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EDUCATIONAL PSYCHOLOGY AND UNDERLYING TEACHING AWARENESSES

A Course in Educational psychology for Fourth Year Students of E.N.S.O.

Presented by: **Dr. Naziha BENOSMANE**

2020-2021

Level: Fourth year English students at E.N.S.O. (Ecole Nationale Supérieure d'Oran).

Course Name: Educational Psychology.

Course Schedule: 1 hour and a half a week during both semesters.

Course Description:

The current course is designed to introduce some psychological principles, different theories and assumptions related to the learning/ teaching process. Consideration is given to the objectives of the EFL teaching; namely, to the learner-centered pedagogy, learners' diversity, and learners' autonomy. In addition, it is a preparatory course for future teachers to develop an awareness and readiness for their career.

The course provides the existing theoretical principles and applied aspects of learning, human development and maturation, development of intelligence, personality, affective and social dimensions in relation to their effect on the individual as a learner in the educational context. Respectively, the essence of the subject matter first offers the study of learning theories including behavioral, cognitive, emotional, and social learning processes that affect education and the student's involvement to include affective parameters, environmental influences, and socialization. Focus is also put on individual differences among learners including learning styles and learning strategies.

Course Objective:

The current course aims to provide students with knowledge and awareness necessary for their future career as English language teachers. Hence, after successfully completing this course, students will be able to:

1. Define 'educational psychology' and explain its role in the educational context.
2. Discuss the importance of 'educational psychology' to the enhancement of a student's motivation, self-confidence, and self-esteem.
3. Distinguish the existing theoretical learning theories; discuss the different behavioural, cognitive, humanistic, and social factors; and acknowledge their impacts in the learning process.
4. Describe how students assimilate new information, construct knowledge, acquire skills, and develop habits.
5. Apply learning theories and models into classroom situations.
6. Describe how teachers and students contribute to a productive learning environment.

7. Identify and discuss the major components and techniques of classroom planning, management and instruction and how these components and techniques address individual differences.

8. Apply strategies that help diverse students work cooperatively and effectively.

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Course Syllabus (S1&S2)

Lecture One: Introduction to Educational Psychology: Meaning, Nature and Scope.

1. What is Psychology?
2. Definition of Education
3. What is Educational psychology?
4. Nature of Educational Psychology
5. Scope of Educational Psychology

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1. Introduction
2. Description of Behaviorism
3. How Behaviorism Impacts learning

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1. Introduction
2. What is Cognitivism?
   2.1 Piaget's Developmental Theory
   2.2 Cognitivist Learning Theory
3. How Cognitivism Impacts Learning

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2. What is Constructivism?
3. Background
   3.1. Cognitive Constructivism
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      3.2.1 The Zone of Proximal Development (ZPD)
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2. Definition of Learning Styles
3. Types of Learning Styles
4. Kolb Learning Inventory

Lecture Six: Learning Strategies

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2. Learning strategies Definition
3. Learning Strategies Classification
4. Learning Strategies and Learning Styles

Lecture Seven: Learning Disabilities

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3. Gagné's Theory of Instruction: A learning Theory
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5. Adapting Teaching and Learning Strategies
   5.1. Addressing students' learning needs
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Lecture One: Introduction to Educational Psychology: Meaning, Nature and Scope.

Time: 3 hours

Objectives:

➢ To develop students' awareness of what educational psychology means.

➢ Students will understand and explain the role and importance of educational psychology to the learning/teaching process in educational settings.

1. What is Psychology?

The word, 'Psychology' is derived from two Greek words, 'Psyche' and 'Logos'. Psyche means 'soul' and 'Logos' means 'science'. Thus, psychology was first defined as the 'science of soul'. According to earlier psychologists, the function of psychology was to study the nature, origin and destiny of the human soul. But soul is something metaphysical. It cannot be seen, observed and touched and we cannot make scientific experiments on soul. In the 18th century, psychology was understood as the 'Science of Mind'. William James (1892) defined psychology as the science of mental processes. But the word 'mind' is also quite ambiguous as there was confusion regarding the nature and functions of mind.

Modern psychologists defined psychology as the "Science of Consciousness". James Sully (1884) defined psychology as the "Science of the Inner World". Wilhelm Wundt (1892) defined psychology as the science which studies the "internal experiences'. But there are three levels of consciousness – conscious, subconscious and the unconscious and so this definition also was not accepted by some.

Thus, psychology first lost its soul, then its mind and then its consciousness. At present only its behaviour exists. William McDugall (1905) defined psychology as the "Science of Behaviour", W.B. Pillsbury (1911) and J.B. Watson (1912) also defined psychology as the science of behaviour.

Behaviour generally means overt activities which can be observed and measured scientifically. But one's behaviour is always influenced by his experiences. So when we study one's behaviour we must also study his experiences. Psychology should, therefore, be defined as a "science of

behaviour and experiences on human beings" (B.F. Skinner). According to Crow and Crow, "Psychology is the study of human behaviour and human relationship".

Finally, psychology is an academic and applied field involving the study of behaviour and mental processes. Psychology also refers to the application of such knowledge to various spheres of human activity, including problems of individuals' daily lives and the treatment of mental illness.

2. What is Education?

Education encompasses teaching and learning specific skills, and also something less tangible but more profound: the imparting of knowledge, positive judgement and well-developed wisdom. Education has as one of its fundamental aspects the imparting of culture from generation to generation (like in socialization). To educate means 'to draw out', from the Latin *educare*, or to facilitate the realization of an individual's potential and talents. It is an application of pedagogy, a body of theoretical and applied research relating to teaching and learning and draws on many disciplines such as psychology, philosophy, computer science, linguistics, neuroscience, sociology and anthropology.

The education of an individual human begins at birth and continues throughout life. (Some believe that education begins even before birth, as evidenced by some parents' playing musicor reading to the baby in the womb in the hope it will influence the child's development.) For some, the struggles and triumphs of daily life provide far more instruction than does formal schooling (thus Mark Twain's admonition to "never let school interfere with your education").Family members may have a profound educational effect — often more profound than they realize — though family teaching may function very informally.

3. What is Educational Psychology?

Educational psychology is that branch of psychology in which the findings of psychology are applied in the field of education. It is the scientific study of human behaviour in educational setting. According to Charles. E. Skinner, "Educational psychology deals with the behaviour of human beings in educational situations". Thus, educational psychology is a behavioural science with two main references– human behaviour and education. In the words of E.A. Peel, "Educational Psychology is the science of Education".

Education by all means is an attempt to mould and shape the behaviour of the pupil. It aims to produce desirable changes in him for the all-round development of his personality. The essential

knowledge and skill to do this job satisfactorily is supplied by Educational Psychology. According to Peel, "Educational psychology helps the teacher to understand the development of his pupils, the range and limits of their capacities, the processes by which they learn and their social relationships."

In the same way Educational Psychologists, who is a technical expert in the field of Education, supplies all the information, principles and techniques essential for understanding the behaviour of the pupil in response to educational environment and desired modification of his behaviour to bring an all-round development of his personality. In this way, it is quite reasonable to call Educational Psychology as a science and technology of Education.

Thus, Educational Psychology is concerned primarily with understanding the processes of teaching and learning that take place within formal environments and developing ways of improving those methods. It covers important topics like learning theories; teaching methods; motivation; cognitive, emotional, and moral development; and parent-child relationships etc.

In short, it is the scientific discipline that addresses the questions: "Why do some students learn more than others?" and "What can be done to improve that learning?"What are good ways to study? What motivates students? Why are some people better students than others? How should reading, writing, or arithmetic be taught? Is it better to study alone or in a group? What makes a good teacher? How can technology be used to support learning? Does ability grouping help or harm students? Are tests really fair?...

These are examples of the kinds of questions that educational psychologists seek to answer. Educational psychology is concerned with studying how people learn from instruction, and with developing educational materials, programs, and techniques that enhance learning. Educational psychologists conduct scientific research both to advance theory--such as explaining how people learn, teach, and differ from one another--and to advance practice--such as determining how to improve learning. Although perhaps best known for studying children in school settings, educational psychologists also are concerned with learning and teaching for people from infancy through old age, in school and outside of school.

4. Nature of Educational Psychology

Its nature is scientific as it has been accepted that it is a Science of Education. We can summarize the nature of Educational Psychology in the following ways:

1. **Educational Psychology is a science**: Science is a branch of study concerned with observation of facts and establishment of verifiable general laws. Science employs certain objective methods for the collection of data. It has its objectives of understanding, explaining, predicting and control of facts. Like any other science, educational psychology has also developed objective methods of collection of data. It also aims at understanding, predicting and controlling human behaviour.

2. **Educational Psychology is a natural science:** An educational psychologist conducts his investigations, gathers his data and reaches his conclusions in exactly the same manner as physicist or the biologist.

3. **Educational psychology is a social science:** Like the sociologist, anthropologist, economist or political scientist, the educational psychologist studies human beings and their sociability.

4. **Educational psychology is a positive science:** Normative science like Logic or Ethics deals with facts as they ought to be. A positive science deals with facts as they are or as they operate. Educational psychology studies the child's behaviour as it is, not, as it ought to be. So it is a positive science.

5. **Educational psychology is an applied science:** It is the application of psychological principles in the field of education. By applying the principles and techniques of psychology, it tries to study the behaviour and experiences of the pupils. As a branch of psychology it is parallel to any other applied psychology. For example, educational psychology draws heavily facts from such areas as developmental psychology, clinical psychology, abnormal psychology and social psychology.

6. **Educational psychology is a developing or growing science:** It is concerned with new and ever new researches. As research findings accumulate, educational psychologists get better insight into the child's nature and behaviour.

In addition, W.A. Kelly (1941) listed the nature of Educational Psychology as follows:

i. To give a knowledge of the nature of the child.

ii. To give understanding of the nature, aims and purposes of education.

iii. To give understanding of the scientific methods and procedures which have been used in arriving at the facts and principles of educational psychology.

iv. To present the principles and techniques of learning and teaching.

v. To give training in methods of measuring abilities and achievement in school subjects.

vi. To give a knowledge of the growth and development of children.

vii. To assist in the better adjustment of children and to help them to prevent maladjustment.

viii. To study the educational significance and control of emotions and

ix. To give an understanding of the principles and techniques of correct training.

Thus, educational psychology is an applied, positive, social, specific and practical science. While general science deals with behaviour of the individuals in various spheres, educational psychology studies the behaviour of the individual in educational sphere only.

5. Scope of Educational Psychology

The scope of educational psychology is ever-growing due to constantly researches in this field. The following factors will indicate the scope of educational psychology:

1. The Learner: The subject-matter of educational psychology is knitted around the learner. Therefore, it focuses on the need of knowing the learner and the techniques of knowing him well. The topics include – the innate abilities and capacities of the individuals, individual differences and their measurements, the overt, covert, conscious as well as unconscious behaviour of the learner, the characteristics of his growth and development and each stage beginning from childhood to adulthood.

2. The Learning Experiences: Educational Psychology helps in deciding what learning experiences are desirable, at what stage of the growth and development of the learner, so that these experiences can be acquired with a greater ease and satisfaction.

3. Learning process: After knowing the learner and deciding what learning experiences are to be provided, Educational Psychology moves on to the laws, principles and theories of learning. Other items in the learning process are remembering and forgetting, perceiving, concept formation, thinking and reasoning, problem solving, transfer of learning, ways and means of effective learning etc.

4. Learning Situation or Environment: Here we deal with the environmental factors and learning situations which come midway between the learner and the teacher. Topics like classroom climate and group dynamics, techniques and aids that facilitate learning and evaluation, techniques and practices, guidance and counselling etc. for the smooth functioning of the teaching-learning process.

5. The Teacher: The teacher is a potent force is any scheme of teaching and learning process. It discusses the role of the teacher. It emphasizes the need of **'knowing thyself'** for a teacher to play his role properly in the process of education. His conflicts, motivation. Anxiety, adjustment, level of aspiration etc. It throws light on the essential personality traits, interests, aptitudes, the characteristics of effective teaching etc so as to inspire him for becoming a successful teacher.

Though the entire scope of Educational Psychology is included in the above mentioned five key-factors, it may be further expanded by adding the following:

6. It studies **Human Behaviour** in educational situations. Psychology is the study of behaviour, and education deals with the modification of behaviour; hence, educational psychology pervades the whole field of education.

7. It studies the **Growth and Development** of the child. How a child passes through the various stages of growth and what are the characteristics of each stage are included in the study of educational psychology.

8. To what extent **Heredity and Environment** contribute towards the growth of the individual, and how this knowledge can be made use of for bringing about the optimum development of the child; form a salient feature of the scope of educational psychology.

9. Educational psychology deals with the **Nature and Development of the Personality** of an individual. In fact, education has been defined as the all-round development of the personality of an individual; personality development also implies a well-adjusted personality.

10. It studies **Individual Difference.** Every individual differs from every other individual. It is one of the fundamental facts of human nature which have been brought to light by educational psychology. This one fact has revolutionalised the concept and process of education.

11. It studies the nature **Intelligence and its Measurement.** This is of utmost importance for a teacher.

12. It provides **Guidance and Counselling**: Education is nothing but providing guidance to the growing child.

We can conclude by saying that Educational Psychology is narrower in scope than general psychology. While general psychology deals with the behaviour of the individual in a general way, educational psychology in concerned with the behaviour of the learner in an educational setting. Indeed, knowing the learner, acquiring the essential skill in teaching and evaluation are the focal points in the study of educational psychology. But, as the learning process is dynamic with the changing world, we may come across challenging problems in this field. This shows that we cannot limit our study to a particular domain. Thus, the scope of psychology is wide-spread, even if it looks like limited to certain areas.

