week agreed to a Skinnerian behavioural programme. The child received 20 tokens per week; each token could be turned over to mummy or daddy in exchange for 30 minutes of TV viewing time. If the children watched no more than the 10 allotted hours, they received a gold token that could be exchanged for some special reinforcer, like a trip to an amusement park or a party for friends. The children cut their TV viewing time to 10 hours and kept it there over a period of 8 months after they stopped receiving the token.

(3) **Enhance the educational process**

- The application of Skinnerian techniques has been in improving education in the form of **programmed instruction**, developed by Skinner in 1954.
- Programmed instruction is a device for learning that allows a child to type the answers on a keyboard. The machine reinforced correct responses by moving on to the next problem. Such reinforcement is immediate and accurate to a degree that can never be achieved by a teacher working with many children at once. It is important for you to note that current computer based instructional systems are the modern products of Skinner's genius.

(4) **Modification of abnormal behavior**

- Skinnerian approaches have also been applied to the modification of abnormal behaviour. Hospitalised mental patients suffering from such serious disorders as schizophrenia (mental disorder that affects how a person thinks, feels, and behaves) typically have few of the social skills needed to obtain reinforcement in the world outside the institution.

- Behavioural programmes called token economies teach them social skills through operant techniques. Specific behaviours (for example, keeping a neat room and going to meals on time) are identified. Appropriate reinforcers (for example, candy, movie attendance, and TV privileges) are determined. When patients perform the desired behaviours, they receive tokens, such as poker chips, that can later be exchanged for the reinforcers they want.

Self-Assessment Exercises 1

- Explain the concept of “learned helplessness” in humans.
- Briefly describe the application of operant conditioning in the modification of abnormal behaviour

5.3.2 Differences between Classical Conditioning and Operant Conditioning

	Classical conditioning	Operant conditioning
	<ul style="list-style-type: none"> • The organism is passive. It must wait for something to happen before it can respond 	<ul style="list-style-type: none"> • The organism is active. The behaviour is initiated on its own without any stimulus
	<ul style="list-style-type: none"> • Much emphasis is placed on the stimulus causing the response. It is stimulus-oriented 	<ul style="list-style-type: none"> • Much emphasis is placed on the response. It is response-oriented.
	<ul style="list-style-type: none"> • Reinforcement comes first 	<ul style="list-style-type: none"> • Reinforcement comes after appropriate response is made
	<ul style="list-style-type: none"> • It involves the pairing of unconditioned stimulus (food) and conditioned stimulus (bell) 	<ul style="list-style-type: none"> • There is no pairing
	<ul style="list-style-type: none"> • The association is between a stimulus and elicited response 	<ul style="list-style-type: none"> • The association is between the emitted behaviour and the reinforcement upon which the behaviour is contingent
	<ul style="list-style-type: none"> • The essence of learning is stimulus substitution 	<ul style="list-style-type: none"> • The essence of learning is behaviour modification

Self-Assessment Exercises 2

In your own words, list three differences between classical conditioning and operant conditioning

5.3.3 Key Terms and Concepts in Classical Conditioning and Operant Conditioning

Discrimination - The ability to differentiate between similar stimuli. In other words, it is the process by which we learn not to respond to similar stimuli in the same way

Extinction - The disappearance of a response due to the removal of the reinforcer that maintained the response. In other words, it is a process by which conditioned responses are lost.

Generalisation - Responding in the same way to two different stimuli

Neutral stimulus (NS) - a stimulus that does not naturally elicit a response

Conditional Stimulus (CS) – A stimulus that acquired the ability to produce the response because it was paired with the unconditioned stimulus or the once neutral stimulus that became a conditioned stimulus capable of eliciting the conditioned response by itself.

Conditioned response (CR) - Response that is similar to unconditioned response but is produced by the conditioned stimulus or the learned response to the previously neutral stimulus

Unconditioned response (UCR) - Unlearned or inborn reaction to the unconditioned stimulus or a natural reaction to a given stimulus

Unconditioned stimulus (UCS) – A stimulus that can produce response without any learning or a stimulus that elicits a reflexive response in an organism

Classical conditioning - Type of learning in which neutral (conditioned) stimulus gradually gains the ability to elicit a response because of its pairing with a natural (unconditioned) stimulus.

Operant conditioning - Form of learning in which the consequences of behaviour lead to changes in the probability that the behaviour will occur

Spontaneous recovery - The reappearance of an apparently extinguished conditioned response (CR) after an interval when conditioned stimulus is presented again.

Self-Assessment Exercises 3

1. Define the following terms and concepts:
 - (i) Neutral Stimulus
 - (ii) Extinction
 - (iii) Generalisation
 - (iv) Conditioned Stimulus



5.4 Summary

In this study unit, you have learnt the application of operant conditioning theory of learning in everyday life. You should also have learned about learned helplessness and depression. In addition, you have learnt the differences between classical conditioning and operant conditioning.



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5.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. The concept of “learned helplessness” in humans:
 - Learned helplessness occurs in humans when they have been continuously subjected to a negative situation, and feel they have no operant control over their situation. Eventually, they will stop trying to avoid the pain of that situation and begin to behave in a helpless manner. This inaction can lead people to overlook opportunities for change.
 - Such learned helplessness can be a major factor in depression. For example, the secretary who is repeatedly overruled by her boss when she tries to be more efficient or by her family when she tries to improve home life may eventually come to feel helpless more generally.

2. The application of operant conditioning in the modification of abnormal behaviour:

Skinnerian approaches have been applied to the modification of abnormal behaviour. Hospitalised mental patients suffering from such serious disorders as schizophrenia (mental disorder that affects how a person thinks, feels, and behaves) typically have few of the social skills needed to obtain reinforcement in the world outside the institution.

Answers to SAEs 2

Three differences between classical conditioning and operant conditioning

See the answer on sub-section 8.3.2

Answers to SAEs 3

Definition of terms and concepts:

- i. Neutral stimulus – It is a stimulus that does not naturally elicit a response
- ii. Extinction - The disappearance of a response due to the removal of the reinforcer that maintained the response. In other words, it is a process by which conditioned responses are lost.
- iii. Generalisation - Responding in the same way to two different stimuli

- iv. **Conditioned Stimulus** - A stimulus that acquired the ability to produce the response because it was paired with the unconditioned stimulus or the once neutral stimulus that became a conditioned stimulus capable of eliciting the conditioned response by itself.

UNIT 6 BANDURA'S SOCIAL LEARNING THEORY

Unit Structure

- 6.1 Introduction
- 6.2 Learning Outcomes
- 6.3 Behaviourist Theories of Learning and their Classroom Implications (4)
 - 6.3.1 Overview of Bandura's Social Learning Theory
 - 6.3.2 Four Basic Processes in Observational Learning
 - 6.3.3 Classroom Implications of Social Learning Theory
- 6.4 Summary
- 6.5 References/Further Reading/Web Sources
- 6.6 Possible Answers to Self-Assessment Exercises



6.1 Introduction

In the previous unit, you studied Thorndike's theory of connectionism. In this unit, we are going to discuss Bandura's social learning theory, which is also categorised under behaviourist theories. Imagine this scenario. Joy is 16 years old. Joy's parents both drink alcohol every night. They tell Joy that drinking is bad and she shouldn't do it. Joy goes to a party where beer is being served. What do you think Joy will do? In this lesson, you will learn about the principles of social learning theory and the importance of the social context, and how children learn through observation and imitation of models in their environment.



6.2 Learning Outcomes

By the end of this unit, you will be able to:

- describe the basic principles of social learning theory
- explain the four basic processes involved in observational learning
- describe the role of reinforcement in social learning theory
- discuss the classroom implications of the social learning theory.



6.3 Behaviourist Theories of Learning and their Classroom Implications (4)

6.3.1 Social Learning Theory of Albert Bandura

Bandura is noted as one of the exponents of social learning theory. He is quite different from other behavioural theorists who look at learning as a direct result of conditioning, reinforcement, and punishment. Social learning theory explains human behaviour in terms of continuous reciprocal interaction between individuals and their environments, in which our behaviour, personal factors and the social environmental all mutually influence each other. This notion means that just as an individual's behavior is influenced by the environment, the environment is also influenced by the individual's behavior. The theory suggests that people learn from one another through observation, imitation, and modeling; and that is why it is also commonly referred to as observational learning. This means that we learn by observing the behaviour of others. Social learning theory draws heavily on the concept of role modeling. Individuals that are observed are known as models.

Children learn through observation and imitation. They can observe people around them behaving in various ways and imitate their actions, this is identified in Bandura's Bobo doll experiment. In our society, children are surrounded by many models, such as parents, teachers, characters on the television, their friends and people they see in the street. Children pay attention to these models and imitate their behaviours. Through observational learning, Bandura has shown that children learn many things both good and bad simply by watching other's behaviour. Once children observe a behaviour, they can store it in their memory and display the imitated behaviour at a later time.

Social learning theory has been applied extensively to the understanding of aggression among children, particularly children's modeling of adults' aggressive behaviours. The theory suggests that children learn to exhibit aggressive behaviors because they observe others acting aggressively and can see how these behaviors are reinforced over time (Bandura, 1978). Through observation, children learn new behaviours that they have observed from their parents and other models. For instance, psychological evidence shows that parental use of corporal punishment in child training often relates to the learning of aggressive behaviour in children (Ofoha, 2015).

The Bobo doll experiment

Bandura carried out an experiment (Bobo doll experiment) to see if aggressive behaviours can be acquired by observation and imitation. In that experiment, he showed young children a short film in which an adult model was beating up the Bobo doll. Another group of children did not watch the film. After the film, the children were taken to a room containing some toys, including a Bobo doll. The children who watched the film tended to reproduce the model's aggressive behaviour toward the doll. The group of children who did not watch the film did not display aggressive behaviour toward the toy. Through this experiment, Bandura demonstrated that children could learn aggression by watching the actions of an adult model. It also shows that children can be influenced by watching violent films, movies or television programmes.