Assignment:

1. How can educational psychology contribute in your own learning process? Explain and provide your own examples.

Lecture Two: Learning Theories

Objectives:

➢ Compare and contrast the various factors that behavioral, cognitive and constructivist theorists believe influence the learning process.

➢ Apply learning theories and models to classroom situations.

Individuals learn in different ways. Learning theories describe and explain how people take in, process, and retain knowledge. They help us better understand complex processes. A lot of research has been done in terms of what motives learners and how they process information. Although there are many different approaches to learning, we will explore three major types of learning theories; namely, Behaviorism, Cognitivism, and Constructivism.

I. Behaviorism

Time: 3hours

Objectives:

➢ Understand and explain what Behaviorism means.

➢ Explain how the theory is applied to education and linked to educational practice.

➢ Evaluate and discuss the strengths and weaknesses of this theory.

1. Introduction

Behaviorism is a view in which behaviour can be explained by external factors and behavioural conditioning can be used as a universal learning process. In Behaviorism, the ideas of positive and negative reinforcement are effective tools of learning and behaviour modification, as well as a punishment and reward system. The major behaviorists include **John Watson**, known as the Father of Behaviorism; **Ivan Pavlov**, best known for classical conditioning; **B.F. Skinner (Burrhus, Frederic)**, known for operant conditioning; and **Edward Thorndike**, known for the law of effect. **Ivan Pavlov**'s (1849-1936) groundbreaking work on **classical conditioning** also provided an observable way to study behaviour. **Edward Thorndike** (1874-1949) initially proposed that humans and animals acquire behaviours through the association of stimuli and responses. He advanced two laws of learning to explain why behaviours occur the way they do: The **Law of Effect** specifies that any time a behaviour is followed by a pleasant outcome, that

behaviour is likely to recur. The Law of Exercise states that the more a stimulus is connected with a response, the stronger the link between the two.

Although most psychologists agree that neither Thorndike nor Pavlov were strict behaviorists, their work paved the way for the emergence of Behaviorism.

2. Description of Behaviorism

Behaviorism originated with the work of John B. Watson, an American psychologist. Watson claimed that psychology was not concerned with the mind or with human consciousness. Instead, psychology would be concerned only with behaviour. In this way, men could be studied objectively, like rats and apes.

Watson's work was based on the experiments of Ivan Pavlov, who had studied animals' responses to conditioning. In Pavlov's best-known experiment, he rang a bell as he fed some dogs several meals. Each time the dogs heard the bell they knew that a meal was coming, and they would begin to salivate. Pavlov then rang the bell without bringing food, but the dogs still salivated. They had been "conditioned" to salivate at the sound of a bell.

Watson further extended Pavlov's work and applied it to human beings. Watson conditioned a fear response in "Little Albert" by banging a hammer on a metal pole every time Albert touched a white rat. Watson was able to successfully condition Albert to fear the rat because of its association with the loud noise. Eventually, Albert was conditioned to fear other similar furry items such as a rabbit and even a Santa Claus mask.

Pavlov believed, as Watson was later to emphasize, that humans react to stimuli in the same way, which they identified as the **classic conditioning** (It occurs when a natural reflex responds to a stimulus). The influence of classical conditioning can be seen in responses such as phobias, disgust, nausea, and anger. A familiar example is conditioned nausea, in which the sight or smell of a particular food causes nausea because it caused stomach upset in the past. Similarly, when the sight of a dog has been associated with a memory of being bitten, the result may be a conditioned fear of dogs.

Behaviorism is associated today with the name of Skinner, who expanded on the foundation of behaviorism (established by Watson), and on the work of Thorndike (who put forward a "**Law of effect**" which stated that any behaviour that is followed by pleasant consequences is likely

to be repeated, and any behaviour followed by unpleasant consequences is likely to be stopped), by focusing on **operant conditioning.** Skinner's studies led him to reject Watson's almost exclusive emphasis on reflexes and conditioning. People respond to their environment, he argued, but they also operate on the environment to produce certain consequences.

According to Skinner, voluntary or automatic behaviour is either strengthened or weakened by the immediate presence of a reward or a punishment, that is, we behave the way we do because this kind of behaviour has had certain consequences in the past. For example, if your mother gives you a kiss when you give her flowers, you will be likely to give her flowers when you want a kiss. You will be acting in expectation of a certain reward. Like Watson, however, Skinner denied that the mind or feelings play any part in determining behaviour. Instead, our experience of reinforcements determines our behaviour.

"The learning principle behind operant conditioning is that new learning occurs as a result of positive reinforcement, and old patterns are abandoned as a result of negative reinforcement." (Belkin and Gray 1977: 56). In his book *'The Technology of Teaching'* Skinner wrote:

> *"The application of operant conditioning to education is simple and direct. Teaching is the arrangement of contingencies of reinforcement under which students learn. They learn without teaching in their natural environments, but teachers arrange special contingencies which expedite learning, hastening the appearance of behaviour which otherwise never occur."*

(Skinner 1968: 64).

Behaviorism has had a powerful influence on learning. The concept of direct instruction, whereby a teacher provides the knowledge to the students either directly or through the set up 3of 'contingencies', is an excellent example of the Behaviorist model of learning. The use of exams to measure observable behaviour of learning, the use of rewards and punishment in school systems, are all examples of the Behaviorist influence.

With the advent of the computer in school, computer assisted instruction (C.A.I.) has become a prominent tool for teaching, because from a Behaviorist perspective, it is an effective way of learning. CAI uses the drill and practice approach to learning new concepts or skills. The question acting as the stimulus, elicits a response from the user. Based on the response a reward may be provided. The "contingencies" of learning are translated into different levels of the program. Rewarding the user to a different level for correct responses follow exactly the approach of the operant conditioning. Educators have espoused CAI as an effective teaching

approach because it allows for self-paced instruction and it liberates them from the direct instruction of all their students so as to focus on those students with particular needs.

3. How Behaviorism Impacts Learning

According to Seifert & Sutton (2009), the major models of the behavior theory of learning are classical conditioning and operant conditioning. This theory is relatively simple to understand because it relies only on observable behaviour and describes several universal laws of behaviour.

Thorndike proposed some principles of learning which are: the laws of readiness, exercise and effect (Thorndike, 1932). In addition some other principles of the behaviourist theory of learning according to Hartley (1998) are: activity is important; students learn by repetition, reinforcement is necessary and objectives must be clear. The behaviourist theory of learning will, like other theories, have certain implications in the classroom since it will inform the teacher of how learning takes place, the purpose of teaching and serve as a guide to the way teaching is done. First of all, in the classroom, the teacher will enforce a lot of practice in line with Thorndike's laws of learning. This is because the behaviourist teacher believes the adage that "practice makes perfect" and "learning is by doing".

Students in such a classroom will be given a lot of exercises to practice in and out of the classroom. Students who are not able to achieve high scores will be asked to redo the exercise until they get it right. The teacher's emphasis on exercise may overshadow other classroom activities such as discussion, discovery learning and asking questions. The teacher will focus on the students' ability to answer questions correctly and not necessarily the ability to understand or explain the concepts taught. Many teachers use the behaviourist approach in this regard since they emphasize learning by doing.

In addition, the teacher will encourage rote learning through drills and recitation. The behaviourist teacher will use repetition as a tool for teaching. This is because of the view that learners imbibe by repeating a task and that extinction will take place if the task learnt is not repeated. (Seifert & Sutton 2009). For example, in the basic schools, the teachers use recitation to teach the multiplication tables; in the language classroom recitation to memorize the past tense verbs ending.

The third implication of the behaviourist theory of learning in the classroom is based on the law of readiness. This law says that the learner must be prepared mentally and emotionally for learning to take place effectively. In this regard, the teacher will always try to assess the mental or emotional state of the student and respond to it. A student, who, for example, is bereaved will not be in the right frame of mind to learn in the classroom. In addition to this, students who are exhausted will find it difficult to concentrate in the classroom. It is for this reason that many teachers advocate for some scientific subject to be taught as the first lessons in the morning, when students are well rested from the previous night.

The next implication is also based on the law of readiness. There is the belief that a certain background and aptitude is necessary for learning to take place effectively. This may lead the teacher to always look out for students with a certain aptitude for a subject in the classroom, who will perform better in it.

The next implication is based on the law of effect and also the law of operant conditioning. This law states that the feelings of the learner during the learning process are very important and that positive reinforcement encourages the learner to repeat a particular behaviour. (Seirfert &Sutton, 2009). Motivation, both intrinsic and extrinsic are important for learning to take place. Under this law, one of the implications in the classroom is that the teacher will use positive reinforcement to encourage good behaviour. Undesirable behaviours will be ignored or discouraged. Students who answer questions correctly in the classroom, for example will be applauded or given gifts to encourage others to do so.

Since the behaviourist teacher is results oriented, he or she will create an atmosphere for healthy competition to encourage learning in the classroom. This is an implication under the law of effect. For example, the scores of students in an examination will be ranked and published on the notice board. This will create the ambition in students to do better than their peers.

Finally, the behaviour theory of learning makes the learner passive. As a result of this, the teacher will be pressured to always be well prepared for the lesson. In the classroom, the behaviourist teacher gives the information to the students who receive it without questioning or contributing. The teacher will hardly ask students to research on a given topic and present their findings.

Examples and applications of behaviorist theory:

- Drill / rote work

- Repetition practice

- Bonus points (providing an incentive to do more)

- Participation points (providing an incentive to practice)

- Verbal reinforcement (saying 'good job')

- Establishing rules

To conclude, the behaviour theory of learning has many implications – good and bad – in the classroom. Some of them will have a positive impact on learning while others may be detrimental to the learning process. It is the responsibility of the teacher to be aware of the implications his or her learning theories have in the classroom. Behaviorist instruction does not prepare the learner for problem solving or creative thinking. Learners do what they are told to do and not take the initiative to change or improve things. The learner is only prepared for recall of basic facts, automatic responses or performing tasks. According to Whitebread (2012): "the fundamental problem with the behaviourist approach was that it characterized learning as an essentially passive process, consisting of forming simple associations between events, and being dependent upon external rewards or reinforcements". (p. 115)

Assignment:

1. Discuss the educational implications of the Behaviorist Theory in the second/foreign language classroom.

Lecture Three: II. Cognitivism

Time: 3hours

Objectives:

➢ Understand and explain what Piaget's Cognitive Theory is.

➢ Explain how the Cognitivist Theory is applied to education and linked to educational practice.

1. Introduction

The cognitivist revolution replaced Behaviorism in 1960s as the dominant paradigm. An obvious criticism of Behaviorism is that it treats humans as a black box, where inputs into the black box, and outputs from the black box, are known and measurable, but what goes on inside the black box is ignored or not considered of interest. Cognitivism focuses on the inner mental activities – opening the "black box" of the human mind is valuable and necessary for understanding how people learn.

A response to Behaviorism, people are not "programmed animals" that merely respond to environmental stimuli; people are rational beings that require active participation in order to learn, and whose actions are a consequence of thinking. Changes in behaviour are observed, but only as an indication of what is occurring in the learner's head. Cognitivism uses the metaphor of the mind as a computer: information comes in, is being processed, and leads to certain outcomes. The learner is viewed as an information processor (like a computer).

2. What is Cognitivism?

However, humans have the ability for conscious thought, decision-making, emotions, and the ability to express ideas through social discourse, all of which are highly significant for learning. Thus, we will likely get a better understanding of learning. Mental processes such as thinking, memory, knowing, and problem-solving need to be explored. Knowledge can be seen as schema or symbolic mental constructions. Learning is defined as change in a learner's schemata.
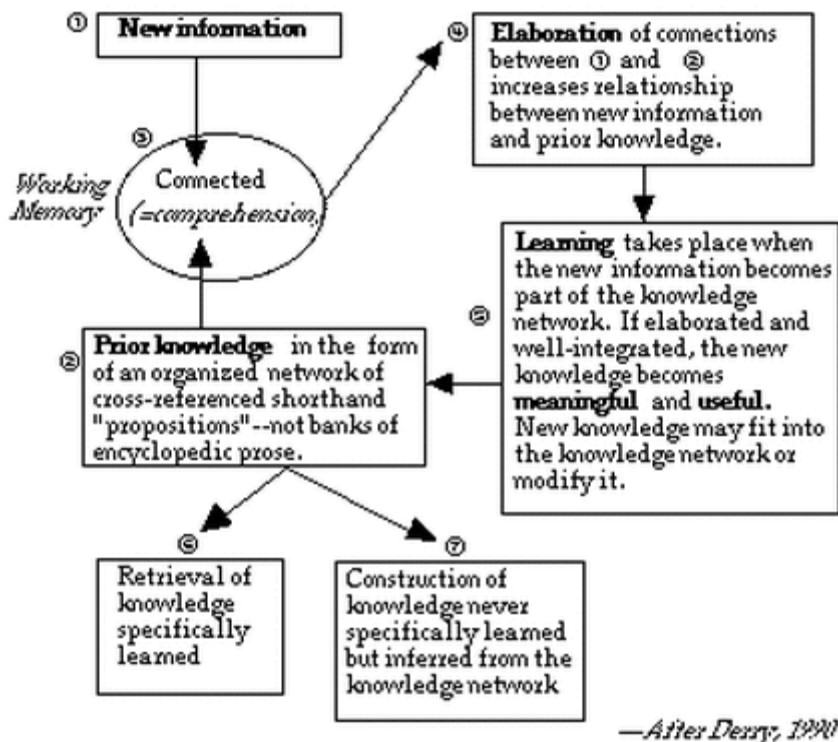
Cognitivists, therefore, have focused on identifying mental processes – internal and conscious representations of the world – that they consider are essential for human learning. Fontana (1981) summarises the cognitive approach to learning as follows:

"The cognitive approach ... holds that if we are to understand learning we cannot confine ourselves to observable behaviour, but must also concern ourselves with the learner's ability mentally to re-organize his psychological field (i.e. his inner world of concepts, memories, etc.) in response to experience. This latter approach therefore lays stress not only on the environment, but upon the way in which the individual interprets and tries to make sense of the environment. It sees the individual not as the somewhat mechanical product of his environment, but as an active agent in the learning process, deliberately trying to process and categorize the stream of information fed into him by the external world." (p. 148)

Thus, the search for rules, principles or relationships in processing new information, and the search for meaning and consistency in reconciling new information with previous knowledge are key concepts in cognitive psychology. Cognitive psychology is concerned with identifying and describing mental processes that affect learning, thinking and behaviour, and the conditions that influence those mental processes.

Cognitivism focuses on mental processes which include how people perceive, think, remember, learn, solve problems. Psychologists working from a cognitivist perspective, then, seek to understand cognition. Lastly, Cognitivism has influenced education, as studies of how people learn potentially sheds light on how to teach.

Learning and Remembering Meaningful Information
A Cognitive Model

① **New information**

③ *Working Memory* — Connected (=comprehension)

④ **Elaboration** of connections between ① and ② increases relationship between new information and prior knowledge.

⑤ **Learning** takes place when the new information becomes part of the knowledge network. If elaborated and well-integrated, the new knowledge becomes **meaningful** and **useful**. New knowledge may fit into the knowledge network or modify it.

② **Prior knowledge** in the form of an organized network of cross-referenced shorthand "propositions"--not banks of encyclopedic prose.

⑥ Retrieval of knowledge specifically learned

⑦ Construction of knowledge never specifically learned but inferred from the knowledge network

—After Derry, 1990

2.1. Piaget's Developmental Theory

Many ideas and assumptions of Cognitivism can be traced back to the early decades of the twentieth century. Of all theories, **Piaget's Developmental Theory** is the one that has provided psychology with elaborated account of developmental changes in cognitive abilities.

Jean Piaget was one of the most influential cognitive psychologists. He was a student of biology and zoology and learnt that survival requires adaptation. Therefore he viewed the development of human cognition, or intelligence, as the continual struggle of a very complex organism trying to adapt to a very complex environment.

Jean Piaget (1896-1980) is renowned for constructing a highly influential model of child development and learning. Piaget's theory is based on the idea that the developing child builds cognitive structures–in other words, mental "maps," schemes, or networked concepts for understanding and responding to physical experiences within his or her environment. Piaget further attested that a child's cognitive structure increases in sophistication with development, moving from a few innate reflexes such as crying and sucking to highly complex mental activities.

Piaget (1970) proposed that children progress through an invariant sequence of four stages: sensorimotor, pre-operational, concrete operational and formal operational. Those stages are not arbitrary, but are assumed to reflect qualitative differences in children's cognitive abilities. Being controlled by the logical structures in the different developmental stages, learners cannot be taught key cognitive tasks if they have not reached a particular stage of development.

According to Piaget´s theory, human development can be outlined in terms of functions and cognitive structures.   The functions are inborn biological processes that are identical for every one and stay unchanged throughout our lives.   The purpose of these functions is to construct internal cognitive structures.   The structures, in contrast, changes repeatedly as the child grows.

Piaget emphasises on two main functions; one is *organisation* (or equilibrium).   Organisation refers to the fact that all cognitive structures are interrelated and that any new knowledge must be fitted into the existing system.   It is the need to integrate the new information, rather than adding them on, that force our cognitive structure to become more elaborate. Equilibration: it is the master developmental process, encompassing both assimilation and accommodation. Anomalies of experience create a state of disequilibrium which can be only resolved when a more adaptive, more sophisticated mode of thought is adopted.

The second general function is *adaptation*. Adaptation refers to the tendency of the organism to fit with its environment in ways that promote survival.   It is composed of two terms; *assimilation* and *accommodation.*

 Assimilation is the tendency to understand new experience in terms of existing knowledge (schemes or operations). Whenever we come across something new, we try to make sense of it, built upon our existing cognitive structures. That is, children and adults tend to apply any mental structure that is available to assimilate a new event. This is a process of fitting new information into existing cognitive structures.

Accommodation occurs when the new information is too complex to be integrated into the existing structure – the existing schemes must be modified to account for a new experience. This is a process of modifying existing cognitive structures based on new information.

2. 2. Cognitivist Learning Theory

The most widely used theories of cognitivism in education are based on Bloom's taxonomies of learning objectives (Bloom et al., 1956), which are related to the development of different kinds of learning skills, or ways of learning. Bloom and his colleagues claimed that there are three important domains of learning:

- cognitive (thinking)
- affective (feeling)
- psycho-motor (doing).

Cognitivism focuses on the 'thinking' domain. In more recent years, Anderson and Krathwol (2000) have slightly modified Bloom et al.'s original taxonomy as follows: adding 'creating' new knowledge:

- o changing the names in the six categories from noun to verb forms.
- o rearranging them as shown in the chart below.
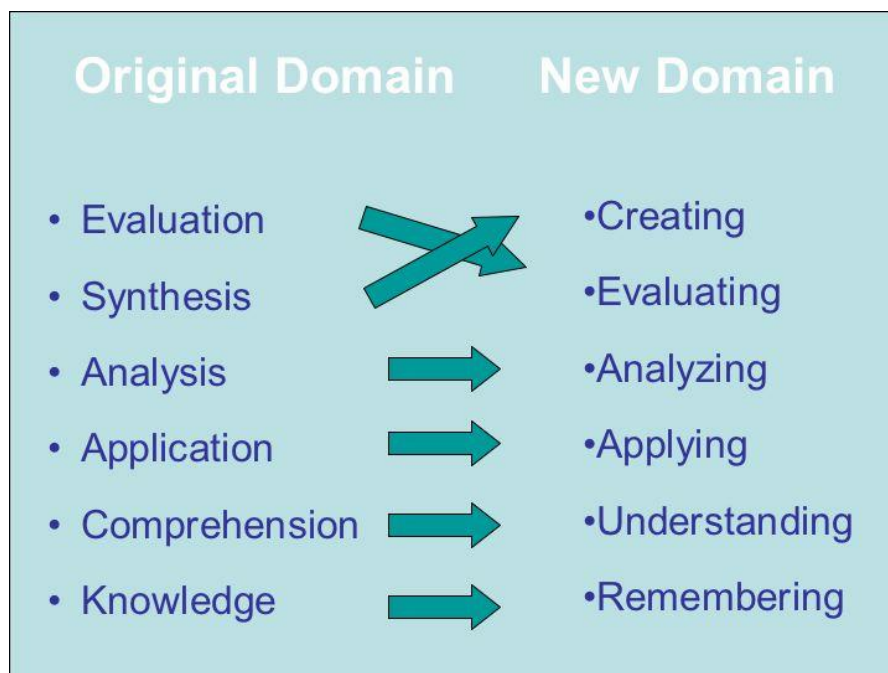- o 'creating' a new knowledge.

Figure 1: Revised Taxonomy of the cognitive domain. (2001)

Bloom et al. also argued that there is a hierarchy of learning, meaning that learners need to progress through each of the levels, from remembering through to evaluating/creating. As psychologists delve deeper into each of these cognitive activities to understand the underlying mental processes, it becomes an increasingly reductionist exercise (see Figure 2 below).
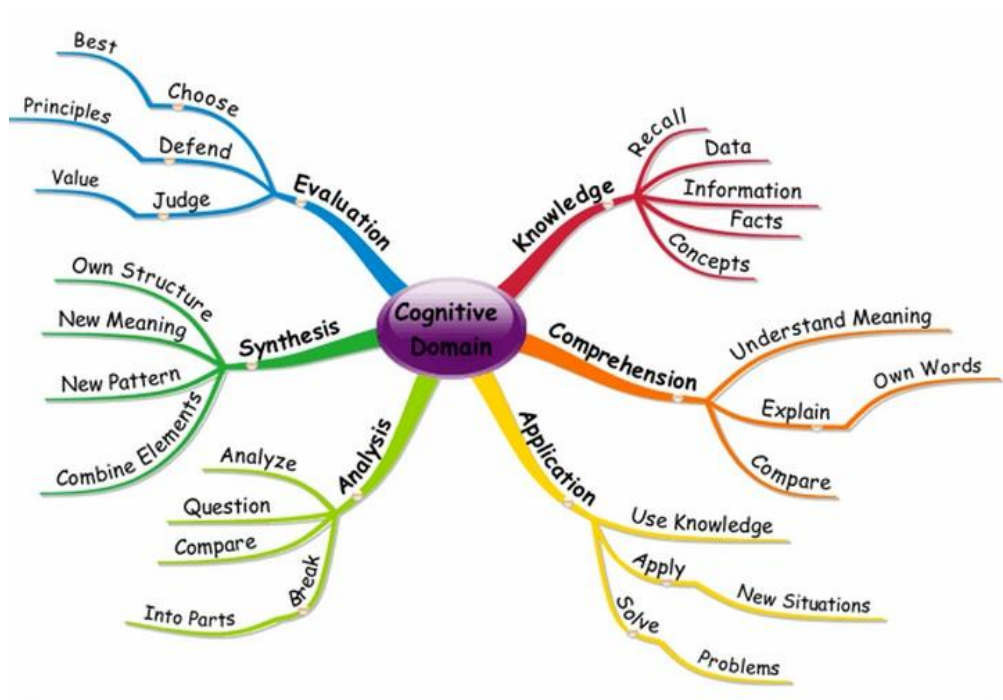
Figure 2: Using Mind Maps (2011)

Cognitive approaches to learning, with a focus on comprehension, abstraction, analysis, synthesis, generalization, evaluation, decision-making, problem-solving and creative thinking, seem to fit much better with higher education than behaviourism, but even in school/k-12 education, a cognitivist approach would mean for instance focusing on teaching learners *how* to learn, on developing stronger or new mental processes for future learning, and on developing deeper and constantly changing understanding of concepts and ideas.

Cognitive approaches to learning cover a very wide range. At the objectivist end, cognitivists consider basic mental processes to be genetic or hard-wired, but can be programmed or modified by external factors, such as new experiences. Early cognitivists in particular were interested in the concept of mind as computer, and more recently brain research has led to a search for linking cognition to the development and reinforcement of neural networks in the brain.

3. How Cognitivism Impacts Learning

Curriculum–Educators must plan a developmentally appropriate curriculum that enhances their students' logical and conceptual growth.

Instruction–Teachers must emphasize the critical role that experiences–or interactions with the surrounding environment–play in student learning. For example, instructors have to take into account the role that fundamental concepts, such as the permanence of objects, play in establishing cognitive structures.

Implications of Cognitivism for Classroom Practices Instruction based on cognitive principles should be authentic and real. The teacher is expected to provide a rich classroom environment that fosters a child's spontaneous exploration. Students are encouraged to explore instructional materials and to become active constructors of their own knowledge through experiences that encourage assimilation and accommodation (Wadsworth 1996). Teaching is tailored to the needs, interests, and backgrounds of students (Fenstermacher and Richardson 2005; McLeod 2003). The teacher is more concerned with constructing a meaningful context than directly teaching specific skills. From the cognitive perspective, because students learn by receiving, storing, and retrieving information, the teacher is urged to thoroughly analyze and consider the instructional materials, proper tasks, and relevant learner characteristics to help learners to effectively and efficiently process the information received (McLeod 2003). Instructional materials should include demonstrations, illustrative examples, and constructive feedback so that students can have mental models to embody. Because information contained in instructional material is first processed by working memory, for schema acquisition to occur instruction should be designed to reduce working memory load and to facilitate the changes in the long-term memory associated with schema acquisition (Sweller 1988). In order to activate and utilize schema for learning, Barton states that the learner should be "made aware of his background knowledge and exposed to strategies to 'bridge' from pre-requisite skills to learning objectives" (in McLeod 2003). The teacher also is expected to have a set of schemata for instructional activities in order to adroitly handle interactions between disparate goals and activities. "These schemata include structures at differing levels of generality, with some schemata for quite global activities such as checking homework and some for smaller units of activity such as distributing paper to the class" (Leinhardt and Greeno 1986). The teacher uses advanced organizer techniques to help students understand and organize ideas, concepts, themes, issues, and principles (Marzano 1998). Students are encouraged to use metacognitive strategies such as goal specification, process specification, process monitoring, and disposition monitoring (Marzano 1998, 127).

Examples and applications of cognitive learning theory:

- Classifying or chunking information

- Linking concepts (associate new content with something known)

- Providing structure (organizing the lecture in efficient and meaningful ways)

- Real world examples

- Discussions

- Problem solving

- Analogies

- Imagery / providing pictures

- Mnemonics

To conclude, cognitive information processing is used when the learners plays an active role in seeking ways to understand and process information that (s)he receives and relate it to what is already known and stored within memory. Therefore, teachers are expected to teach their subject in accordance with the principles of cognitive learning theories. New curriculum programs urge them to embrace and practice those teaching approaches that pay attention to individual differences in students' cognitive structures or previous knowledge bases in order to help students integrate new knowledge with the knowledge they already have. Omnipresent in new curriculum development is the notion that teachers do their best to find innovative ways that not only facilitate but also optimize students' learning to the greatest extent possible. Because Cognitivism is concerned with illuminating how the process of learning occurs in different contexts by offering strategies that promote students' learning, teachers can benefit from this invaluable learning paradigm in their effort to help students attain the subject's goals.

Assignments:

1. What areas of knowledge do you think would be best 'taught' or learned through a cognitivist approach?

2. What areas of knowledge do you think would NOT be appropriately taught through a cognitivist approach?

2. What are your reasons?

Lecture Four: III. Constructivism

Time: 3 hours

Objectives:

➢ Understand and explain the Constructivist view to learning.