Self-Assessment Exercises 1

1. Briefly describe the basic principles of social learning theory
2. Fill in the missing words
 - The person who performs a behavior that serves as an example is called a _____
 - In the Bobo doll experiment, when the children who watched the aggressive model were placed in a room with the doll and other toys, they _____

6.3.2 Four Basic Processes in Observational Learning

It has been noted that individuals do not automatically observe the behavior of a model and imitate it. Bandura described four basic processes or steps which must be followed for the behavior to be imitated. These steps include attention, retention, reproduction, and motivation.

1. **Attention:** For a behavior to be imitated, you must be focused on what the model is doing—you have to pay attention. Attention is therefore extremely important in whether a behavior influences others imitating it.
2. **Retention:** This is the ability to store in the memory information received from the environment. You must be able to retain, or remember, what you observed. If you are to later use what you have learned, you must store it in memory.

3. **Reproduction:** This is the ability to perform the behavior that the model has just demonstrated. You must be able to perform the behavior that you observed and committed to memory.
4. **Motivation:** You must have motivation. You will reproduce the observed behaviour only if you are motivated to do so. You need to want to copy the behavior, and whether or not you are motivated depends on what happened to the model. If you saw that the model was reinforced for her behavior, you will be more motivated to copy her. This is known as vicarious reinforcement. On the other hand, if you observed the model being punished, you would be less motivated to copy her. This is called vicarious punishment.

The Role of Reinforcement in Bandura's theory

It is important for you to note that observational learning can take place without reinforcement. Reinforcement which is so essential in classical and operant conditioning theories as well as in Thorndike's theory is totally unnecessary in an observational learning. That is to say, in social learning theory, reinforcement is not a prerequisite for a learning to occur. Learning occurs by simply observing a model. However, reinforcement increases the chance that that what has been learnt will definitely be performed. This theory is therefore rested on the fact that an action or behaviour can be performed if the model is pleasantly rewarded. It is also believed that there is probability that an observer might drop a behaviour if he finds out that the model has received a negative reinforcement for practicing such a behaviour.

Self-Assessment Exercises 2

1. List the basic processes involved in observational learning in the correct order
2. What is the role of reinforcement in social learning theory?

6.3.3 Classroom Implications of Social Learning Theory

- 1) The teacher is a model for students in his/her classroom, and he/she has a profound effect on students' attitudes, beliefs and behaviour. In this case, the teacher should display socially acceptable behaviour since they are role models to students.
- 2) The teacher should always make sure that he/she does not condone any irrational behaviour from his/her students. Any offending

student should be appropriately dealt with, so as to serve as a deterrent to other members of the classroom.

- 3) The teacher should not forget to give complimentary remarks such as “well done”, excellent”, “good boy/girl,” “keep it up”, as a way of encouraging other students to imitate a good behaviour.
- 4) Teacher/parents should discourage their students/children from watching violent films or keeping friends of doubtful characters.

Self-Assessment Exercises 3

Discuss three classroom implications of social learning theory



6.4 Summary

This unit has explained the meaning of social learning theory and factors that must be present for observational learning to take place. It also considered the educational implications of the theory. We further learned that, to imitate an observed behaviour, we must first pay attention to it, then remember what we observed, then be able to reproduce the action, and have sufficient motivation to do so. Observation plays a very powerful role in learning, and it can play a critical role in determining how and what children learn.



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6.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. The social learning theory suggests that people learn from one another through observation, imitation, and modeling; and it is also commonly referred to as observational learning. This means that people learn by observing the behaviour of others. For social learning theory to take place, there must be an observer (learners), the model, learners' attention and proximity. The process of learning is influenced by the extent of identification and imitation by the learners.
2. The missing words:
 - The person who performs a behavior that serves as an example is called a *model*
 - In the Bobo doll experiment, when the children who watched the aggressive model were placed in a room with the doll and other toys, they tended to reproduce the model's aggressive behaviour toward the doll

Answers to SAEs 2

1. The correct order of the basic processes in observational learning are: Attention, retention, reproduction, and motivation
2. The role of reinforcement in social learning theory:
In social learning theory, reinforcement is not a prerequisite for a learning to occur but it increases the chance that that what has been learnt will definitely be performed. Also, there is probability that an observer might drop a behaviour if he finds out that the model has received a negative reinforcement for practicing such a behaviour.

Answers to SAEs 3

Three classroom implications of social learning theory:

- The teacher is a model for students in his/her classroom, and he/she has a profound effect on students' attitudes, beliefs and behaviour. In this case, the teacher should be a good model.
- The teacher should not forget to give complimentary remarks such as "well done", excellent", "good boy/girl," "keep it up", as a way of encouraging other students to imitate a good behaviour.

- Teachers/parents should discourage their students/children from watching violent films or keeping friends of doubtful characters.

Seminar Topics

Each student is expected to present seminar paper on one of the following topics:

1. Joy is 16 years old. Joy's parents both drink alcohol every night. They tell Joy that drinking is bad and she shouldn't do it. Joy goes to a party where beer is being served. What do you think Joy will do? Why?
2. Explain how you will apply social learning principles to the classroom situations
3. From your understanding of our discussion, what type of movies and television programmes would you recommend for children and adolescents in your community or neighbourhood?

UNIT 7 COGNITIVE-FIELD THEORIES OF LEARNING AND THEIR CLASSROOM IMPLICATIONS

Unit Structure

- 7.1 Introduction
- 7.2 Learning Outcomes
- 7.3 Cognitive Field Theories of Learning and their Classroom Implications
 - 7.3.1 Underlying Principles of Cognitive-field theories of learning
 - 7.3.2 Learning by Insight and Features of Insightful Learning
 - 7.3.3 Classroom Implications of Cognitive Field Theory of Learning
- 7.4 Summary
- 7.5 References/Further Reading/Web Sources
- 7.6 Possible Answers to Self-Assessment Exercises



7.1 Introduction

In the previous unit, we discussed Bandura's Social Learning Theory. With that we have completed all four of the behaviourist theories of learning. Now we are turning our attention to the second group of learning theories known as Cognitive-field theory of learning. Recall that we said Cognitive field theories pay more attention to what goes on in the learner's mind and focus on mental processes rather than observable behaviours. The theory emphasises insight learning. In this lesson, we are going to be looking at the principles of this theory, the main ideas of insight learning and the classroom implications of the theory. Here also, you will learn how learning takes place through the application of insight.



7.2 Learning Outcomes

By the end of this unit, you will be able to:

- describe the underlying principles of cognitive field theory of learning
- explain insight learning and its main features
- explain Gestalt Laws of Perception
- analyse differences between Behaviourist and Cognitive field theories of learning
- discuss the classroom implication of cognitive field theory of learning.

7.3 Cognitive-Field Theory of Learning and their Classroom Implications

7.3.1 Cognitive-Field Theory of Learning

Cognitive Field theory or Gestalt theory was formulated by a group of German Psychologists, notable among them were Max Wertheimer, Kurt Koffka, and Wolfgang Kohler, all of who belong to Gestalt school of psychology. Gestalt psychologists emphasise the importance of wholes over parts and believe that the whole of anything is greater than the sum of its parts. According to Gestalt theory, perception of a situation as a 'whole' gives better understanding than the sum of its parts. This theory is in contrast with the behaviourist (S-R) learning which places emphasis on the formation of S-R connections. *Gestalt* is a German word which means pattern, shape, form or configuration, we learn by seeing new patterns and by organising them into a meaningful whole in the total situation. Therefore, the theory lays emphasis on cognitive structure and on perception of the total field by the individual. This could be illustrated with a car, if the whole is dismantled, though the components are there, it's not a car. They believe that parts are configured or organised to make complete or meaningful experiences or impressions. This theory rejected the views that consider the learning process in an isolated form rather than in a total or holistic form. The Gestalt theory/ cognitive field theories focus on insight and perceptual processes. The Gestalt theory of learning is also named as Learning by Insight.

Self-Assessment Exercises 1

Describe the underlying principles of cognitive fields (Gestalt) theory of learning

7.3.2 Learning by Insight

The Gestalt psychologists believe that learning occurs by insight. For instance, when we are faced with a problem, we try to get some clues in the ways we should proceed to solve the problem; we think through it by having a complete picture of the problem in mind, without making any progress. Then all of a sudden, there will be a flash of understanding in which we arrive at a solution to our problem. This sudden understanding of the components of a problem that makes the solution apparent is known as Insight learning. The joyful remark is known as the "aha" phenomenon, that is, the flash of understanding which comes to us when we suddenly realise what the answer to our difficulties is. We have all experienced the

sensation of the ‘aha’ moment at one time or another. Can you recall any one of such experiences? Insight occurs when the individual sees in a flash the solution to his problem.

In a problematic situation, the learner tries to solve the problem and this attempt involves the understanding of the components of a problem. As already noted, the sudden occurrence at arrival to the solution of the problem is known as Insight learning. Insight is also expressed as the “Aha” moment, that is, the flash of understanding which comes to us when we hit suddenly upon the solution to a problem. The Gestalts define learning as occurring through gaining of insight by understanding the relationships of various parts of a problem. They therefore placed more credence on insightful learning rather than trial and error like that of Thorndike or mechanical conditioning as performed by Pavlov in his classical conditioning theory. In other words, learning comes as a result of mental activity. This theory is of the opinion that parts are configured or organised to make complete or meaningful experiences or impressions. The emphasis here is on the importance of experience, meaning, problem solving and the development of insights (Burns 1995). It is believed that meaningful learning can only take place through a sequence of problem-solving approach.

It may be said that insightful theory of learning concerns itself with higher thinking skills. Complex problems would require higher learning and solutions are reached only by application of insight. All new ideas and concepts, inventions and discoveries are the result of insightful learning. Learning by conditioning is common to all animals and human beings and useful for early education. But learning by insight is suitable only for intelligent creatures both human and animals and useful for higher learning.

Insightful learning is hinged on the fact that animals undergo a series of problem-solving approach following a sequence of principles and previous experience before arriving at a solution. In this theory, the cognitive or mental processes of the animals are regarded as the yardstick in the development of insightful learning. Learning by insight requires full comprehension of the situation as a whole.

Kohler’s Experiment

To show the importance of learning by insight, Gestalt Psychologists performed several experiments using chimpanzees as subjects. In one of the experiments, a chimpanzee called Sultan was put in a cage. In the cage was a stool and banana, hung on the top of the cage. Initially, several unsuccessful attempts were made by Sultan to get the banana. Suddenly, sultan decided to pull out the stool and climbed it to get the

banana from where it was hung. This type of learning is called insightful, because it involves problem-solving approach.