➢ Discuss and evaluate the strengths of Vygostky's Theory of ZPD.

➢ Link the Constructivist theory to educational practice.

1. Introduction

A reaction to didactic approaches such as Behaviorism and programmed instruction, constructivism states that learning is an active, contextualized process of constructing knowledge rather than acquiring it. Knowledge is constructed based on personal experiences and hypotheses of the environment. Learners continuously test these hypotheses through social negotiation. Each person has a different interpretation and construction of knowledge process. The learner is not a blank slate (tabula rasa) but brings past experiences and cultural factors to a situation.

2. What is Constructivism?

Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own "rules" and "mental models," which we use to make sense of our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences.

Constructivism as a paradigm or a worldview posits that learning is an active, constructive process. The learner is an information constructor. People actively construct or create their own subjective representations of objective reality. New information is linked to prior knowledge, thus mental representations are subjective.

Constructivism is generally agreed to be the process where individual knowledge is created internally through a person's interaction with an external world. "Learners construct their own knowledge by looking for meaning and order; they interpret what they hear, read, and see based on their previous learning and habits" (Thanasoulas). This contrasts with the philosophy that

learning is transmitted from teacher to student directly. Social constructivism acknowledges the roles that social interaction and culture have on that knowledge creation.

Constructivism implies that learners are encouraged to *construct their own knowledge* instead of copying it from an authority, be it a book or a teacher, *in realistic situations* instead of decontextualised, formal situations such as propagated in traditional textbooks, and *together with others* instead of on their own. (Kanselaar, De Jong, Andriessen & Goodyear, 2001)

Constructivism's central idea is that human knowledge is *constructed*, that learners build new knowledge upon the foundation of previous learning. This view of learning sharply contrasts with one in which learning is the passive transmission of information from one individual to another, a view in which reception, not construction, is key.

3. Background

There are two major historical strands of the constructivist perspective:

3.1. Cognitive constructivism (an individualistic perspective)

Piaget (1896-1980) rejected the idea that learning was the passive assimilation of given knowledge. Instead, he proposed that learning is a dynamic process comprising successive stages of adaption to reality during which learners actively construct knowledge by creating and testing their own theories of the world. For Jean Piaget (1972) the development of human intellect proceeds through adaptation and organization. Adaptation is a process of assimilation and accommodation, where, on the one hand, external events are assimilated into thoughts and, on the other, new and unusual mental structures are accommodated into the mental environment. As Piaget identifies knowledge with action, he considers that mental development organizes these schemes in more complex and integrated ways to produce the adult mind. Although less contemporary & influential, it has inspired several important educational principles such as:

- Discovery learning.
- Sensitivity to children's' readiness.
- Acceptance of individual differences.
- Learners don't have knowledge forced on them – they create it for themselves.

3.2. Social-cultural constructivism (socio-constructivist perspective)

Lev Vygotsky's (1896-1934) main relevance to constructivism derives from his theories about language, thought, and their mediation by society. He holds that the process of knowing is rather a disjunctive one involving the agency of other people and mediated by community and culture. He sees collaborative action to be shaped in childhood when the convergence of speech and practical activity occurs and entails the instrumental use of social speech. Although in adulthood social speech is internalized (it becomes thought), Vygotsky contends, it still preserves its intrinsic collaborative character.

An important part of Vygotsky's work (1986) is critical upon Piaget's contributions in the field. Although they share some common ideas, there exist significant differences between them. On the topic of stages of development, Piaget believed that development precedes learning, while Vygotsky believed the opposite. In particular, on the development of speech, Piaget argues that the egocentric speech of children goes away with maturity, when it is transformed into social speech. On the contrary, for Vygotsky the child's mind is inherently social in nature and so speech moves from communicative social to inner egocentric. Therefore, since the development of thought follows that of speech, Vygotsky claims that thought develops from society to the individual and not the other way.
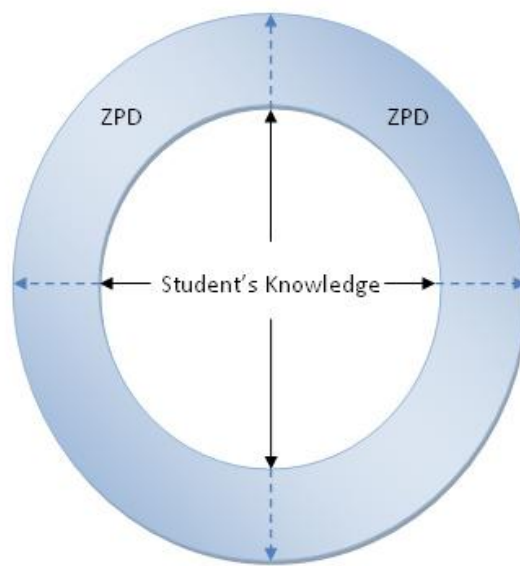
3.2.1 The Zone of Proximal Development (ZPD)

Learning, according to Vygtosky, is best understood in light of others within an individual's world. This continual interplay, between the individual and others, is described by Vygotsky as the zone of proximal development (ZPD) (Vygotsky, 1978). Vygotsky believed that learning takes place within the Zone of Proximal Development. He defined the zone of proximal development as the intellectual potential of an individual when provided with assistance from a knowledgeable adult or a more advanced child. During this assistance process, an individual is "other regulated" by a more capable peer or an adult. "Other regulation" refers to cues and scaffolding provided by the more capable peer or adult. The individual, by means of this assistance, is able to move through a series of steps that eventually lead to "self-regulation" and intellectual growth. Vygotsky stressed the importance of the zone of proximal development because it allows for the measurement of the intellectual *potential* of an individual rather than on what the individual has achieved.

In this, students can, with help from adults or children who are more advanced, master concepts and ideas that they cannot understand on their own. This model has two developmental levels:

1. The level of actual development – point the learner has already reached & can problem-solve independently.
2. The level of potential development (ZDP) – point the learner is capable of reaching under the guidance of teachers or in collaboration with peers.

The ZDP is the level at which learning takes place. It comprises cognitive structures that are still in the process of maturing, but which can only mature under the guidance of or in collaboration with others.

The Zone of Proximal Development

4 . How Constructivism Impacts Learning

The roots of constructivism go back to the theories of Piaget, Vygotsky and Dewey. But the influence of constructivism on instruction dates from the early eighties.

Lev Vygotsky pioneered research in learning sciences and made a strong argument for the need for students to demonstrate their knowledge by creating explanations and interpreting their work for others. To Vygotsky, teachers served as mediators who coached and encouraged students to formulate their own level of understanding. Each student has a base level of knowledge, but they can increase it by practicing what they know well and adding onto it. The social interaction between the student, teacher and other students reinforces their increase of knowledge.

Dewey (1933-1998), a believer in what he called "the audacity of imagination," was one of the first national figures in education policy. He rejected the notion that schools should focus on repetitive, rote memorization. Instead he proposed a method of "directed living" in which students would engage in real-world, practical workshops in which they would demonstrate their knowledge through creativity and collaboration. Students should be provided with opportunities to think from themselves and articulate their thoughts.

Dewey called for education to be grounded in real experience. He wrote, "If you have doubts about how learning happens, engage in sustained inquiry: study, ponder, consider alternative possibilities and arrive at your belief grounded in evidence."

Agreeing with this view of knowledge, learning must be placed in a rich context, reflective of real world context, for this constructive process to happen and transfer to environments beyond the school or training classroom. Learning through cognitive apprenticeship, mirroring the collaboration of real world problem solving, and using the tools available in problem solving situations, are key. How effectual or instrumental the learner's knowledge structure is in facilitating thinking in the content field is the measure of learning Bednar, Cunnigham, Duffy, Perry, 1995, p103-104).

Bruner (1915-2016) Influenced by Vygotsky, Bruner emphasises the role of the teacher, language and instruction. He thought that different processes were used by learners in problem solving, that these vary from person to person and that social interaction lay at the root of good learning.

Bruner builds on the Socratic tradition of learning through dialogue, encouraging the learner to come to enlighten themselves through reflection. Careful curriculum design is essential so that one area builds upon the other. Learning must therefore be a process of discovery where learners build their own knowledge, with the active dialogue of teachers, building on their existing knowledge.

Bruner initiated curriculum change based on the notion that learning is an active, social process in which students construct new ideas or concepts based on their current knowledge. He provides the following principles of constructivistic learning:

- Instruction must be concerned with the experiences and contexts that make the student willing and able to learn (readiness).
- Instruction must be structured so that it can be easily grasped by the student (spiral organization).

- Instruction should be designed to facilitate extrapolation and or fill in the gaps (going beyond the information given).

In fact, Constructivism tends to address:

Curriculum–Constructivism calls for the elimination of a standardized curriculum. Instead, it promotes using curricula customized to the students' prior knowledge. Also, it emphasizes hands-on problem solving.

Instruction–Under the theory of constructivism, educators focus on making connections between facts and fostering new understanding in students. Instructors tailor their teaching strategies to student responses and encourage students to analyze, interpret, and predict information. Teachers also rely heavily on open-ended questions and promote extensive dialogue among students.

Assessment–Constructivism calls for the elimination of grades and standardized testing. Instead, assessment becomes part of the learning process so that students play a larger role in judging their own progress.

The primary emphasis is that in constructivist teaching, students participate in hands-on activities and extended to acquire or construct their own knowledge. The supporters assert that the constructivist approach suits students' own interest and requires a high degree of self-directed learning activities. Active advocates like Windschitl (1999) points out that applying the constructivist approach is more than requiring teachers full understanding its philosophy, principles, and techniques that fit into the constructivist model of instruction. He argues that constructivist approach is not merely a set of instructional practice but a way of thinking about the nature of child development and schooling. Meanwhile, he argues that successfully implementing this approach requires a fundamental change in the "culture" of the school, a change that affects not only how children are taught, but in how they are assessed, how classrooms are physically organized, how activities are scheduled, and how teaching is evaluated.

The influence of constructivism in education today can be seen in a variety of published curricula as well as instructional practices. Social constructivist applications are commonly found in schools through the widespread use of cooperative and collaborative teaching

strategies; the emphasis is on having students working together while sharing ideas and challenging each other's perspectives.

In the constructivist classroom, both teacher and students think of knowledge as a dynamic, ever-changing view of the world we live in and the ability to successfully stretch and explore that view - not as inert factoids to be memorized.

Key assumptions of this perspective include:

1. What the student currently believes, whether correct or incorrect, is important.
2. Despite having the same learning experience, each individual will base their learning on the understanding and meaning personal to them.
3. Understanding or constructing a meaning is an active and continuous process..
4. Learning may involve some conceptual changes.
5. When students construct a new meaning, they may not believe it but may give it provisional acceptance or even rejection.
6. Learning is an active, not a passive, process and depends on the students taking responsibility to learn.

The main activity in a constructivist classroom is solving problems. Students use inquiry methods to ask questions, investigate a topic, and use a variety of resources to find solutions and answers. As students explore the topic, they draw conclusions, and, as exploration continues, they revisit those conclusions. Exploration of questions leads to more questions.

There is a great deal of overlap between a constructivist and social constructivist classroom, with the exception of the greater emphasis placed on learning through social interaction, and the value placed on cultural background. For Vygotsky, culture gives the child the cognitive tools needed for development. Adults in the learner's environment are conduits for the tools of the culture, which include language, cultural history, social context, and more recently, electronic forms of information access.

In social constructivist classrooms collaborative learning is a process of peer interaction that is mediated and structured by the teacher. Discussion can be promoted by the presentation of specific concepts, problems or scenarios, and is guided by means of effectively directed questions, the introduction and clarification of concepts and information, and references to previously learned material.

Examples and applications of Constructivism:

- Case studies
- Research projects
- Problem based learning
- Brainstorming
- Collaborative learning /group work
- Discovery learning
- Simulations

Assignment:

Compare and contrast the theories and contributions of Piaget and Vygotsky in your own learning. Provide examples.

Lecture Five: Learning styles

Time: 3 hours

Objectives:

➢ Explain what a learning style is and how they are used in the classroom.

➢ Identify one's own primary learning style(s).

➢ Discuss and define general learning style characteristics.

➢ Identify appropriate study habits based on their primary learning style.

1. Introduction:

As early as 334 BC, Aristotle said that "each child possessed specific talents and skills" and he noticed individual differences in young children. In the early 1900's, several personality theories and classifications for individual differences were advanced; these focused especially on the relationship between memory and visual or oral instructional methods. The research in learning styles then declined due to the emphasis on the student's IQ and academic achievement. In the last half of the 1900's, however, there has been a renewed interest in learning styles research and many educators are attempting to apply the results within the classroom.

2. Definition of learning styles

Learning style preferences refer to the "characteristic strengths and preferences in the ways (people) take in and process information" (Felder, 1996).

Learning style is an individual's natural or habitual pattern of acquiring and processing information in learning situations. A core concept is that individuals differ in how they learn. The idea of individualized learning styles originated in the 1970s, and has greatly influenced education.

We have known that people differ in how they learn, think and problem-solve. Learning styles refer to the characteristic way a person processes information and behaves in a learning environment. There are different variables addressed in each learning style inventories. Some learning styles look at how people "take in" information most effectively through a particular sensory method. Some utilize our preference to process and "make sense" of information, while others take aspects of our innate temperament and personality traits that influence how we learn, interact with and interpret our environment.

Thus, learning styles can be defined, classified, and identified in many different ways. Generally, they are overall patterns that provide direction to learning and teaching. Learning style can also be described as a set of factors, behaviors, and attitudes that facilitate learning for an individual in a given situation.