Another experiment was performed whereby Sultan was put in the cage with a banana and a stick lying outside the cage. It made a few attempts with its hands to get the banana but could not. Then it noticed a stick lying outside the cage. Picking up the stick, it successfully reached out and pulled in the banana.

The last experiment performed by Kohler on this insightful learning, was an extension of the second experiment. In this case, the chimpanzee (Sultan) was put in the cage, and a bunch of bananas was placed at some distance outside the cage. This time, two sticks were provided, which could be fitted together to reach the banana. The hungry Sultan first attempted with its hands to get the banana. Then he took one of the sticks and tried to pull the banana nearer, then tried with other stick, but failed to reach it. By this effort, the chimpanzee became tired and left the attempts to reach banana and started playing with the sticks. While playing so, one of the sticks got fitted into the other and the stick became lengthier. Immediately an idea came to Sultan, it pulled the banana with this long stick. This 'sudden flash of idea' to reach the banana with a longer stick was called as 'Insight', by Kohler. All these experiments indicated that learning cannot take place in a segregated way but in a complete form.

The main features of insightful learning

Insight depends upon the following factors:

- i) **Arrangement of the problem situation:** Learning through insight depends upon the arrangement of the problem situation. Insight will come easily if the essentials for solution are arranged so that relationships can be perceived.
- ii) **Learning situation:** The nature of the situation is very important for insight learning. With insight, the organism tends to perceive a pattern or organisation that helps in learning.
- iii) **From whole to parts:** The organism reacts to the whole situation not to component parts
- iv) **Sudden awareness:** The solution comes all of a sudden i.e., insight is sudden.
- v) **Intelligence:** Basic intelligence of the learner is an important factor in insightful learning. Insight is related with higher form of learning. Therefore, complex problems can be tackled through

insight. It involves many higher order processes such as thinking, reasoning, intelligence

- vi) **Past experience:** Insightful learning draws on past experience; past experiences assist in the insight of the problems. Learning gained in one situation helps the learner to react insightfully in other identical situations. The experiences and perceptions of learners have a significant impact on the way that they learn.

Self-Assessment Exercises 2

1. What is insight learning?
2. Explain three main features of insight learning

7.3.3 Classroom Implications of Gestalt Theory

1. Complex problems require higher learning and solutions are reached only by application of insight. Teaching and learning of some subjects such as physics, chemistry and mathematics as well as other science subjects demand higher mental exercises.
2. The whole is greater than its parts. On this, the teacher should present the subject matter as a whole to facilitate insight learning. Learners must be assisted to see the learning material as a whole and not as disjointed pieces. For instance, while teaching the topic 'Parts of a plant, the plant should be presented before the students and thereafter the parts should be taken up. Doing so would enable learners to develop understanding about the subject matter.
3. Insight is related with higher form of learning and the foundation stone of insight learning is intelligence. Therefore, the teacher should make use of problem-solving approach for better learning by encouraging their students to discover the relationship of the elements that make up a problem in order that the learner will be able to solve problems by insight.
4. Learners should discover concepts, meanings and relationships on their own. Therefore, the teacher can foster the use of discovery learning, which will make students become active participants in their own learning. Knowledge that is self-discovered is more significant to the learner and is remembered better.

5. As insight depends upon the previous experience of the learner, the teacher should be able to relate the previous experience of the learner to the new learning. By so doing, students will be able to learn better.
6. The teacher should organise the learning situations in a manner that makes insight possible so that significant relations emerge and understanding of the material results, i.e. the learning experiences should be so arranged that the learner discovers the relationship between the elements of the problematic situation. Clues should be provided to facilitate the application of insight e.g., the two sticks for Sultan.
7. Age influences insight learning. Insight, like other learning, depends upon the capacity/experience/age of the learner. Older children, for example, can learn things more easily than younger children.



7.4 Summary

In this unit, you have learnt the cognitive field theories of learning (Gestalt theory) and how insight learning takes place. You have also learnt about the gestalt laws of perception. Gestalt theory is very important in learning. It advocates that learners learn best when they are provided with the opportunity to explore or find the solutions to the problems being discussed. The teachers are advised to make constant use of this theory in their teaching/learning activities.



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7.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

The underlying principles of cognitive field theory (Gestalt theory) of learning:

Cognitive Field theory or Gestalt theory emphasises the importance of wholes over parts and that the whole of anything is greater than the sum of its parts. According to the theory, perception of a situation as a ‘whole’ gives better understanding than the sum of its parts. The theory lays emphasis on cognitive structure and on perception of the total field by the individual. The Gestalt psychologists believe that learning occurs by insight. The Gestalt theory of learning is also named as Learning by Insight.

Answers to SAEs 2

1. What is insight learning? Any one of the following definitions:
Insight learning is the flash of understanding which comes to us when we suddenly realise what the answer to our difficulties is.
Or Insight learning is the sudden understanding of the components of a problem that makes the solution apparent.
Or The flash of understanding which comes to us when we hit suddenly upon the solution to a problem. The joyful remark is known as the “aha” phenomenon.
2. Four features of insight learning: (these are four out of the ones listed under sub-section 7.3.2)
 - i) According to Gestalt theory, learning occurs by insight. Learning through insight depends upon the arrangement of the problem situation. Insight will come easily if the essentials for solution are arranged so that relationships can be perceived.
 - ii) Insight learning draws on past experience. Past experiences assist in the insight of the problems. Learning gained in one situation helps the learner to react insightfully in other identical situations. Gestalt psychology proposes education to be an integration of affective and cognitive domains of learning.
 - iii) Basic intelligence of the learner is an important factor in insightful learning. Insight is related with higher form of learning. Therefore, complex problems can be tackled through insight.

- iv) The insightful solution comes all of a sudden i.e., insight is sudden

Answers to SAEs 3

The implications of Gestalt theory on learning:

Choose any three of the classroom implications of the theory provided under sub-section 10.3.3

Seminar Topic

Each student is expected to present seminar paper on one of the following topics:

Explain the importance of insightful learning in education
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MODULE 3 PERMANENCY IN LEARNING

Having completed our discussion on theories of Learning and their educational implication in the units of the previous module, we are now turning our attention on different areas of psychology. The Module 3 discusses the relevance of permanency in learning. It has been noted that the essence of education is to provide meaningful learning experiences that will foster a permanent change in students' behaviour. How much a student has been able to retain knowledge, the application of that knowledge to real life situations and the various motivational strategies the teacher used to sustain the interest of the students in the classroom would contribute in promoting the permanency of learning. The topics under this module are organised into four study units as follows:

Module Structure

- Unit 1 Motivation in Learning
- Unit 2 Theories of Motivation in Learning
- Unit 3 Transfer of Learning
- Unit 4 Retention in Learning: Memory, Remembering and Forgetting

UNIT 1 MOTIVATION IN LEARNING

Unit Structure

- 1.1 Introduction
- 1.2 Learning Outcomes
- 1.3 Motivation in Learning and its Implication in Classroom Situations
 - 1.3.1 What is Motivation?
 - 1.3.2 Types of Motivation
 - 1.3.3 Bruner's Model of Motivated behaviour
- 1.4 Summary
- 1.5 References/Further Reading/Web Sources
- 1.6 Possible Answers to Self-Assessment Exercises



1.1 Introduction

In this unit we are looking at the topic of Motivation in Learning. What is it that motivates your behaviour? What motivated you to enroll in NOUN for a postgraduate degree programme? There are many different reasons why people behave the way they. No doubt, motivation drives many behaviours and it is important to understand the importance of motivation in a classroom environment. This unit therefore provides the learners the opportunity to understand the concept of motivation and

how it is influenced, and how the teacher can foster motivation in their students.



1.2 Learning Outcomes

By the end of this unit, you will be able to:

- define the concept of motivation
- describe and distinguish between the two types of motivation
- explain Bruner's model of motivated behaviour.



1.3 Motivation in Learning

1.3.1 What is Motivation?

Motivation can be defined as an inspiration that propels someone into an action. It is an internal state or condition that activates and gives direction to our thoughts, feelings, and actions (Lahey, 1995). In the opinion of Oladele (1998), motivation is a process by which the learner's internal energies are directed toward various goal objects in his/her environment. These energies or arousals push an individual in achieving his goals. It can also be defined as the eagerness and willingness to do something. It is the reason why an individual would want to do something. An individual may be highly motivated to perform well in a task and completely unmotivated in another. Motivation describes the wants or needs that direct behavior toward a goal (Lumen Learning, 2020). This means that when people are motivated, they will work tirelessly to achieve their aspirations. In a classroom situation, motivation drives learners in reaching learning goals.

Self-Assessment Exercises 1

What is motivation?

1.3.2 Types of Motivation

There are two types of motivation namely, intrinsic motivation (arising from internal factors) and extrinsic motivation (arising from external factors). Hence, motivation to engage in a given behavior can come from internal and/or external factors. The desire for food or water arises

from within us (intrinsic), while the yearning to obtain recognition or approval is influenced by conditions in our environment (extrinsic). Let's look at the two types of motivations in more detail.

- 1. Intrinsic Motivation:** Intrinsic motivation refers to motivation that arises from within the individual. We are motivated intrinsically when we do something because we experience internal compelling force to do it or because of the sense of personal satisfaction that it brings. It is an internal force or motive within the individual which propels him/her into emitting certain behaviour. Intrinsic motivation is something within the person that energises behavior e.g., interest, curiosity, personal challenge, and improvement. An example of an intrinsically motivated student is one who reads simply because he sees value in reading. It is the act of doing something without any obvious external rewards. You do it because it's enjoyable and interesting, rather than because of an outside incentive or pressure to do it. A student who is intrinsically motivated may carry out a task because of the enjoyment he/she derives from such a task. In another way, a dog that sees a bone and runs for it did that because of the satisfaction it derives from eating bone. This type of behaviour does not require any prior learning. Sighting the bone charges the behaviour of the dog and propels it to act.

Here, you are motivated to perform a task for reasons such as interest, enjoyment, pleasure and satisfaction

- 2. Extrinsic Motivation:** Extrinsic motivation refers to motivation that arises from sources outside the individual. It is the incentive/reinforcer that drives an individual's behaviour towards a goal. Extrinsic motivation is something outside the person that energises behavior e.g., money, fame, power. A student that is extrinsically motivated will execute an action in order to obtain some reward or avoid some sanctions. For example, a student who reads hard for the examination did so because of the desire to obtain better grade. The case also goes for a runner who wants to win a prize, he/she will need constant practice than a person who wants to run for the fun of it. Extrinsic rewards should be used with caution because they have the potential for decreasing existing intrinsic motivation. For example, extrinsic incentive may spur a student to actively participate in the task for which the student has no interest, but may undermine intrinsic motivation in him/her (Deci et al, 1985). Therefore, students' motivation automatically has to do with the students' desire to participate in the learning process. It also concerns the reasons or goals that

underlie their involvement or non-involvement in academic activities.

Here, you are motivated to perform a task for reasons such as to gain a reward or avoid a punishment

Think about why you are currently in NOUN. Are you here because you enjoy learning and want to pursue an education to make yourself a more well-rounded individual? If so, then you are intrinsically motivated. However, if you are here because you want to get a college degree to make yourself more marketable for a high-paying career or to satisfy the demands of your parents or spouse, then your motivation is more extrinsic in nature.

Extrinsic rewards should be used with caution because they have the potential for decreasing existing intrinsic motivation that students might have. For example, extrinsic incentive may spur a student to actively participate in the task for which the student has no interest, but may undermine intrinsic motivation in him/her. First and foremost, students' motivation automatically has to do with the students' desire to participate in the learning process.

Intrinsically motivated learning vs. Extrinsically motivated learning

Both extrinsic and intrinsic motivation have been shown to play a significant role in learning. However, research has shown that intrinsically motivated learning is more effective and leads to the most positive outcomes among students. Others have suggested that extrinsic motivators help students feel more competent in the classroom, which in turn enhances their intrinsic motivation (Oudeyer & Kaplan, 2007). Whatever the case may be, it is important for teachers to put an emphasis on intrinsic motivation so as to keep students interested in their own learning goals. Therefore, finding ways to develop intrinsic motivation in students should be an important part of every teacher's instructional practices. The teacher can promote intrinsic motivation in students using the following strategies:

- By arousing a sense of curiosity in students and presenting their learning materials in a more meaningful way in order to facilitate students' active engagement and motivation.
- By creating a positive learning environment in the classroom and developing meaningful and respectful relationships with their students.
- Students are more likely to experience intrinsic motivation to learn when they feel a sense of belonging and respect in the classroom.

Self-Assessment Exercises 2

- 1) Differentiate between the two types of motivation you know
- 2) Indicate the motivation type in these sentences
 - I will study for this exam because I really enjoy the content and reading makes me feel relaxed.
 - I will study for this exam because if I don't, I will receive a bad grade
- 3) How would you promote intrinsic motivation in students?

1.3.3 Bruner's Model of Motivated Behaviour

Relevant to the theory of intrinsic motivation is Bruner's (1966) model explaining motivated behaviour. Bruner believes that our intrinsic motivation to learn consists of three main underlying driving forces. These are: curiosity drive, the drive to achieve competence, and the drive for reciprocity. According to him, these three drives are the intrinsic motivators for learning, which may make a child willing to learn. Now, let's discuss these innate drives in more detail:

- i. **Curiosity Drive:** Bruner believes that children come into the world equipped with a natural curiosity to learn and a will to know. According to Bruner, the curiosity drive was basic to learning and as such had to be fulfilled if proper intellectual development was to occur. He feels that curiosity drive is of biological relevance, that is, curiosity is necessary to the survival of the species. Bruner suggests that young children are too often curious, that they are unable to stick with any one activity. Their curiosity leads them to turn from one activity to another in rapid succession, and it must therefore be channeled into a more powerful intellectual pursuit. Since children are driven by a natural curiosity that makes them want to learn, the teacher can nurture the child's curiosity in the following ways:
 - By asking questions or posing problem that are relevant to their needs and by providing them with opportunities to explore.
 - By using explanations, demonstrations and pictures to help students understand concepts.
 - By using a variety of materials and providing a variety of learning experiences. Mechanical learning and rote learning will kill curiosity and the desire to understand.
 - By creating a learning environment free from fear, punishment, harsh discipline, and intimidation - a learning environment that

allows children to feel safe, respected, and valued; so, they can learn.

ii. Drive to Achieve Competence: Bruner was convinced that all children have an innate desire to achieve competence. Children become interested in what they are good at, and it is virtually impossible to motivate them to engage in activities in which they have no degree of competence. This drive can be aroused as follows:

- Plan and prepare appropriate materials for instruction according to the difficulty that matches learners' level. The satisfaction learners get when they solve a problem or finish a task is a kind of self-rewarding and this will enhance their drive to achieve competence.

iii. Drive for Reciprocity: The drive for reciprocity is of the idea that children have a desire to work cooperatively with others to share their new learning and to work with others to discover information (Kaufhold, 2002). Children have the desire to be an indispensable part of the learning community. Bruner believes that society itself developed as a result of this basic motivation.

This drive can be aroused as follows:

- By creating a collaborative problem-solving environment where students become active participants in their own learning. Corporative learning gives students the opportunity to learn from their peers. Teachers should use group projects and collaborative activities to encourage teamwork in the classroom.

In conclusion, we have seen that Bruner's model has direct implications for teaching practices. If the learning is planned in a way that enables the student to achieve one or more of the three motives above, it will help the student feel an inner motivation to learn (Bruner 1966). Clearly, it is worth paying attention to motivational drives when creating learning activities. The teacher's responsibility is to ensure that these natural motivators are not impaired by irrelevant and dry presentations, frustrating expectations and unwholesome competition among students (Yount, 2001).

Self-Assessment Exercises 3

Using Bruner's model of motivated behaviour, explain three ways by which school pupils can be motivated to learn.



1.4 Summary

In this unit, you have learnt the concept of motivation, types of motivation and how the teacher can nurture the motivational drives in students. You can now see that motivation is a very important factor in the learning process. The fundamental aim of motivation is to stimulate and to facilitate learning activity. Brunner believes intrinsic motivation comes from the students' own curiosity, their drive to achieve competence and the desire to work cooperatively with others (reciprocity). These are rewarding in themselves and thus self-sustaining. If our students are motivated, they learn better and retain more of what they learned. Learning is an active process that needs to be motivated and guided toward desirable ends; hence this unit has prepared the teachers for the various strategies they can employ to keep the students motivated. If our students are motivated, they learn better and retain more of what they learned.



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1.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. What is motivation?

Motivation can be defined as an inspiration that propels someone into an action. It is an internal state or condition that activates and gives direction to our thoughts, feelings, and actions. Motivation is a process by which the learner's internal energies are directed toward various goal objects in his/her environment. These energies or arousals push an individual in achieving his goals. It can also be defined as the eagerness and willingness to do something. It is the reason why an individual would want to do something.

Answers to SAEs 2

1. The distinction between the two types of motivation:

Intrinsic Motivation

- Intrinsic Motivation is something within the person that energises behavior i.e. intrinsic motivation comes from within.
- When you are intrinsically motivated, you engage in an activity because you enjoy it and get personal satisfaction from doing it.
- An example of intrinsic motivation is a student carrying out a task because of the enjoyment/pleasure/interest/satisfaction he or she derives from such a task.

Extrinsic motivation

- Extrinsic motivation is something outside the person that energizes behaviour i.e., extrinsic motivation refers to motivation that arises from sources outside the individual.
- When you are extrinsically motivated, you do something in order to gain an external reward e.g., money, fame, power/better grade or to avoid a punishment.
- An example of extrinsic motivation is a student reading hard for the examination because of the desire to obtain better grade, or a student who is studying hard so that their parents will not punish them for poor grades.

2. Indicate the motivation type in these sentences
 - I will study for this exam because I really enjoy the content and reading makes me feel relaxed - *Intrinsic motivation*
 - I will study for this exam because if I don't, I will receive a fail grade - *Extrinsic motivation*
3. I can promote intrinsic motivation in students by arousing a sense of curiosity in students and presenting their learning materials in a more meaningful way in order to facilitate students' active engagement and motivation. Students are more likely to experience intrinsic motivation to learn when they feel a sense of belonging and respect in the classroom. By creating a positive learning environment in the classroom and developing meaningful and respectful relationships with their students.

Answers to SAEs 2

Using Bruner's model of motivated behaviour, three ways by which school pupils can be motivated to learn by arousing the three motivational drives which are curiosity drive, the drive to achieve competence, and the drive for reciprocity.

- a. **Curiosity Drive:** Bruner believes that children come into the world equipped with a natural curiosity to learn and a will to know. According to Bruner, the curiosity drive was basic to learning and as such had to be fulfilled if proper intellectual development was to occur. Bruner suggests that young children are too often curious, that they are unable to stick with anyone activity. Their curiosity leads them to turn from one activity to another in rapid succession, and it must therefore be channeled into a more powerful intellectual pursuit. The teacher can nurture the child's curiosity in the following ways:
 - By asking questions or posing problem that are relevant to their needs and by providing them with opportunities to explore.
 - By using explanations, demonstrations and pictures to help students understand concepts.
 - By using a variety of materials and providing a variety of learning experiences. Mechanical learning and rote learning will kill curiosity and the desire to understand.
 - By creating a learning environment free from fear, punishment, harsh discipline, and intimidation - a learning environment that allows children to feel safe, respected, and valued; so, they can learn.

- b. Drive to Achieve Competence:** Bruner was convinced that all children have an innate desire to achieve competence. Children become interested in what they are good at, and it is virtually impossible to motivate them to engage in activities in which they have no degree of competence. This drive can be aroused as follows:
- Plan and prepare appropriate materials for instruction according to the difficulty that matches learners' level. The satisfaction learners get when they solve a problem or finish a task is a kind of self-rewarding and this will enhance their drive to achieve competence.
- a. Drive for Reciprocity:** The drive for reciprocity is of the idea that children have a need to work with others cooperatively to share their new learning and to work with others to discover information (Kaufhold, 2002). Children have the desire to be an indispensable part of the learning community. This drive can be aroused as follows:
- By creating a collaborative problem-solving environment where students become active participants in their own learning. Corporative learning gives students the opportunity to learn from their peers. Teachers should use group projects and collaborative activities to encourage teamwork in the classroom.