Styles influence how students learn, how teachers teach, and how the two interact. Each person is born with certain tendencies toward particular styles, but these biological or inherited characteristics are influenced by culture, personal experiences, maturity level, and development. Style can be considered a "contextual" variable or construct because what the learner brings to the learning experience is as much a part of the context as are the important features of the experience itself.

Each learner has distinct and consistent preferred ways of perception, organization and retention. These learning styles are characteristic cognitive, affective, and physiological behaviors that serve as pretty good indicators of how learners perceive, interact with, and respond to the learning environment.

Students learn differently from each other and it has been determined that brain structure influences language structure acquisition. It has also been shown that different hemispheres of the brain contain different perception avenues. Some researchers claim that several types of cells present in some brains are not present in others.

3. Types of learning styles

How many ways are there to learn about a subject? According to the latest findings by several leading psychologists, there are seven specific types of learning styles. This means that in order to maximize learning advantages, teachers must define the type of learners, and cater the lesson to that particular learning style. For example, if a person is primarily a linguistic learner, several novels should be incorporated into the curriculum. Short stories could be used to explain scientific developments, or allow the student to rewrite a difficult math problem into a story problem. If he/she is primarily logical, emphasis will be on charts, tables, and diagrams. Yet, Educational science has studied these questions for years and has determined that when some individuals struggle with learning it may be entirely a question of how they are being taught.

a. Verbal (linguistic): Preference in using words –both in speech and writing. This type of learner loves to read, write, and tell stories. They tend to memorize places, dates, names, and trivia very easily, and are always mesmerizing you with their incredible tales. They have a

remarkable ability to repeat back everything you have ever told them, word for word. These students learn best by saying, hearing, and seeing words. Ask them to write down a word or a phrase, and it is forever locked into their memory. Encourage them to participate in spelling bees and creative writing courses. You could have another Shakespeare on your hands!

b. Visual (spatial): These are the visualizers: prefer using pictures, images, and spatial understanding. They learn best by experiencing rich visual images, and watching others perform new skills. They spend most of the day dreaming, watching movies, and staying as far away from reality as possible. If they seem particularly "down", asking them to draw a picture will get you much further into the nature of the problem, than asking them to tell you about it, they have strong description and imagery. They are very good at working with colours, pictures, graphic visual presentation, and using the "mind's eye". They could be hard at work thinking about a particular problem, but have yet to put it on paper. These types of learners are very artistic, although they often have problems expressing it.

c. Aural (auditory-musical): This type of learners prefers using sound and music- they learn best by experiencing rich sound stimuli. If your child is always walking around the house humming a tune, or always needs music to study by, then he/she is likely a musical learner. This type of learner is best at noticing details, pitches, and rhythms that escape the normal listener. They are excellent at keeping tune, and are adept at turning the abstract into concrete objects. They learn best through rhythm, melody, and music. For memorization techniques, they can be asked to write a song about the lesson (rap works well as a narrative).

d. Kinesthetic (physical or Bodily): This type of learners is always on the move: they prefer using their body, hands and sense of touch. They constantly walk around, they have to touch everything, and they use body language to convey their feelings. They would rather play sports or do a craft than sit down and read a book. They need active education: to keep them moving. These are the learners who can do more than one thing at a time. Generally recognized as ADHD (Attention Deficit Hyperactivity Disorder), many are misdiagnosed. Better to allow them to use all of that extra energy to learn, and change subjects frequently. Interdisciplinary lessons are very successful with these types of learners.

e. Logical (mathematical): This learner is very mathematically inclined: prefers using logic, reasoning and systems. They enjoy solving problems, particularly if they are math related. They are similar to Dr. Spock, on Star Trek, in that they are very logical, straight-forward types of learners. They will plague you with questions on how things work, how things relate to one

another, and why things are here. Their favourite toys as young children were likely building blocks, and pattern puzzles. Answer their ongoing questions with as much patience as one day they may likely become engineers. This type of student learns best by categorizing, classifying, and working with abstract patterns or relationships. Ask them to make a chart or to show relationships between different items. They will not only come up with an answer, but they will be able to explain the process and developmental stages of the relationship.

f. Social (interpersonal): These are the "social butterflies". They adapt easily to any type of social situation, have many friends and are excellent leaders. They are patient, understanding, and very empathetic, which makes them a favourite among their playmates. They generally make good leaders because of their ability to mediate conflict, and are often referred to as "the Peacemaker" of the family. They will likely bring home a number of different types of friends. Although this can be difficult at times, it is important to support and accept all of them. This type of learner will do best in a group situation as they compare, share, relate, and interview other people. They prefer to learn in groups or with other people.

g. Solitary (intrapersonal): These strong willed people work best alone and use self-study. They pursue their own interests and have a deep understanding of themselves. They pride themselves on being independent and original, and they tend to stand out from the crowd without even trying. They are the "strong, silent type". They do best in self paced instruction, individualized projects, and working alone. They should be allowed to be by themselves, but continue to encourage their socialization skills by creating a number of situations for them to socialize, yet allow them to maintain their own space. These learners work best alone and often need to be encouraged to socialize.

Students will most likely not possess one style exclusively but we may be able to see patterns in their learning preferences. For example, a student who is visual may also be a very social and verbal learner and prefers to learn especially difficult topics using their primary skills. No student is exclusively one style or another and most utilize a variety of modalities when learning. It is important to expand their abilities to use as many learning styles as possible. It is possible to have more than one style of learning, particularly in the intrapersonal and interpersonal categories, which have traditionally been interpreted as personality types.

In conclusion, we all have elements of each learning style. But the truth is that one or two types stand out in each of us.

4. Kolb Learning Inventory.

Any learning style will help understand how you learn best in an educational setting and in everyday life. The Kolb Learning Inventory can be described as a cycle made up of four basic phases.

Kolb's learning theory sets out **four distinct learning styles** (or preferences), which are based on **a four-stage learning cycle**. (Which might also be interpreted as a 'training cycle'). In this respect Kolb's model is particularly elegant, since it offers both a way to understand **individual people's different learning styles**, and also an explanation of **a cycle of experiential learning that applies to us all**.

Kolb includes this 'cycle of learning' as a central principle his experiential learning theory, typically expressed as **four-stage cycle of learning**, in which **'immediate or concrete experiences'** provide a basis for **'observations and reflections'**. These 'observations and reflections' are assimilated and distilled into **'abstract concepts'** producing new implications for action which can be **'actively tested'** in turn creating new experiences.

Kolb says that ideally (and by inference not always) this process represents a learning cycle or spiral where the learner 'touches all the bases', ie., a cycle of experiencing, reflecting, thinking, and acting. Immediate or concrete experiences lead to observations and reflections. These reflections are then assimilated (absorbed and translated) into abstract concepts with implications for action, which the person can actively test and experiment with, which in turn enable the creation of new experiences.

Kolb's model therefore works on two levels - **a four-stage cycle**:

1. Concrete Experience - (CE)
2. Reflective Observation - (RO)
3. Abstract Conceptualization - (AC)
4. Active Experimentation - (AE)

and a four-type definition of learning styles, (each representing the combination of two preferred styles, rather like a two-by-two matrix of the four-stage cycle styles, as illustrated below), for which Kolb used the terms:

1. Diverging (CE/RO)
2. Assimilating (AC/RO)
3. Converging (AC/AE)

4. Accommodating (CE/AE)
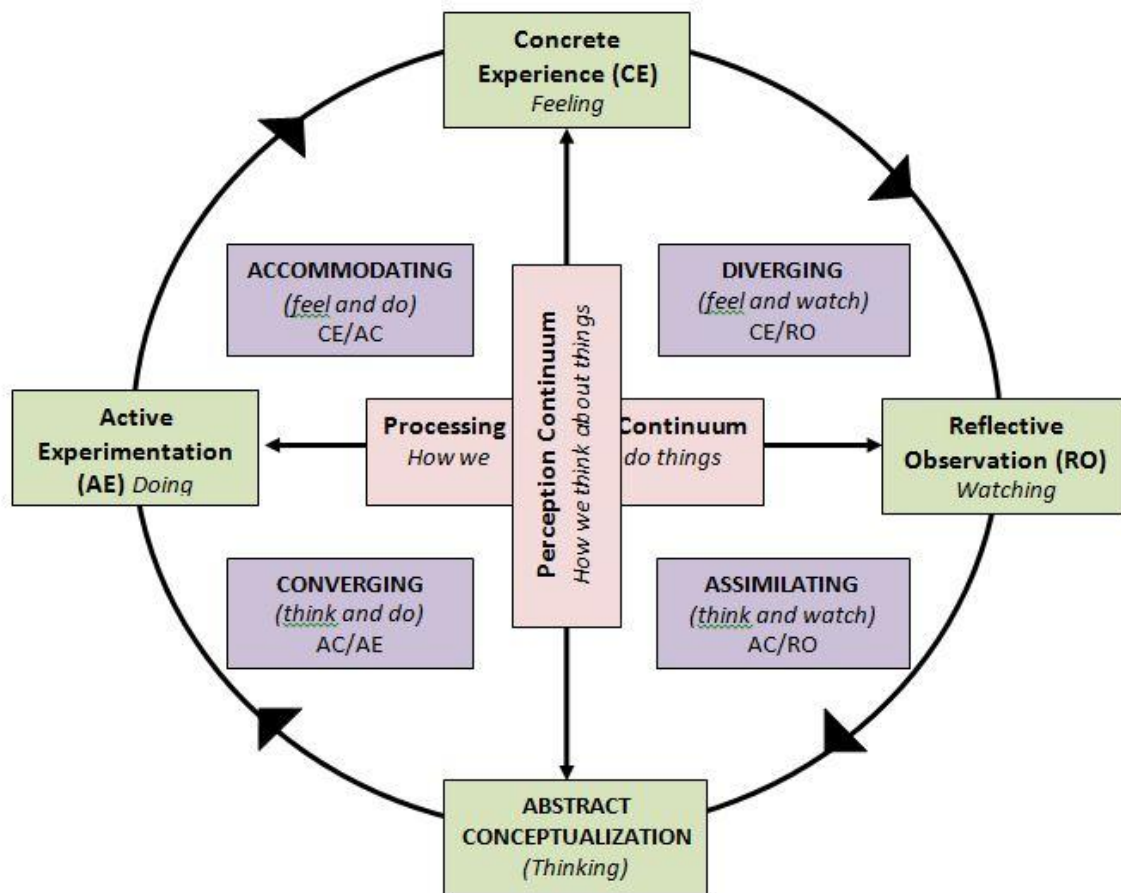
Thinking = Perception   Doing = Processing

The way we *think about* information is through the process of either Concrete Experience or Abstract Conceptualization thereby creating the Perception Continuum.

The way we *do things* is the process of either Reflective Observation or Active Experimentation, thereby creating the Processing Continuum.

When we use both continuums in an experience, we expand our potential to learn. You may begin a learning process in any of the four phases of the learning cycle and would cycle through all four phases in a well-rounded learning process. There may be moments where you sometimes skip a phase in the cycle or focus primarily on just one.

The combination of how you do things and how you think about things creates our specific and preferred learning style. These are Diverging, Assimilating, Converging and

Accommodating styles. If, for example, you prefer to think about things through feeling (Concrete Experiences) and do things through watching (Reflective Observation), you would have a Diverging style of learning. If you prefer to think about things through thinking (Abstract Conceptualization) and doing things through doing (Active Experimentation), then your preferred learning style is Converging and so on.

The Diverging Style: Combination of Concrete Experiences and Reflective Observation Phase.

- Views concrete situations from many different viewpoints.
- Approaches situations through observing rather than taking action.
- Enjoys situations that call for generating a wide range of ideas, such as brainstorming sessions.
- May have broad cultural interests and like to gather information.
- Opts for working in groups to gather information, listening with an open mind and receiving personalized feedback in formal learning situations.

The Assimilating style: Combines the Reflective Observation and Abstract Conceptualization phases.

- Understands a wide range of information and putting it into concise, logical form.
- Less focused on people and more interested in abstract ideas and concepts.
- Theory must have logical soundness than practical value.
- Prefers lectures, readings, exploring analytical models and having time to think things through on his own in formal learning situations.

The Converging Style: Combines the Abstract Conceptualization and Active Experimentation phases.

- Finds practical uses for ideas and theories.
- Solves problems and makes decisions based on finding solutions to questions or problems.
- Deals with technical tasks and problems than with social and interpersonal issues.
- Prefers experimenting with new ideas, simulations, laboratory assignments and practical applications in formal learning situations.

The Accommodating Style: Combines the Active Experimentation and Concrete Experience phases

- Has the ability to learn primarily from 'hands-on' experiences.
- Enjoys carrying out plans and involving oneself in new and challenging experiences.
- Acts on intuition rather than logical analysis.

- Relies more heavily on people for information than on their own technical analysis to solve problems.
- Prefers to work with others to get assignments done, to set goals, to do field work and to test out different approaches to completing a project in formal learning situations.

Setting up a learning experience that includes all four phases of the learning cycle will incorporate all type of learners at one stage or another. This will also maximize and stimulate deep learning in each individual. If there a student is having difficulty understanding a concept or principle then acknowledging their preferred style and starting their learning process where they are most comfortable. This will facilitate and enable a more effective learning experience for them.

Assignment:

1. Group discussion about classroom environments and how they relate to learning. Discussion of negative learning environments may lead to a better understanding of students' preferred learning style.

2. Homework:

a. Online learning style assessment on: https://www.how-to-study.com/learning-style-assessment/quiz-item.asp

b. Write a reflection about the ways in which you learn best. Also, think about two-three reasonable types of studying you are willing to make a commitment to doing. Should this be the only way in which you learn? Why or why not?

Lecture Six: Learning Strategies

Time: 3 hours

Objectives:

- ➢ Discuss the implications and impact of the myriad of individual differences on the learning of individual students in the classroom environment.
- ➢ Apply strategies that help diverse students work cooperatively and productively in the educational settings.