UNIT 2 MOTIVATION THEORIES ON LEARNING

Unit Structure

- 2.1 Introduction
- 2.2 Learning Outcomes
- 2.3 Motivation Theories in Learning
 - 1.3.1 Theories of Motivation
 - 2.3.2 Classroom Implications of Theories of Motivation
- 2.4 Summary
- 2.5 References/Further Reading/Web Sources
- 2.6 Possible Answers to Self-Assessment Exercises



2.1 Introduction

In the previous unit we discussed the topic of motivation in learning. In this unit we shall discuss major theories of motivation in learning and describe how teachers can apply these theories to their day-to-day classroom teaching and learning activities.



2.2 Learning Outcomes

By the end of this unit, you will be able to:

- discuss major theories that describe motivation in learning
- discuss classroom implications of motivational theories and some strategies that can be used to help motivate learners.



2.3 Theories of Motivation on Learning

2.3.1 Theories of Motivation

Several theories on motivation have been developed by different psychologists to explain what drives humans to think and behave the way they do. Notable among the theories are as the following:

- a) Instinct theory of motivation
- b) Drive theory of motivation
- c) Arousal theory of motivation
- d) McClelland's human motivation theory
- e) Maslow's hierarchy of needs theory

The first three set of theories (a, b & c) focuses on the innateness of motivation. These theories emphasise instinctual or biological needs and drives that influence our behaviour. The last two theories of motivation (d & e) are need-based and describe motivated behaviour as individual efforts to meet needs. To them, in order to understand human behaviour and how an individual could be motivated, one must first understand their needs.

(a) Instinct Theory of Motivation

This theory suggests that human behaviour is driven by instincts which aid survival. According to the instinct theory of motivation, all organisms are born with innate biological tendencies that help them survive. This theory suggests that instincts drive all behaviors. Instincts are natural urges or innate tendencies. They are therefore unlearned, inherited behaviours. Instinct is considered to be a purposive, inherited, goal-seeking tendency. Some behaviours are driven by instincts E.g., infants have an inborn rooting reflex that helps them seek out a nipple and obtain nourishment. This behavior occurs naturally and automatically. They do not need to be learned in order to be displayed. They are inherited behaviours. The instinct theory suggests that motivation is primarily biologically based. We engage in certain behaviors because they aid in survival.

In this theory, for every type of human behaviour manifestation, there was an underlying instinct and an accompanying emotion.

Mc Dougall listed various instincts and their corresponding emotions. Let us give examples:

Instincts	Emotions
Fight	Fear
Food seeking	Gusto
Curiosity	Wonder
Pugnacity	Anger
Affiliation	Affection
Acquisition	Feeling of ownership
Laughter	Amusement
Appeal	Distress
Self-assertion	Positive self-
Self-abasement	feeling
Reproduction	Negative self-feeli
Gregariousness	Lust
Repulsion	Companionship
	Disgust

(a) Drive Theory of motivation

According to the **drive theory** of motivation, deviations from homeostasis create physiological needs. These needs result in psychological drive states that direct behavior to meet the need and, ultimately, bring the system back to homeostasis. Homeostasis is the tendency to maintain a balance, or optimal level, within a biological system.

The theory is based on the idea that the body actively works to maintain a certain state of balance or equilibrium. For example, your body regulates its temperature in order to ensure that you don't become too hot or too cold. According to the drive theory of motivation, people are motivated to take certain actions in order to reduce the internal tension that is caused by unmet needs. When a physiological need is aroused, a state of tension/drive is created (e.g., hunger) that motivates an organism to satisfy the need (looking for food). For example, when a person is hungry or thirsty, he or she feels tension and is motivated to reduce this state of discomfort by eating or drinking. Drive theories typically hypothesise that a set of physiological survival drives motivate behaviour.

(b) Arousal Theory of Motivation

The arousal theory of motivation suggests that people are driven to perform actions in order to maintain an optimum level of arousal. That is to say behaviour is motivated by arousal levels. According to the theory, each person has a unique arousal level that is right for them. When our arousal levels drop below these personalised optimal levels, we seek some sort of activities to elevate them. When we become overly aroused, we seek soothing activities that help calm and relax us. If we become bored, we head in search of more invigorating activities that will energise and arouse us. It's all about striking the right balance, but that balance is unique to each individual.

For example, if our levels drop too low, we might engage in certain activities like going out to a nightclub with friends. If these levels become too elevated and we become overstimulated, we might be motivated to select a relaxing activity such as going for a walk or taking a nap. One of the key assumptions of the arousal theory is that we are motivated to pursue actions that help us maintain an ideal balance.

The person with low arousal needs might be motivated to pursue simple activities such as crocheting or watching a movie in order to maintain their arousal levels. The individual with high arousal needs, on the other

hand, might be motivated to seek risky or thrilling activities such as motorcycle racing or skydiving in order to maintain his or her ideal levels.

So, what is the optimal level of arousal? What level leads to the best performance? Research shows that moderate arousal is generally best; when arousal is very high or very low, performance tends to suffer. Think of your arousal level regarding taking an exam for this class. If your level is very low, such as boredom and apathy, your performance will likely suffer. Similarly, a very high level, such as extreme anxiety, can be paralyzing and hinder performance. Consider the example of a softball team facing a tournament. They are favored to win their first game by a large margin, so they go into the game with a lower level of arousal and get beaten by a less skilled team.

In the classroom, when the lesson is too easy, the children will get bored and restless, and when the lesson is too difficult, they will feel frustrated and disinterested. The optimal level of difficulty, therefore, should be half way between the extremes of ease and difficulty for all the children to exhibit their maximum tendency to achieve success in their learning undertaking.

(c) McClelland's Human Motivation Theory/ McClelland's Acquired Needs Theory

According to this theory, individuals acquire three types of needs as a result of their life experiences. These needs are the need for achievement, the need for affiliation, and the need for power. One motivator is dominant, and can describe what mostly drives the individual towards reaching their goals. These motivators are not inherent; we develop them through our culture and life experiences. People will have different characteristics depending on their dominant motivator. For instance, individuals who have high need for achievement like to solve problems and achieve goals. They are said to have a strong need to be successful. They like to receive regular feedback on their progress and achievements and often like to work alone.

Consider the cases of two young business executives, Tata and Sapa. Tata arrives at work promptly at 8.00 a.m. and seldom leaves before 4.00 p.m., always taking a loaded briefcase home with him. He works at least one day each weekend, always arrives at meetings on time, and often completes assigned work early. Sapa works the minimum hours from 9 to 4 and takes long lunches. He is often late for meetings and frequently requests extensions to complete assignments. David McClelland might suggest that the principal difference between these

two people is in their levels of achievement motivation or need for achievement. A uniquely human drive, achievement motivation is a striving to overcome challenges, improve oneself, attain excellence, and accomplish more than others.

Individuals who have a high need for affiliation want to be liked and accepted by others. They prefer to interact with others and be with friends. They want to belong to the group and they will conform to the group's behaviour and wishes. They favour collaboration over competition.

Those with a high need for power want to control and influence others, like to win arguments, they enjoy competition and winning, and they attach great value to status and recognition.

McClelland's theory can help you to identify the dominant motivators of students in your classroom. You can then use this information to influence how you set goals, provide feedback, and motivate and reward students.

(e) Maslow's Hierarchy of Needs Theory

Abraham Maslow was a foremost Psychologist who explained motivation through the satisfaction of needs arranged in a hierarchical order. The basis of his theory is that human beings are motivated by unsatisfied needs. Maslow argues that humans have seven levels of needs that can be arranged in a hierarchy from the lowest (physiological needs) to the highest (self-actualisation needs). According to Maslow, these needs can create internal pressures that can motivate a person's behavior. He sees man as a wanting being who is motivated by the needs he wants to satisfy. He proposed that motivation is the result of a person's attempt at fulfilling these needs, and that need satisfaction is the most important sole factor underlying motivation. Maslow further explained that man is perpetually in needs and that the resources to satisfy those needs are limited. In view of this, humans place their wants on the scale of preference, and that they select the most pressing needs. After these needs have been satisfied, they become less important and no longer serve as motivators, paving way for the next on the hierarchy.

It is important to note that this 7-level hierarchy of needs constitute the expanded hierarchy from the original 5-level of needs.

The hierarchy of needs is often portrayed in the shape of a pyramid with the largest and lowest levels at the bottom (see Figure). These needs according to Maslow are:

1. Physiological Needs
2. Security and Safety Needs
3. Love and Belongingness Needs
4. Self-esteem Needs
5. Cognitive needs
6. Aesthetic Needs
7. Self-Actualisation Needs

Maslow's 7 Stage Hierarchy of Needs

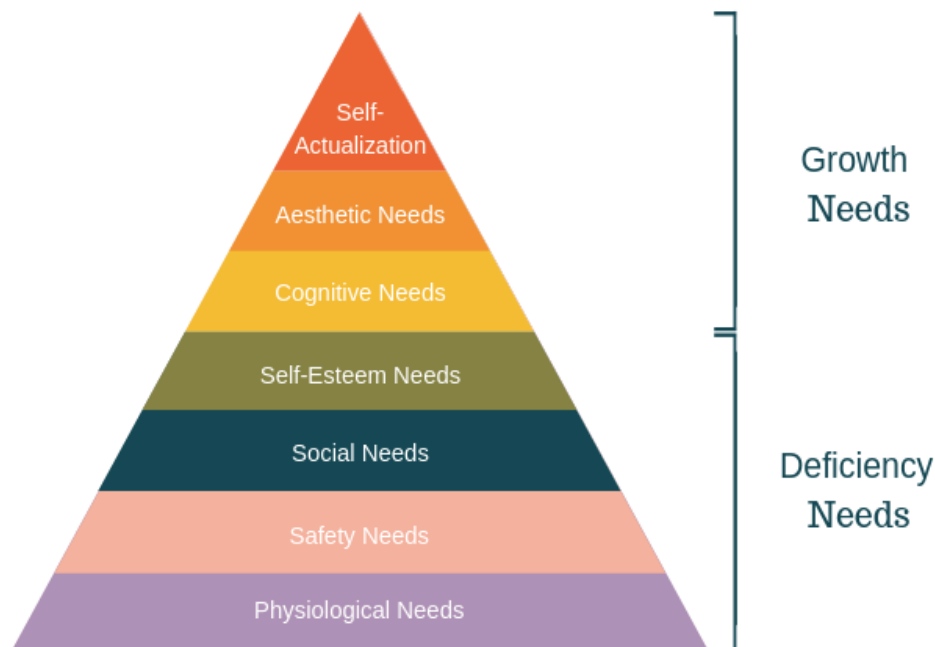


Fig. 2: Maslow's 7-Stage Hierarchy of Needs

Source: expertprogrammanagement.com

Let us now explain in more detail the seven Maslow's hierarchy of needs:

1. **Physiological Needs:** These are the biological or survival needs of man. They are the most basic needs, that is, the needs for water, air, food, and sleep. Maslow considered physiological needs the most important of all the needs. Until these needs are fulfilled or satisfied, you will not be able to go to the next level. When you are very hungry, for example, all your behavior may be motivated by the need to find food. Once you eat, the search for food ceases, and the need for food no longer motivates you. They become less important and one moves to the next on the hierarchy which is the desire for security and safety.

Educational implication: The teacher must realise that effective learning is possible only when the physiological needs of pupils have been met; for example, a tired and hungry student will find it difficult to focus on learning. Teachers can aid students in the satisfaction of this need by helping them feel safe in the classroom and by not using coercion to control behaviour.

2. **Safety and Security Needs:** Once physiological needs are satisfied, people tend to become concerned about safety and security needs. It includes the need to have safe, secure and conducive life. At this stage the individual will be motivated to direct their behavior toward obtaining shelter and protection in order to satisfy this need. Today in Nigeria, both child and adult safety needs are often threatened by societal violence, communal violence, and armed robbery incidence.

Educational implication: Students need to feel emotionally and physically safe and accepted within the classroom to progress and reach their full potential.

3. **Love and Belongingness Needs (Social Needs):** This involves the aspiration of man to establish a cordial relationship with others. Once the safety needs have been met, social needs for love and belongingness become important. This can include the need to bond with other human beings, the need to love and be loved and to have a sense of belonging. At this level of need, people will like to extend their hands of fellowship or comradeship to their friends, mates, co-workers or neighbours. They equally will expect that such gestures be reciprocated by others. If these needs are not met, the person will start feeling isolated, lonely and depressed.

Educational implication: A typical classroom consists of learners from different cultural, religious and socioeconomic backgrounds. Teachers can aid students in the satisfaction of this need by ensuring acceptance for all students in the classroom and by building a classroom environment where positive interactions are the norm and that no one experiences social rejection.

4. **Self-Esteem Needs:** These are the things we desire in order that our ego will be boosted. Once love and belonging needs have been satisfied, esteem needs become more important. Self-esteem needs refer to the desire to be respected by one's peers, to feel important, and to be appreciated. People will often look for ways to enjoy considerable influence from others and gain recognition, and they may seek validation and praise from others in order to

fulfill these needs. The ability of someone to fulfill this need makes them feel superior and self-confident. Inability to fulfill these needs make a person feel dejected or inferior.

Educational implication: Students must be shown that they are valued and respected in the classroom and the teacher should create a supportive environment. Students with a low self-esteem will not progress academically at an optimum rate until their self-esteem is strengthened.

5. **Cognitive Needs:** The needs for knowledge and understanding, for curiosity, exploration. If you are driven by these needs, you may spend most of your time watching documentaries, reading books, researching into things and doing course works that is not required from school -just for the sake of having more knowledge.
6. **Aesthetic Needs:** The aesthetic needs are the needs in which one finally comes to a deep understanding of the world and the purpose of life and feel a part of the cosmos. These needs include the desire of people to pursue or admire beautiful things; e.g., the desire for beautiful and expensive cars, houses, materials, gorgeous and expensive dresses and beautiful surroundings.
7. **Self-Actualisation Needs:** This is the highest level of the hierarchy and refer to the realisation of a person's potential, the desire to accomplish everything that one can. If the previous needs are sufficiently met, a person now has the opportunity to become self-actualised. At this point the person is said to have reached the peak of his potentials. A person who reaches this stage strives for growth and self-improvement. Maslow believed that a person's position on the hierarchy is likely to rise with age, but estimated that less than 1 percent of the population ever achieve self-actualisation.

In general terms, the physiological needs, safety needs, love/belonginess needs and self-esteem needs (i.e., Nos. 1-4) are referred to as Deficiency needs - needs that must be satisfied for survival. The needs at the very top i.e., cognitive needs, aesthetic needs and self-actualisation needs (Nos 5-7) are referred to as Growth needs - needs that enhance the person's psychological functioning (see Figure 3).

Self-Assessment Exercises 1

- 1) Mention three theories of motivation that focus on the biological needs and drives that influence our behaviour
- 2) In relation to Maslow's hierarchy of needs theory, write short notes on the following:
 - i. Physiological Needs
 - ii. Safety Needs
 - iii. Aesthetic Needs

2.3.2 Classroom Implications of Theory of Motivation i.e Strategies that can be used in the Classroom to help Motivate Students

1. It is important for the teacher to know the basic needs of his/her students and cater for these according to level of their importance. For example, the teacher needs to think first of students' food, rest or health before thinking of teaching them. A tired and hungry student will find it difficult to focus on learning.
2. Students need to feel emotionally and physically safe and accepted within the classroom to progress and reach their full potential
3. When the teacher praises his/her students for doing well in their study or assignment, they will be spurred to sustain that effort. This would boost the self-confidence of the student.
4. A classroom which is well decorated or adorned with beautiful charts and learning materials will be student-friendly. The students' minds will always be attracted to the activities in a beautifully adorned classroom.
5. In the classroom, students must be shown that they are valued and respected, and the teacher should create a supportive environment. When their views are recognised or respected, this would boost their confidence. Students with a low self-esteem will not progress academically at an optimum rate until their self-esteem is strengthened.
6. From the beginning of the lesson, the teacher should endeavour to make his/her students know possible outcome of the lesson. It is when the students know what they are likely to achieve from the lesson that they want to be involved and feel belonged.

7. Feedback is necessary if the interest of the students must be sustained in the classroom. So, the teacher should always strive to let them know how they are performing in the teaching-learning activities as this will boost their self-esteem needs.
8. The teacher should also provide/plan for extra-curricular activities for his/her students. When the teacher does this, the students will have opportunity of establishing a genuine interaction among them. Besides, they will be able to showcase their hidden talents.
9. When dealing with the students in the classroom, the teacher should take into consideration, the developmental changes and differences in the students before deciding on the particular motivation pattern to be employed.
10. The teacher should know how to motivate their students to learn. They should be versatile with various strategies that can enhance active participation of the students in the teaching-learning activities.

Self-Assessment Exercises 2

Discuss three strategies that teachers can use to motivate their students to learn



2.4 Summary

In this unit, you have learnt major theories of motivation, and how you can apply these theories to your day-to-day classroom teaching/learning activities. Learning is an active process that needs to be motivated and guided toward desirable ends; hence this unit has prepared the teachers for the various strategies they can employ to keep the students motivated to learn and participate meaningfully in classroom.



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2.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

1. Three theories of motivation that focus on the biological needs and drives that influence our behaviour include the instinct theory of motivation, drive theory of motivation, and arousal theory of motivation.
2. Short notes:
 - i. Physiological needs are the biological or survival needs of man. They are the most basic needs, such as the need for water, air, food, and sleep. Until these needs are fulfilled or satisfied, you will not be able to go to the next level of the hierarchy.
 - ii. Safety needs are the needs for shelter, employment, health, and safe environment. Once this need is triggered, one will be motivated to direct their behavior toward obtaining shelter and protection in order to satisfy this need. Human beings require safety and protection from danger or external aggressors.
 - iii. Aesthetic needs are the needs that make people to pursue or admire beautiful things. For instance, the desire for beautiful and expensive cars, houses, materials, gorgeous and expensive dresses and beautiful surroundings.

Answers to SAEs 2

1. Strategies that teachers can use to motivate students to learn. Mention any three strategies out of those listed under sub-section 12.3.2

Seminar Topic

Each student is expected to present seminar paper on one of the following topics:

1. Which motivation theory have you found to be most useful in explaining why people behave in a certain way? Why?
2. Sometimes, our motivations are often a mix of both intrinsic and extrinsic factors; is this true? Discuss.

UNIT 3 RETENTION IN LEARNING: MEMORY, REMEMBERING AND FORGETTING

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcomes
- 3.3 Retention in Learning: Memory, Remembering and Forgetting
 - 3.3.1 What is Memory?
 - 3.3.2 Types of Memory
 - 3.3.3 Strategies for Enhancing Memory in Students
 - 3.3.4 Remembering and Forgetting
 - 3.3.5 How a Teacher can Promote Retention in the Classroom
- 3.4 Summary
- 3.5 References/Further Reading/Web Sources
- 3.6 Possible Answers to Self-Assessment Exercises



3.1 Introduction

In the previous unit we discussed the motivational theories and based on these theories we learnt the strategies that can be used to help motivate students. In this unit we are covering the topic of Retention in Learning: Memory, Remembering and Forgetting, which is another important area of psychology. If you learn a body of knowledge in the past and fail to remember it, it means you have forgotten. What do you think is responsible for this? In this unit, you are going to learn reasons why learners sometimes forget what we have taught them and also discuss how we can help learners remember what they have learnt. Here, you will learn the concepts of memory, types of memory and the mechanisms operating in them, strategies for enhancing memory and how a teacher can promote retention in the classroom.



3.2 Learning Outcomes

By the end of this unit, you will be able to:

- define memory
- discuss types of memory
- discuss different strategies of enhancing memory in students
- explain the causes of forgetting
- explain how a teacher can promote retention in the classroom.



3.3 Retention in Learning: Memory, Remembering and Forgetting

3.3.1 What is Memory?

Retention is the ability to store in the memory information received from the environment.