1. Introduction:

The recent constructivist view toward knowledge acquisition places greater emphasis on the role of learners in constructing their own knowledge. Lessard-Clouston (1997) has remarked, *"Within the field of education over the last few decades a gradual but significant shift has taken place, resulting in less emphasis on teaching and greater stress on learners and learning."* (p.1). Research shows that good and poor learners are different in their approaches to learning, that is, they have their own systematic way of transforming information into knowledge. Good learners, for example, are able to employ a number of positive strategies when learning such as monitoring one's performance and using an active task approach (Naiman et al. 1996; Rubin 1975; Stern, 1975). Good learners are also more conscious of the strategies they use and why they use them (O'Malley and Chamot, 1990). The various ways of approaching learning are generally termed learning strategies.

2. Learning strategies definition

"Strategy", from the ancient Greek term strategia, refers to generalship or the art of war. In a more specific sense, strategy entails the optimal management of troops, ships or aircraft in a planned campaign. "Tactics" is different but related to strategies, which are tools to achieve the success of strategies. Moreover, the two expressions share some basic concepts: planning, competition, conscious manipulation and movement toward a goal. In non-military settings, the concept of strategy has been applied to the non-adversarial situations, where it has come to mean a plan, step or an action is taken for achieving a specific objective (Oxford, 1990). Oxford (1990) stated that strategies are particularly important for language learning "because they are tools for active, self-directed involvement, which is essential for developing communicative competence". Because of its significance, learning strategies have been extensively employed in the educational field. In defining the language learning strategy, "different researchers use

different terms and different concepts" (Oxford & Crookall, 1989); therefore, a great number of researchers have formulated their own definitions. Schemeck (1988) stated, strategy is "the implementation of a set of procedures (tactics) for accomplishing something" and learning strategy is "a sequence of procedures for accomplishing learning". Weinstein and Mayer (1986) proposed learning strategies as "behaviours and thoughts that a learner engages in during learning and that are intended to influence the learner's encoding process". More specifically, Rigney (1978) defined learning strategies as "cognitive strategy" which is "used to signify operations and procedures that the student may use to acquire, retain, and retrieve different kinds of knowledge and performance". Rubin (1975) defined strategies as "the techniques or devices, which a learner may use to acquire knowledge". Later, Rubin (1981) conducted a study to identify cognitive strategies in second language learning and introduced the distinction between direct and indirect language learning strategies. In 1987, Rubin proposed, "language learning strategies are strategies which contribute to the development of the language system which the learner constructs and affect learning directly". She also suggested that language learning strategies include "any set of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval and use of information". Bialystok (1978) defined language learning strategies as "optional means for exploiting available information to improve competence in a second language".

3. Language learning strategies classification

According to O'Malley et al. (1985), "language learning strategies have been broadly defined as any set of operations or steps used by a learner that will facilitate the acquisition, storage, retrieval, or use of information". They classified twenty-six strategies into three subgroups: metacognitive, cognitive and socio-affective. Similarly, Chamot (1987) gave a definition of language learning strategies as "techniques, approaches or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information". She proposed that some language learning strategies are observable, but some may not be observable. In cognitive perspective, O'Malley and Chamot (1990) viewed language learning strategies as "the special thoughts or behaviours of processing information that individuals use to help them comprehend, learn, or retain new information". Nisbet (1986) offered another definition of language learning strategies as "always purposeful and goal-oriented, but perhaps not always carried out at a conscious or deliberate level. They can be lengthy or so rapid in execution that it is impossible for the learner to recapture, recall or even be aware that one has used a strategy". Oxford and Crookall (1989) defined language learning strategies as "steps

taken by the learner to aid the acquisition, storage, and retrieval of information". They noted that strategies may be used consciously but they can also become habitual and automatic with practice. Similarly, Oxford (1990) claimed "learning strategies are steps taken by students to enhance their own learning". She proposed a more specific definition of learning strategies as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations". MacIntyre (1994) argued that the term strategy implied active planning in pursuit of some goal, which was not something that would automatically occur. He emphasized the learners' deliberate action of language learning strategies. He provided a different perspective of defining language learning strategies as "the actions chosen by language students that are intended to facilitate language acquisition and communication". The definition focuses more on learners' intention and choice of using language learning strategies.

Direct strategies: Learning Strategies	
Cognitive Learning Strategies: Clarification, guessing, deductive reasoning, practicing, memorization and monitoring. They help analysis transformation, or synthesis learning materials.	Metacognitive Strategies: planning, prioritizing, goal-setting and self-management. They involve overseeing, regulating or self-directing learning.
Indirect strategies: Communication and Social Strategies	
Communication Strategies: getting meaning across, clarifying what the speaker intended. They help to participate conversation especially in difficult situation.	Social Strategies: seeking practice opportunities. They help to get opportunities to be exposed to and practice their knowledge.

Rubin's Strategy classification system (1987).

McKeachie et al. (1987) identify three main categories of learning strategies. There are cognitive strategies to learn and understand information, such as rehearsing, summarizing, paraphrasing, imaging, elaborating, and outlining. Then, there are metacognitive strategies which include strategies learners use to plan, regulate, monitor and modify the cognitive learning processes. Lastly, there are resource management strategies which are about strategies learners employ to control resources like time, effort, affect and support. It appears that good learners on the whole employ better strategies to learn (cognitive strategies), to be more conscious about how they should learn and monitor the success of learning (metacognitive

strategies), and to manage their time, affect and effort in a better way and be more able to find support when necessary (resource management strategies) than the poor learners.

In another attempt to produce a classification scheme, O'Malley and Chamot (1985) proposed a taxonomy including 26 strategies which were divided into three categories:

1. Metagognitive strategies: (knowing about learning) they include planning (advance organization, organizational planning, selective attention, self-management), monitoring (monitoring comprehension and production), and evaluating (self-assessment).

2. Cognitive strategies: specific strategies to distinct learning activities. They refer to resourcing (finding and using appropriate resources), grouping, note-taking, elaboration of prior knowledge, summarizing, deduction/ induction, imagery, auditory representation and making inferences.

3. Social/ Affective strategies: they concern questioning for clarification, cooperation and self-talk.

The metacognitive and cognitive categories correspond with Rubin's direct and indirect strategies; whereas, the social/ affective category was added to acknowledge the importance of interactional strategies in language learning.

Metacognitive Strategies:	Cognitive Strategies:	Social/Affective Strategies:
selective attention, planning, monitoring, and evaluating. They are higher order executive skills, applying to a variety of learning tasks (receptive/ productive).	rehearsal, inferencing, deducing, summarizing and elaboration. They help to operate and manipulate directly on incoming information to enhance learning	cooperation, questioning and self-talk. They help interaction with another person or de ational control over affect.

O'Malley & Chamot's Strategy Classification System (1985).

Oxford (1990) included in her model a wide range of features based on Rubin's system and O'Malley and Chamot's scheme. The model consists of six categories as follows:

1. Memory strategies: they are specific devices (mnemonics) used by learners to make mental linkages that will allow new information, most often vocabulary, to enter and

remain in long-term memory. Some examples of memory strategies are to draw pictures to help remember new vocabulary, or to write new words in order to remember them. Although memory strategies can be considered as cognitive strategies, their purpose is limited to memorization. (Biggs 1988). Yet, Oxford (1996) and Lan & Oxford (2003) maintained that memory strategies operate differently from many cognitive strategies in terms of frequency of use.

2. Cognitive strategies: they help learners process and use the target language for learning or for accomplishing a task involving the language. For example watch TV, listen to music in the target language. The purpose here is not only memorization but instead a deeper processing and use of the language.

3. Compensation strategies: these strategies are intended to make up for missing knowledge while listening, reading, speaking, or writing. For example, use gestures or body language for speaking, rephrase when writing.

4. Metagognitive strategies: meta means 'above' or 'beyond', so metacognitive means 'beyond' the cognitive. They encompass the planning, organizing, evaluation, and monitoring of one's own learning. An instance of this is when the learner organizes time for learning, checks one's progress and so on.

5. Affective strategies: they help the learner deal with his or her emotions, motivation, and attitudes during the language learning process. Examples of such strategies are taking risk, trying to relax when feeling anxious about learning.

6. Social strategies: these strategies refer to how the learners interact with others in the context of language learning and related culture. Social strategies include for instance, when a learner asks someone to speak slowly, to show interest in learning about the social and cultural knowledge of the target language community.

These six categories were further divided into two major classes: the direct strategies (those which directly involve the target language such as reviewing and practicing) and include the memory, cognitive, and compensation strategies; indirect strategies (those which provide indirect support for language learning such as planning, co-operating and seeking opportunities), and involve the metacognitive, affective, and social strategies.

4. Learning strategies and learning styles

According to Oxford (2003) language learning styles and strategies are among the main factors that help to determine how, and how well students learn a second or foreign language. Students may use a variety of learning strategies which differ according to the language context; but they differ greatly because of the individuals' characteristics. One of these characteristics is the students' learning styles which are also varied. Recent research (Oxford & Ehrman, 1988) has suggested that learning styles have a direct influence on students' choice of strategies during their language learning. Understanding students learning styles help also teachers in selecting their teaching materials according to the different learners' preferences.

Assignment:

Discuss the strategies you have used in your own learning and explain how they could help you learn.

Lecture Seven: Learning Disabilities

Time: 3hours

Objectives:

> ➢ To raise a general awareness and an understanding of the difficulties and needs of children with learning disabilities.

> ➢ To adopt some measures and steps to assist such learners with disabilities and provide special courses.

1. What are Learning Disabilities?

Through research in the 1990s, the "Decade of the Brain," more knowledge has been provided about mental and brain disorders such as depression, bipolar disorder, schizophrenia, panic disorder, obsessive-compulsive disorder, and learning disabilities.

A specific learning disability can affect how individuals learn in a variety of ways including how they take in, remember, understand or express information. A specific learning disability may be defined as problems people encounter in learning that affect achievement and daily life skills. The most common forms of learning disability are in reading and spelling, but they may also be found in other areas of functioning including spoken language and mathematics. Individuals can present with a specific difficulty in one or more areas and have average or above average performance in other areas. For example, a child who has a specific difficulty in reading and spelling may perform well in mathematics. However, for others there may be several overlapping areas of difficulty.

You'll read the stories of Susan, Wallace, and Dennis, three people who have learning disabilities.

Susan:

At age 14, Susan still tends to be quiet. Ever since she was a child, she was so withdrawn that people sometimes forgot she was there. She seemed to drift into a world of her own. When she did talk, she often called objects by the wrong names. She had few friends and mostly played with dolls or her little sister. In school, Susan hated reading and math because none of the letters, numbers or "+" and "-" signs made any sense. She felt awful about herself. She'd been told--and was convinced--that she was retarded.

Wallace:

Wallace has lived 46 years, and still has trouble understanding what people say. Even as a boy, many words sounded alike. His father patiently said things over and over. But whenever his mother was drunk, she flew into a rage and spanked him for not listening. Wallace's speech also came out funny. He had such problems saying words that in school his teacher sometimes couldn't understand him. When classmates called him a "dummy," his fists just seemed to take over.

Dennis:

Dennis is 23 years old and still seems to have too much energy. But he had always been an overactive boy, sometimes jumping on the sofa for hours until he collapsed with exhaustion. In grade school, he never sat still. He interrupted lessons. But he was a friendly, well-meaning kid, so adults didn't get too angry. His academic problems became evident in third grade, when his teacher realized that Dennis could only recognize a few words and wrote like a first grader. She recommended that Dennis repeat third grade, to give him time to "catch up." After another full year, his behaviour was still out of control, and his reading and writing had not improved.

Then, a learning disability is a disorder that affects people's ability to either interpret what they see and hear or to link information from different parts of the brain. These limitations can show up in many ways--as specific difficulties with spoken and written language, coordination, self-control, or attention. Such difficulties extend to schoolwork and can impede learning to read or write, or to do math.

Learning disabilities can be lifelong conditions that, in some cases, affect many parts of a person's life: school or work, daily routines, family life, and sometimes even friendships and play. In some people, many overlapping learning disabilities may be apparent. Other people may have a single, isolated learning problem that has little impact on other areas of their lives.

2. Types of learning disabilities
Not all learning problems are necessarily learning disabilities. Many children are simply slower in developing certain skills. Because children show natural differences in their rate of development, sometimes what seems to be a learning disability may simply be a delay in maturation. To be diagnosed as a learning disability, specific criteria must be met.

The criteria and characteristics for diagnosing learning disabilities appear in a reference book called the DSM (short for the Diagnostic and Statistical Manual of Mental Disorders).

Learning disabilities can be divided into three broad categories:

- Developmental speech and language disorders
- Academic skills disordebrs
- "Other," a catch-all that includes certain coordination disorders and learning handicaps not covered by the other terms.

Each of these categories includes a number of more specific disorders.

a. Developmental speech and language disorders

Speech and language problems are often the earliest indicators of a learning disability. People with developmental speech and language disorders have difficulty producing speech sounds, using spoken language to communicate, or understanding what other people say. Depending on the problem, the specific diagnosis may be:

- Developmental articulation disorder
- Developmental expressive language disorder
- Developmental receptive language disorder

Developmental articulation disorder: Children with this disorder may have trouble controlling their rate of speech. Or they may lag behind playmates in learning to make speech sounds. For example, Wallace at age 6 still said "wabbit" instead of "rabbit" and "thwim" for "swim." Developmental articulation disorders are common. They appear in at least 10 percent of children younger than age 8. Fortunately, articulation disorders can often be outgrown or successfully treated with speech therapy.