Memory is the evidence that meaningful learning has taken place. It is the ability of someone to recall what has been previously learnt. It is the ability to acquire and retain information and recall it when needed. Without good memory, one will not be able to retain previous learning. Memory is fundamental for remembering and forgetting. It is the life wire on which the study of remembering and forgetting rests.

Self-Assessment Exercises 1

Define the term 'memory'

3.3.2 Types of Memory

Memory has been categorised into various kinds but here we shall be considering only two major types of memory and the mechanisms that operate in them. They are short-term memory and long-term memory.

a) Short-Term Memory (STM)

Human beings have limited attention and typically can only attend to just one input channel at a time; and when this piece of input (information) is received, it is placed in the short-term memory (STM), which is the working memory where an individual does his/her thinking (Crowl, Kaminsky and Podell, 1997). Crowl and his associates explain that when a piece of information is acquired it must be properly processed, otherwise, such information dies off, and thus it becomes increasingly difficult for an individual to remember or recall such an idea. This therefore implies that a piece of information must be learnt repeatedly, and must not be too large at a time; otherwise, the STM may throw away some parts of the information.

Short-term memory is limited in both the length and the amount of information it can hold. It stores information temporarily for 20 seconds, and unless the receiver of the information acts on it, the information is

forgotten. Similarly, the storage capacity of STM can hold is limited. It can only hold a small amount of information at a time (9 items). Any item above this capacity is thrown away. Therefore, for pieces of information to be stored in the STM at one time or the other, it must not be too large.

The retention of information in the short-term memory can be disturbed by other events that take place shortly after the learned materials. For instance, name of a person you just met remains in STM only momentarily. Unless a conscious effort is made to pay proper attention to the name, it is quickly lost. To help make sure information is kept in short-term memory, you can use memory-enhancing strategies (Lumen Learning, 2020).

One way to keep information in short-term memory is to use what we call maintenance rehearsal. Rehearsal is a process by which we exercise the repeat of a piece of information so that such information does not elope from STM after the 20 seconds capacity of the STM. Rehearsal is also defined as the conscious repetition of information to be remembered (Craik & Watkins, cited in Lumen Learning, 2020). Think about how you learned your multiplication tables as a child. You may recall that $3 \times 3 = 9$, $3 \times 4 = 12$, and $3 \times 8 = 24$. Memorising these facts is rehearsal. Maintenance rehearsal is the process of repeating information mentally or out loud with the goal of keeping it in memory. We engage in maintenance rehearsal to keep a something that we want to remember (e.g., a person's name, e-mail address, or phone number) in mind long enough to write it down, use it, or potentially transfer it to long-term memory. One example of maintenance rehearsal would be repeating a phone number mentally, or aloud until the number is entered into the phone to make the call. The number is held in short term memory long enough to make the call, but never transferred to long term memory. An hour, or even five minutes after the call, the phone number will no longer be remembered (Wikipedia.org). So, maintenance rehearsal is just temporarily maintaining the piece of information in the short-term memory.

All the while, we have been discussing about short-term memory and how we can keep information in short-term memory. Now, let's consider the nature of long-term memory.

(b) Long-Term Memory (LTM)

It is an aspect of memory that can hold information over a long period of time. Unlike short-term memory, the storage capacity of long-term memory is large and has no limits. Example is remembering our

identifying data like our name, father's name, date of birth, date of marriage, and remembering the materials for our various courses.

Self-Assessment Exercises 2

- 1) Compare and contrast short term memory and long-term memory in terms of the length and the amount of information they can hold

3.3.3 Strategies for Enhancing Memory in Students

Some of the methods by which information is stored in long term memory are:

- a. **Elaborative rehearsal:** It involves repetition of information and linking it with information already stored in the long-term memory in order to retain the newly learned information, so that it can be retrieved for use when needed. In elaborative rehearsal, effort is made to pass on a piece of information from short term memory into long-term memory by relating new information to prior knowledge. Each person has his or her unique way of elaborating on information; the important thing is to try to develop unique and meaningful associations among the material (Stangor, 2012). Material is better remembered if it is processed more fully.
- b. **Sentence creation:** This is otherwise called verbal elaboration. It is a process by which a sentence is made with a learned concept as a component. For example, when a child is taught the alphabets, the teacher often associates the letters with an object as "B" for Ball, "E" for Elephant. The sentences that could be made are "B" for Ball", "kick the ball", "E" for Elephant, an elephant is big. When this is repeatedly done, the child easily recalls the concept being passed.
- c. **Creation of mental picture:** When a concept is associated with an object as shown above, the child will recall quickly. E.g., letter B as in Ball. Whenever the child comes across letter B, she/he can also visualise a ball.
- d. **Use of mnemonic devices:** A mnemonic is any learning technique that aids information retention or retrieval in the human memory. Here a learner could use acronyms i.e., first letter of each of the points being mastered, or an arrangement that makes the points meaningful to pronounce. Thus, when the individual

wants to recall, it will be very easy to retrieve it from memory. A typical example is the arrangement of the characteristics of living things as MR NIGER-D i.e., M=Movement, R=Respiration, N=Nutrition, I=Irritability G=Growth, E= Excretion, and R=Reproduction, D=Death.

- e. **Meaningfulness and organisation of subject matter.** One of the ways to improve retention is the method of making the subject matter meaningful. Meaningful material is easy to retain because it is better learned.

Self-Assessment Exercises 3

Explain two ways in which a teacher can enhance the long-term memory in students.

3.3.4 Remembering and Forgetting

It is clear that two things happen to what we learnt; we either remember it or forget it.

Remembering is the ability to recall stored ideas or materials in the brain to the mind.

Forgetting means failure to retain what has been acquired or learnt. If an individual fails to remember what he/she has learnt in the past, it means the individual has forgotten. Forgetting therefore means the failure at any time to recall an experience, when attempting to do so. Forgetting is the opposite side of remembering.

Causes of Forgetting

There are many reasons why and how people forget what they have learnt. This is better understood with the aid of some theories of forgetting.

1. **Trace Decay Theory:** This explanation of forgetting assumes that memories follow a certain pathway or trace in the brain. Trace decay theory states that forgetting occurs as a result of the automatic decay or fading of the trace of memory. After a relatively longer period of time, a piece of acquired information dies off the memory and an individual find it difficult to remember it again. Examples of this are the experiences acquired

in the earlier part of one's life; and as the body systems grow, in addition to several experiences acquired, the earlier learned facts tend to go into extinction.

2. **Interference Theory:** This theory maintains that one may fail to remember a piece of information because other pieces of information are blocking or interfering with it. There are two ways in which interference can cause forgetting:
 - (a) **Retroactive Inhibition:** It occurs when you forget a previously learnt task due to the learning of a new task. When a person has just acquired a piece of information, the tendency is that the earlier acquired information becomes increasingly difficult to be remembered or even get lost. For example, when a person relocates to a new area of the city, there is the tendency for him to forget addresses of his earlier location in the city.
 - (b) **Proactive Inhibition:** This is typically the opposite of the retroactive inhibition. Here the old learning retained in the memory works forward to interfere with the retention of something currently learnt. In the above example, the inability of the individual to remember the present address but remembering the previous address is as a result of interference of the first experience.
1. **Cue-dependence:** This is the failure to recall information due to missing cues that were present at the time the information was encoded. Sometimes we want to recall a piece of information but we cannot due to non-availability of appropriate cues that were present at the time the information was encoded. In other words, when cues that were present at the time of learning are not available at the time of recall, retention suffers. Therefore, in order to remember a learned idea, an individual needs some cues that will aid it. For instance, you might want to try to study for an exam in a situation that is similar to the one in which you are going to take the exam. Without this, the possibility for a piece of information to go into extinction is there.

Self-Assessment Exercises 4

1. What is Remembering?
2. What is Forgetting?
3. Discuss three reasons why students forget what they have learnt

3.3.5 How a Teacher Can Promote Retention in the Classroom

In order for learners to benefit from school activities, and to also apply classroom learning into future use, they have to have good memory of classroom activities and learned subject-matter. It is therefore the role of the teacher to assist the learners, train them in various rehearsal skills.

Among such activities are:

1. Always associate a current learning with practical examples.
2. Use concrete objects to demonstrate objects learned in the classroom
3. Teach the use of mnemonic devices, in order to aid recall.
4. Field trips and excursion: seeing things practically and drawing personal conclusion and discovery enhance retention and information gathered tend to remain permanent.

Self-Assessment Exercises 5

Explain how a teacher can promote retention in the classroom



3.4 Summary

In this unit you have learnt the concept of memory and types of memory, why people usually forget what they have learnt in the past and how they can remember or recall earlier learning. The unit will therefore assist the learners and teachers alike on how to improve the status of their memory and void forgetting.



3.5 References /Further Reading/Web Sources

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3.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

Memory is the ability of someone to recall what has been previously learnt. It is the ability to acquire and retain information and recall it when needed. Without good memory, one will not be able to retain previous learning.

Answers to SAEs 2

- 1) Comparing short term memory and long-term memory in terms of the length and amount of information they can hold.

Short term memory

- Short-term memory stores information temporarily for 20 seconds, and unless the receiver of the information acts on it, the information is forgotten.
- Similarly, the storage capacity of short-term memory is limited. It can only hold a small amount of information at a time (9 items). Any item above this capacity is thrown away.

Long term memory

- Long-term memory (LTM) can hold information over a long period of time
- The storage capacity of LTM is large and has no limits. Example is remembering the materials for our various courses.

Answers to SAEs 3

Two ways in which a teacher can enhance the long-term memory in students: Choose any two of the methods described under sub-section 12.3.3

Answers to SAEs 4

1. Remembering is the ability to recall stored ideas or materials in the brain to the mind.
2. Forgetting means failure to retain what has been acquired or learnt.