Developmental expressive language disorder: Some children with language impairments have problems expressing themselves in speech. Their disorder is called, therefore, a developmental expressive language disorder. Susan, who often calls objects by the wrong names, has an expressive language disorder. Of course, an expressive language disorder can take other forms. A 4-year-old who speaks only in two-word phrases and a 6-year-old who can't answer simple questions also have an expressive language disability.

Developmental receptive language disorder: Some people have trouble understanding certain aspects of speech. It is as if their brains are set to a different frequency and the reception is poor. There is the toddler who does not respond to his name, a preschooler who hands you a bell when you asked for a ball, or the worker who consistently cannot follow simple directions.

Their hearing is fine, but they cannot make sense of certain sounds, words, or sentences they hear. They may even seem inattentive. These people have a receptive language disorder. Because using and understanding speech are strongly related, many people with receptive language disorders also have an expressive language disability.

Of course, in preschoolers, some misuse of sounds, words, or grammar is a normal part of learning to speak. It's only when these problems persist that there is any cause for concern.

b. Academic skills disorders

Students with academic skills disorders are often years behind their classmates in developing reading, writing, or arithmetic skills. The diagnoses in this category include:

- Developmental reading disorder
- Developmental writing disorder
- Developmental arithmetic disorder

Developmental reading disorder: This type of disorder, also known as dyslexia, is quite widespread. In fact, reading disabilities affect 2 to 8 percent of elementary school children.

When you think of what is involved in the "three R's"--reading, 'riting, and 'rithmetic--it's astounding that most of us do learn them. Consider that to read, you must simultaneously:

- Focus attention on the printed marks and control eye movements across the page
- Recognize the sounds associated with letters
- Understand words and grammar
- Build ideas and images
- Compare new ideas to what you already know
- Store ideas in memory

Such mental juggling requires a rich, intact network of nerve cells that connect the brain's centres of vision, language, and memory.

A person can have problems in any of the tasks involved in reading. However, scientists found that a significant number of people with dyslexia share an inability to distinguish or separate the sounds in spoken words. Dennis, for example, cannot identify the word "bat" by sounding out the individual letters, b-a-t. Other children with dyslexia may have trouble with rhyming games, such as rhyming "cat" with "bat." Yet scientists have found these skills fundamental to learning to read. Fortunately, remedial reading specialists have developed techniques that can help many children with dyslexia acquire these skills.

However, there is more to reading than recognizing words. If the brain is unable to form images or relate new ideas to those stored in memory, the reader cannot understand or remember the new concepts. So, other types of reading disabilities can appear in the upper grades when the focus of reading shifts from word identification to comprehension.

Developmental writing disorder: Writing, too, involves several brain areas and functions. The brain networks for vocabulary, grammar, hand movement, and memory must all be in good working order. So, a developmental writing disorder may result from problems in any of these areas. For example, Dennis, who was unable to distinguish the sequence of sounds in a word, had problems with spelling. A child with a writing disability, particularly an expressive language disorder, might be unable to compose complete grammatical sentences. Because developmental skills build on each other, a person may have more than one learning disability.

Developmental arithmetic disorder: Arithmetic involves recognizing numbers and symbols, memorizing facts such as the multiplication table, aligning numbers, and understanding abstract concepts like place value and fractions. Any of these may be difficult for children with developmental arithmetic disorders. Problems with numbers or basic concepts are likely to show up early. Disabilities that appear in the later grades are more often tied to problems in reasoning.

Many aspects of speaking, listening, reading, writing, and arithmetic overlap and build on the same brain capabilities. So, it is not surprising that people can be diagnosed as having more than one area of learning disability. For example, the ability to understand language underlies learning to speak. Therefore, any disorder that hinders the ability to understand language will also interfere with the development of speech, which in turn hinders learning to read and write. A single gap in the brain's operation can disrupt many types of activity.

c. "Other" learning disabilities

The DSM also lists additional categories, such as "motor skills disorders" and "specific developmental disorders not otherwise specified." These diagnoses include delays in acquiring language, academic, and motor skills that can affect the ability to learn, but do not meet the

criteria for a specific learning disability. Also included are coordination disorders that can lead to poor penmanship, as well as certain spelling and memory disorders.

3. Attention Disorders

Nearly 4 million school-age children have learning disabilities. Of these, at least 20 percent have a type of disorder that leaves them unable to focus their attention.

Some children and adults who have attention disorders appear to daydream excessively. And once you get their attention, they are often easily distracted. Susan, for example, tends to mentally drift off into a world of her own. Children like Susan may have a number of learning difficulties. If, like Susan, they are quiet and do not cause problems, their problems may go unnoticed. They may be passed along from grade to grade, without getting the special assistance they need.

In a large proportion of affected children--mostly boys--the attention deficit is accompanied by hyperactivity. Dennis is an example of a person with attention deficit hyperactivity disorder-ADHD. Like young Dennis, who jumped on the sofa to exhaustion, hyperactive children cannot sit still. They act impulsively, running into traffic or toppling desks. They blurt out answers and interrupt. In games, they cannot wait their turn. These children's problems are usually hard to miss. Because of their constant motion and explosive energy, hyperactive children often get into trouble with parents, teachers, and peers.

By adolescence, physical hyperactivity usually subsides into fidgeting and restlessness. But the problems with attention and concentration often continue into adulthood. At work, adults with ADHD often have trouble organizing tasks or completing their work. They do not seem to listen to or follow directions. Their work may be messy and appear careless.

Attention disorders, with or without hyperactivity, are not considered learning disabilities in themselves. However, because attention problems can seriously interfere with school performance, they often accompany academic skills disorders.

Are learning disabilities related to differences in the brain?

In comparing people with and without learning disabilities, scientists have observed certain differences in the structure and functioning of the brain. For example, new research indicates that there may be variations in the brain structure called the planum temporale, a language-related area found in both sides of the brain. In people with dyslexia, the two structures were

found to be equal in size. In people who are not dyslexic, however, the left planum temporale was noticeably larger. Some scientists believe reading problems may be related to such differences.

With more research, scientists hope to learn precisely how differences in the structures and processes of the brain contribute to learning disabilities, and how these differences might be treated or prevented.

Assignment:

When dealing with students with various disabilities in the same classroom, it can be a little challenging to do a lesson plan that is individualized and goal oriented for each student. Think about priorities you consider planning a lesson and how can you engage more students.

Lecture Eight: Teaching Strategies

Time: 3 hours

Objectives:

> ➢ To enable students to enter the world of teaching by making their instruction effective.

> ➢ Be prepared to integrate a variety of strategies in the teaching that would meet the learners' styles and needs.

> ➢ Get ready to match practice to purpose by selecting classroom activities and instructional strategies that will help learners achieve their learning objectives.

1. Introduction

Donald Freeman asserts that "how we define language teaching will influence, to a large extent, how we educate people as language teachers." As an alternative to what he perceives as a "fragmented and unfocused" approach to language teacher education, Freeman offers two proposals: Language teaching may be productively viewed "as a process of decision making based on the constituents of knowledge, skills, attitude, and awareness," and language teacher education can be understood to involve a collaborative effort through which change in a teacher's practice can be generated. The author's proposals are intended to provide a coherent perspective on basic issues in language teacher education; the task, Freeman argues, is not simply to develop a description of teaching, but to arrive at "a theoretical and practical understanding of how people are taught and learn to teach, how they learn to implement that description of teaching in practice."

'…despite the lack of comparative data on teaching methods (and on the ways in which the effectiveness of teaching is assessed) there is a widespread and growing impression that they are less than adequate to meet the needs of universities today-an impression expressed by many as "a crisis in teaching." (MacKenzie, Eraut & Jones, 1976)

'The fundamental changes in employment over the past 50 years imply a rise in the demand for non- routine cognitive and interpersonal skills and a decline in the demand for routine cognitive and craft skills, physical labour and repetitive physical tasks…Graduates are entering a world of employment that is characterised by greater uncertainty, speed, risk, complexity and interdisciplinary working. University education, and the mode of learning whilst at university, will need to prepare students for entry to such an environment and equip them with appropriate skills, knowledge, values and attributes to thrive in it' (Henard & Roseveare, 2012).

2. Definition of teaching strategies

Lawton defined teaching strategy as a generalized plan for a lesson(s) which includes structure desired learner behaviour in terms of goals of instructions and an outline of planned tactics necessary to implement the strategy.

Mackenzie defined the terms strategy and teaching separately. For him, "Teaching refers to a system of actions involving an agent, a situation, an end-in-view and two sets of factors in the situation-one set over which the agent has no control and one set which the agent can modify with respect to the end in view.

Controlling factors constitute the means by which goals are achieved. These means are of two types.

1. Material means i.e. subject matter, teaching materials and teaching aids.

2. Procedural means the ways of manipulation and implementation of the material means.

B.O Smith defined it as a pattern of acts that serves to attain certain outcomes and to guard against certain others. Here we can find out the uses of strategy:

1. To ensure that learning will occur in as brief a time as possible.
2. To induce students to engage in exchange of ideas.
3. To minimize the chance of wrong responses in learning concepts, principles or facts.
4. To ensure the attainment of defined instructional objectives.

The strategies aim to promote critical and reflective thinking, research and evaluation skills that will help students to take positive action to protect, enhance and advocate for their own and other's wellbeing and safety.

In addition, students use personal and social capability to work collaboratively with others in learning activities, to appreciate their own strengths and abilities and those of their peers and develop a range of interpersonal skills such as communication, negotiation, team work, leadership and an appreciation of diverse perspectives.

3. Gagné's Theory of Instruction: A Learning Theory

Among the several topics relating to Instructional Design and the practice of using design methods to create important and effective instruction, we will discuss Gagné's Theory popular

in the design of curriculum. This theory of Instruction includes the well-known "Nine Events of Instruction".

Robert Gagné was one of the first to coin the term "instructional design" as he began research and developed training materials for the military in the 1960s. His instructional design models laid the foundation for other theorists, such as Dick, Carey and Carey (The Dick and Carey Systems Approach Model), and Jerold Kemp (Instructional Design Model).
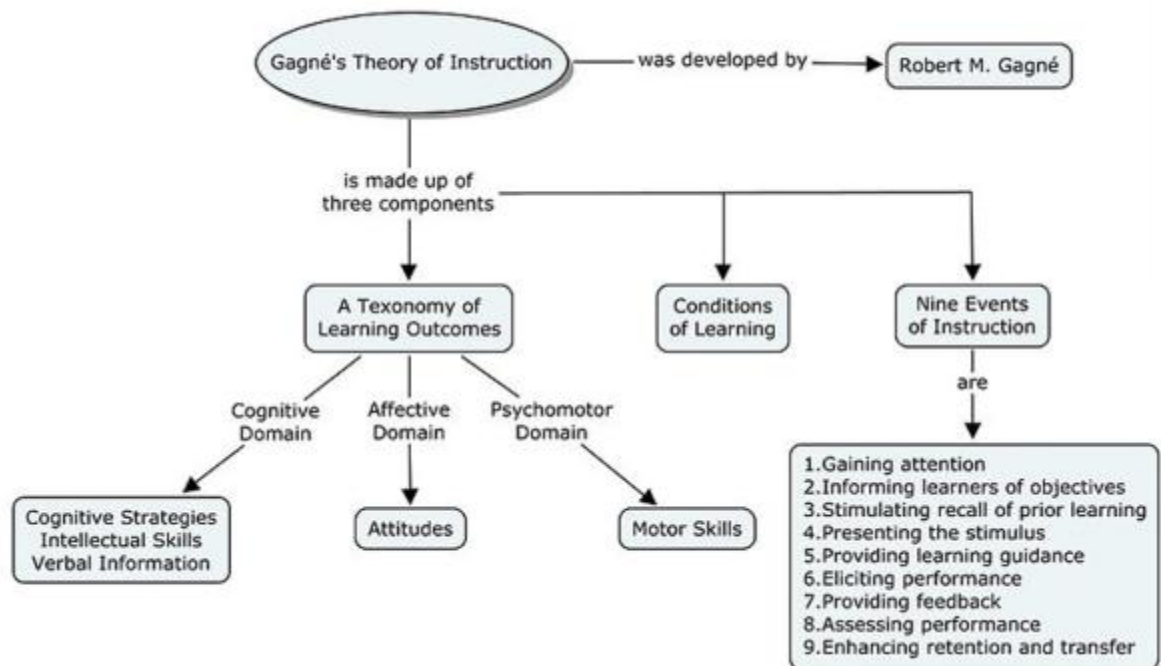
The Theory of Instruction has three components:

1.) A Taxonomy of Learning Outcomes
2.) Conditions of Learning
3.) Nine Events of Instruction

A Taxonomy of Learning Outcomes defines how learning might be demonstrated and is broken down into three sub-components- *Cognitive Domain, Affective Domain,* and *Psycho-motor Domain.*

The Cognitive Domain has multilevel steps that students can use to demonstrate their learning. They are :

- Stating **Verbal Information**
- **Label or Classify Concepts** to demonstrate intellectual skills
- **Apply Rule and Principles** to demonstrate intellectual skills
- **Problem solve and generate solutions** to demonstrate intellectual skills
- Use **Cognitive Strategies** for learning

The Affective Domain shows a learning outcome in which learners address their **attitudes** by demonstrating preferred options.

And the final sub-component of Gagné's *Taxonomy of Learning Outcomes,* Psycho-motor Domain shows a learning outcome in which learners show **motor skills** through physical performance.

The second component of Gagné's Theory of Instruction are the *Conditions of Learning.* The Conditions of Learning are the required states needed of the learner to acquire new skills. They can be internal states or personal requirements of the learner, such as self-motivation. They are also the external conditions learning such as environmental stimuli that support the internal learning process, such as a quiet, well-lit classroom setting or having the necessary tools available.