3. Three reasons why students forget what they have learnt
Choose any three of the reasons described under sub-section
12.3.4

Answers to SAEs 5

A teacher can promote retention in the classroom through the following ways:

- By associating a current learning with practical examples.
- By using concrete objects to demonstrate objects learned in the classroom
- By teaching the use of mnemonic devices.
- By encouraging the use of field trips and excursion

Seminar Topic

Each student is expected to present seminar paper on one of the following topics:

Why did your students forget what you taught them last week?
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UNIT 4 TRANSFER OF LEARNING

Unit Structure

- 4.1 Introduction
- 4.2 Learning Outcomes
- 4.3 Transfer of Learning
 - 4.3.1 What is Transfer of Learning?
 - 4.3.2 Types of Transfer of Learning
 - 4.3.3 Theories of Transfer of Learning
 - 4.3.4 How to Foster Positive Transfer of Learning among Learners
- 4.4 Summary
- 4.5 References/Further Reading/Web Sources
- 4.6 Possible Answers to Self-Assessment Exercises



4.1 Introduction

The previous unit took you through the topic of Retention in learning: Memory, Remembering and Forgetting; and the various strategies to use in fostering retention among learners. In this unit we are focusing on the subject of Transfer of Learning. The ability of the individual to apply the previous experiences, skills and information they have learnt to a new situation or context is what we call transfer of learning. Except students are able to transfer prior skills and knowledge on new ones, the continuity of learning will be difficult. This unit will explain how old learning can be transferred to a new one. You will know what the classroom teacher needs to do in order to facilitate positive transfer of learning among their students.



4.2 Learning Outcomes

By the end of this unit, you will be able to:

- define transfer of learning
- state different types of transfer of learning
- explain how transfer of learning occurs from the lens of major theories of transfer of learning
- discuss ways in which a teacher can foster positive transfer of learning among learners.



4.3 Transfer of Learning

4.3.1 What is Transfer of Learning?

The essence of learning is that a previously learnt fact should be linked with a present experience. This is because human being must be dynamic and that the prior experience will make them to develop the new skills and knowledge. The influence the past experience has on the succeeding experience is called transfer of learning. Cormier and Hagman, (1987) define transfer of learning as the application of skills and knowledge learned in one context being applied in another context. Oladele (1998) defines transfer of learning as the effect of prior learning on the present. In other words, when experiences which have been acquired in one learning situation can be used to solve problems in a new situation, we can say transfer of learning has taken place.

In the school, the teachers teach different subjects in order that the experience gained in those subjects could be transferred into another. Charham (1987) affirms that human and animal learning is normally affected by the past experience, and that the various subjects are included in the school curriculum because of their utility and wide application to real life situations. For instance, the teacher who has taught his/her students some skills in Mathematics would believe that such skills be transferred to related subjects like Physics or Accounting. If the students fail to apply these skills in their subsequent learning, it means that the students have not been successful in transferring the learning.

The above example gives us clues into the different types of transfer of learning that we have. These are explained under sub-section 4.3.2:

Self-Assessment Exercises 1

What is transfer of learning?

4.3.2 Types of Transfer of Learning

There are three types of transfer of learning namely:

- (a) Positive Transfer
- (b) Negative Transfer
- (c) Zero Transfer

- (a) **Positive Transfer:** This is a situation whereby previous learning aids in the understanding of a new learning. Aside from aiding the learners in their subsequent learning, it also helps the learners to learn better and effectively the new task. Positive transfer is one of the most important goals of teachers as every teacher thrives to ensure that students learn to apply what they have learned to new situations, in and out of school. For instance, driving a car could facilitate learning to drive a bus. Skills in playing violin could facilitate learning to play piano. Another example of positive transfer of learning is that a student who has learnt about anatomical parts of human being in a biology lesson, should be able to do well when he/she is asked to name anatomical parts of a goat during Agriculture lesson.

Positive transfer is one of the most important goals of teachers as every teacher thrives to ensure that students learn to apply what they have learned to new situations, in and out of school.

- (b) **Negative Transfer:** Negative transfer occurs when something we've learned previously hinders or interferes with present learning that is similar to the first. In other words, the understanding of past skills inhibits the mastering of new ones. For instance, a child that has learnt to pronounce BUT correctly now finds it difficult to pronounce PUT correctly. Right hand drive vehicles hindering the learning of left-hand drive.
- (c) **Zero Transfer:** Zero transfer occurs when previous learning has no effect on new learning. It means that previous skills or knowledge have no effect on learning new skills or knowledge. For instance, learning how to cook has no effect on learning how to sing or drive.

Self-Assessment Exercises 2

1. Write short notes on:
 - i. Positive Transfer
 - ii. Negative Transfer
 - iii. Zero Transfer

4.3.3 Theories of Transfer of Learning

These are theories that attempt to explain how transfer of learning occurs

- a. **Theory of Mental Faculties:** This theory was propounded by the Greek Philosophers, notable among them was Aristotle. The basic tenet of the theory is that human mind is sub-divided into different powers of faculties like memory, judgment, reasoning or thinking. These faculties were likened to the muscles of the body which can be strengthened by physical exercise. It was felt that those mental faculties could be strengthened in the same way that exercise strengthens the body; the more difficult the mental exercise, the more impact it would have on the faculties. The essential requirement of the theory was to provide hard intellectual work to the learner to train his mental faculties. This theory believes that exercises and regular practice will strengthen the mental faculties. Subjects like Mathematics, Latin and Greek were regarded as best subjects to train the various mental faculties of students. Transfer occurs because of mental exercise gained from studying specific topics

- b. **Theory of Identical Elements:** The theory which was developed by Thorndike indicates that it is possible for an individual to transfer the prior skills and knowledge to the new learning provided both experiences are identical (share things in common). This theory maintained that transfer takes place from one learning situation to another if the two different learning situations are identical. This theory suggests that a successful or effective transfer of learning will happen if there are connections or interrelatedness between the old and the new learning. For example, it is expected that a student who has learnt about anatomical parts of human being in a biology lesson, should be able to do well when he/she is asked to name anatomical parts of a goat during agriculture lesson.

Few examples are given below which show the transfer from one situation to the other:

Training in:		Transferred to:
Piano	→	Typing/Computer
Latin	→	English
Car Driving	→	Bus Driving

A person who knows to drive a car can easily learn to drive a bus

- c. **Theory of Generalisation:** This theory was advocated by a Psychologist named Charles Judd. The assumption of the theory is that general principles aid transfer of learning better than segregated facts. According to him, one way of facilitating transfer is by teaching learners' general principles rather than specific facts. He was of the opinion that teaching should proceed from general to specifics. This theory believes in Gestalt, an assertion which views learning from a whole or complete form rather than in isolated form. The theory contends that transfer occurs as a result of general principles which one learns in a situation. As a result, one is able to apply those generalisations to a new situation. For example, the theory of generalisation indicates that a learnt experience should be useful in other day-to-day related activities.

Self-Assessment Exercises 3

Briefly describe the theory of identical element in attempt to explain how transfer of learning occurs

4.3.4 How a Teacher can Foster Positive Transfer of Learning Among Learners

1. The teacher should know that transfer of learning will not take place when both the old and new are unrelated. Hence, the teacher should endeavour to teach his/her subject-matter in a more meaningful and detailed way rather than by rote.
2. Active participation of the students in the teaching-learning activities.
The teacher should provide the opportunity for his/her students to practice a subject-matter being discussed along with him/her. When the learners are allowed to take active part in teaching/learning activities, they will be able to repeat the task at another time.
3. For a transfer of learning to take place, the teacher should always emphasise the relationship that exists between one subject-matter and another.
4. The teacher should endeavour to develop positive attitudes towards a learning task so that the students can be motivated to like the task rather than it.

5. It is believed that what students see, touch, feel or manipulate will be better remembered than the one they are not familiar with. Hence, for meaningful transfer of learning to take place, the teacher should incorporate exercises that task the various senses of learners in the learning process.
6. Make sure that general principles are understood. The teacher must ensure that general principles have been thoroughly understood by the students in order to maximise the amount of classroom learning experiences to life situations.
7. The teacher should make students see relationships between what you teach and life situations (relate theory to practice).

Self-Assessment Exercises 4

List five ways in which a teacher can foster positive transfer of learning among learners

4.4 Summary

The relevance of transfer of learning has been stressed in this unit. Transfer of learning is an important aspect of teaching-learning since the ultimate goal of schooling is to help students to transfer what they have learnt in school to real-life situations. The knowledge gained in this lesson will help the teachers on the action programmes that can facilitate learning transfer.



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4.6 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

What is transfer of learning? - Any one of the following definitions:
Transfer of learning is the application of skills and knowledge learned in one context being applied in another context.

Or

Transfer of learning as the effect of prior learning on the present. In other words, when experiences which have been acquired in one learning situation can be used to solve problems in a new situation, we can say transfer of learning has taken place

Answers to SAEs 2

- i. Positive Transfer: Transfer is said to be positive when something previously learned aids in the understanding of a new learning. For instance, driving a car could facilitate learning to drive a bus.
- ii. Negative Transfer: Transfer is said to be negative when prior learning hinders or interferes with new learning. For instance, a child that has learnt to pronounce BUT correctly now finds it difficult to pronounce PUT correctly. In this case, the understanding of past skills inhibits the mastering of new ones.
- iii. Zero Transfer: This type of learning reveals no link between the previously learnt task and the recent one. For instance, learning how to cook has no effect on learning how to sing or drive.

Answers to SAEs 3

The theory of identical element maintained that transfer takes place from one learning situation to another if the two different learning situations are identical. Transfer takes place because of the common elements in both situations. This theory suggests that a successful or effective learning will happen if there are connections or interrelatedness between the old and the new learning. For example, it is expected that a student who has learnt about anatomical parts of human being in biology lesson, should be able to do well when he/she is asked to name anatomical parts of a goat during agriculture lesson.

Answers to SAEs 4

Five ways in which a teacher can enhance positive transfer of learning among learners: - Any five of the following points:

- By making the subject-matter meaningful.
- By providing the opportunity for students to practice a subject-matter being discussed.
- By emphasising the relationship that exists between one subject-matter and another.
- The teacher should endeavour to develop positive attitudes towards a learning task so that the students can be motivated to like the task rather than it.
- By creating a conducive learning environment where students become active participants in their own learning.
- By incorporating exercises that task the various senses of learners in the learning process.
- By ensuring that general principles are thoroughly understood by the students in order to maximise the amount of classroom learning experiences to life situations
- By making students see relationships between what you teach and life situations (relate theory to practice).