The third and final component of Gagné's Theory of Instruction is the *Nine Events of Instruction.*

Gagné believed that learning occurs in a series of events. The learning events must be organized in a hierarchy of complexity and must correspond with deliberate instruction. The significance of the hierarchy is to identify prerequisits that need to be completed at each level. Each learning objective must be accomplished before effective learning of the next outcome can begin. Essentially- you must learn how to speak before you can sing.

The Nine Events of Instruction, in order of Gagné's hierarchical structure:

Learning event	Corresponding instructional events
Reception	Gaining attention
Expectancy	Information of learners of the objective
Retrieval	Stimulation recall or prior learning
Selective perception	Presenting the stimulus
Semantic encoding	Providing learning guidance

Responding	Eliciting performance
Reinforcement	Providing feedback
Retrieval	Assessing performance
Generalization	Enhancing retention and transfer

1. *Gaining attention*: Before the learners can start to process any new information, the instructor must gain the attention of the learners.

2. *Informing learners of objectives*: The instructor tells the learner what they will be able to accomplish because of the instruction.

3. *Stimulating recall of prior learning*: A recall of existing relevant knowledge.

4. *Presenting the stimulus*: The content is presented.

5. *Providing learning guidance*: Understanding and encoding begins because the instructor presents the content with an emphasis on organization and relevance.

6. *Eliciting performance*: Learners are asked to demonstrate learning.

7. *Providing feedback*: The instructor gives informative feedback on the learners' performance.

8. *Assessing performance*: Additional learner performance is required and feedback is given again to reinforce learning.

9. *Enhancing retention and transfer*: The learner applies the instruction to practical applications to show capabilities.

As an instructor and instructional designer, it's important to understand how instruction and learning objectives can be deliberately designed for effective learning. It is evident that the Theory of Instruction provides relevant and useful information for doing just that.

4. Teaching strategies and learning styles

The interactive teaching and learning strategies described in this section are used to engage more students in their learning journey. Here we discuss strategies to improve engagement for students of each learning style.

a. Auditory and musical learners

Auditory learners like to hear solutions and examples explained to them, and may gravitate towards music subjects and group learning as a way to understand information. Auditory learners often have a high aptitude for distinguishing notes and tones in music and speech.

Qualities often associated with auditory learners include:

- Possessing a 'good ear' for music and tones
- May be distractible
- Likes to talk to self / others / hum / sing

Auditory learners might say words out loud or hum tones to better learn them. This strategy is key for keeping musical learners engaged in class lessons.

How to engage an auditory and musical learner :
If you're a music teacher, you're in luck. Auditory learners will be engaged from start to finish. For other subjects however, engaging aural learners requires some tact and forethought.

The key here is your voice (and the voice of your students). Write down something on the whiteboard, then read it out loud. Work on your delivery so you can express learning material in interesting and engaging tones. Similarly, encourage your students to read back their own notes to themselves (and the class). Hearing the sound of their own voice and the voices of others is engaging to auditory learners, but it can be a great learning tool for students of all types.

Other strategies you can try include:

- Recording lessons for later listening and reference
- Encouraging auditory listeners to 'teach others' verbally
- Seating them away from distractions

b. Visual and spatial learner

Visual learners like diagrams, drawing out concepts, charts and processes. They learn by looking at visual concepts, creating them, and watching other people create them. Visual learners might be organized or creative in their application, and find things like colours and shapes useful.

Visual learners often possess the following qualities:

- Habitual doodlers / drawers
- Observant
- Not easily distracted
- Enjoy planning
- Prefer visual instructions

How to engage a visual and spatial learner:

To engage a visual learner in the classroom you'll want to include elements like maps, diagrams and imagery. If you have a projector, try to include relevant images to go along with the course content. In geography and history, maps are helpful, while for maths and logic, go with diagrams.

Charts, images and diagrams will aid most students, so catering to visual learners doesn't mean you have to ignore other types. When it comes to self-driven learning, encourage the spatially aware to sketch out their ideas, create mind maps and flowcharts. It should probably come to them naturally, but a bit of prompting can always help.

Other tactics you can use include:

- Sitting visual learners near the front
- Using colour codes and cues
- Encouraging note taking and recopying notes during study

c. Verbal learner

Verbal learning includes both writing and speaking. Verbal learners might have a preference for reading and writing, word games and poems. Verbal learners know the meanings of a broad category of words, can use them effectively, and actively seek out new words to add to their repertoire.

Some qualities associated with verbal learners include:

- Intellectual
- Bookworm
- Good story teller

Verbal learners often seek out careers in journalism and writing, administration, law and politics.

How to engage a verbal learner:

Verbal learners will want to write down notes, talk about concepts and potentially present them as well. The trick with verbal learners is knowing what adjacent types of learning apply to them – are they an outgoing or more introspective verbal learner? Some may lean more to talking, while others to reading and writing. Try to cater to preference while also using their verbal abilities to push personal boundaries every once in awhile.

d. Logical and mathematical learner

Perhaps unsurprisingly, mathematical learners err towards careers in programming, accountancy, science, research and other number and pattern-orientated careers. Some qualities associated with mathematical learners include:

- Pattern recognition
- Good with numbers
- Predisposition towards grouping and classification

How to engage a logical and mathematical learner:

Mathematical learners will greatly appreciate any type of learning that logically explains the subject at hand. For maths, that's easy. For other subjects, it requires some effort and planning:

- **History and geography**: Try to include statistics and classification taxonomy in your lesson plans.
- **Literature**: Ask your students "What category of book is this?" Or in poetry, have them learn the meters and explain them to other students.
- **Music**: Teach both musical instrument classification (woodwind etc) and the mathematical relationships between notes.
- **Art**: A good starting point is the colour wheel and the effects of combining different colours.

With logical students, always look to incorporate a system. If you're unsure, include the students in the development of that system. They'll benefit from it greatly.

e. Physical or kinesthetic learner

Commonly called hands-on learners, kinesthetics prefer to physically engage with the materials of the subject matter. Some qualities associated with physical learners include:

- Preference to 'get their hands dirty'
- Energetic, may drum fingers or shake legs
- Action-orientated and outgoing
- May deprioritise reading and writing

Physical learners gravitate towards careers with lots of hands on work like emergency services, physical education and sports.

How to engage a physical or kinesthetic learner:

Channeling the energy and excitability of physical learners is key to offering a good lesson. Taking breaks so they can move around can help, but so can encourage role-play and movement within the lesson itself.

Physical interaction is also important. The use of props and models will greatly benefit a kinesthetic learner. Give them something to grab onto and they'll process information much better than from a book or whiteboard.

Other strategies to engage physical learners include:

- Encouraging movement during study (don't punish them for fidgeting)
- Decluttering desks and surfaces so they can focus on learning

f. Social and interpersonal learner

Social learners show preference towards groups and collaboration. Some, but not all, will gravitate towards leadership within a group. Some of the qualities often associated with this type of learner include:

- Extraverted
- Good communicator
- Sensitive and empathetic

It's important for educators to understand that not all social learners are extraverted or highly communicative, and that they can also be visual, auditory, verbal, logical or physical learners. The interpersonal aspect perhaps better describes the settings in which they are most comfortable, rather than how they absorb information.

As such, teachers should be cognisant of the breadth of variation between different types of social learners. For example, social doesn't strictly mean verbal. Some social learners prefer to listen in a group setting, rather than on their own.

How to engage a social and interpersonal learner:

To engage a social learner, encourage both group collaboration and presentation. Consider:

- Roleplaying historical events or works of literature
- Collaborating on maths problems
- Working as a class on comprehension questions

Interpersonal learners like to 'do' and to 'share'. This can sometimes lead to distraction for other students who are more intrapersonal in their learning habits. To prevent this, try to channel social learners into providing value to the group, giving them tasks that use their energy usefully, with a focus on empathy for their classmates.

g. Solitary and intrapersonal learner

Solitary learners can be visual, auditory, physical, verbal or logical learners. Fulfilling all the needs of the solitary student will ensure they are fully engaged. Some of the qualities often associated with this type of learner include:

- Independent
- Introspective
- Private

Intrapersonal learners may gravitate towards careers with a lot of self determination or motivation, as well as solitary workloads. Think:

- Researchers
- Writers and authors
- Programmers and coders

How to engage a solitary and intrapersonal learner:

In a classroom environment it can sometimes be difficult to engage a solitary learner. They might sit silently in the back of the classroom, only to ace the exam at the end of semester. For the educator, it's important to engage them during class. Provide visual materials, books and learning aids. Designate quiet areas, and collaborate with defined sharing time so the solitary learner can feel adequately prepared.

- **Mixed learning approach**

With large classrooms, it's not always easy to personalize lessons, but using a mixed learning approach throughout coursework can help you cater to each type of learning style. You may decide to focus on a particular learning type each lesson, or incorporate multiple strategies within each lesson. The most important element is first recognizing the differences in student learning – the rest will flow from there.

There are different types of teaching strategies used by the subject teacher. He manipulates them according to the need of the students, subject matter and of course, the instructional objectives and then implements them in classroom teaching. Selection and manipulation of teaching strategies is done at pre-active phase of teaching while implementation is done at interactive phase of teaching.

5. Adapting teaching and learning strategies:

The strategies linked to learning activities are a suggestion only. As teachers know their students learning styles and needs they can select alternative strategies or adapt those suggested to deliver the content. For example:

- a think-pair-share can easily be adapted for students to use when sorting out information or reflection on their learning at the end of an activity.
- a placemat can be used to tune students into a new concept or to consider information when making decisions.
- a thumbs up, thumbs down can be used by students to indicate their attitudes at the start of an activity or as a reflection strategy to evaluate changes in their knowledge and understandings.

5.1. Addressing students' learning styles and needs:

When teachers are asked to cater for individual differences it does not mean that every student must be given an individual work program or that instruction be on a one to-one basis. When teaching and learning is individualised it is reflected in classroom organisation, curriculum and instruction. Teaching and learning strategies can include a range of whole class, group and individual activities to accommodate different abilities, skills, learning rates and styles that allow every student to participate and to achieve success.

After considering the range of their students' current levels of learning, strengths, goals and interests, it is important teachers select strategies that:

- focus on the development of knowledge, understandings and skills
- will assist students to engage in the content
- will support and extend students' learning
- will enable students to make progress and achieve education standards.

5.2. Being inclusive of all students

Many students with disability are able to achieve education standards commensurate with their peers provided necessary adjustments are made to the way in which they are taught and to the means through which they demonstrate their learning. Teachers can adapt the delivery of activities and strategies in this resource to ensure students with disability can access, participate and achieve on the same basis as their peers.

Examples : brainstorming, role-plays, thumbs up-thumbs down.

- The following recommendations can help make the lecture approach more effective (Cashin, 1990):
  1. Fit the lecture to the audience

2. Focus your topic - remember you cannot cover everything in one lecture
3. Prepare an outline that includes 5-9 major points you want to cover in one lecture
4. Organize your points for clarity
5. Select appropriate examples or illustrations
6. Present more than one side of an issue and be sensitive to other perspectives
7. Repeat points when necessary
8. Be aware of your audience - notice their feedback
9. Be enthusiastic - you don't have to be an entertainer but you should be excited by your topic.
(from Cashin, 1990, pp. 60-61)

Case Method: Providing an opportunity for students to apply what they learn in the classroom to real-life experiences has proven to be an effective way of both disseminating and integrating knowledge. The case method is an instructional strategy that engages students in active discussion about issues and problems inherent in practical application. It can highlight fundamental dilemmas or critical issues and provide a format for role playing ambiguous or controversial scenarios.

Course content cases can come from a variety of sources. Many faculties have transformed current events or problems reported through print or broadcast media into critical learning experiences that illuminate the complexity of finding solutions to critical social problems. The case study approach works well in cooperative learning or role playing environments to stimulate critical thinking and awareness of multiple perspectives.

Discussion: There are a variety of ways to stimulate discussion. For example, some faculties begin a lesson with a whole group discussion to refresh students' memories about the assigned reading(s). Other faculty finds it helpful to have students list critical points or emerging issues, or generate a set of questions stemming from the assigned reading(s). These strategies can also be used to help focus large and small group discussions.

Obviously, a successful class discussion involves planning on the part of the instructor and preparation on the part of the students. Instructors should communicate this commitment to the students on the first day of class by clearly articulating course expectations. Just as the instructor carefully plans the learning experience, the students must comprehend the assigned reading and show up for class on time, ready to learn.

Active Learning: Meyers and Jones (1993) define active learning as learning environments that allow students to talk and listen, read, write, and reflect as they approach course content

through problem-solving exercises, informal small groups, simulations, case studies, role playing, and other activities -- all of which require students to apply what they are learning (p. xi). Many studies show that learning is enhanced when students become actively involved in the learning process. Instructional strategies that engage students in the learning process stimulate critical thinking and a greater awareness of other perspectives. Although there are times when lecturing is the most appropriate method for disseminating information, current thinking in college teaching and learning suggests that the use of a variety of instructional strategies can positively enhance student learning. Obviously, teaching strategies should be carefully matched to the teaching objectives of a particular lesson.

Assessing or grading students' contributions in active learning environments is somewhat problematic. It is extremely important that the course syllabus explicitly outlines the evaluation criteria for each assignment whether individual or group. Students need and want to know what is expected of them. For more information about grading, see the Evaluating Student Work section contained in this Guide.

Cooperative Learning: Cooperative Learning is a systematic pedagogical strategy that encourages small groups of students to work together for the achievement of a common goal. The term 'Collaborative Learning' is often used as a synonym for cooperative learning when, in fact, it is a separate strategy that encompasses a broader range of group interactions such as developing learning communities, stimulating student/faculty discussions, and encouraging electronic exchanges (Bruffee, 1993). Both approaches stress the importance of faculty and student involvement in the learning process.

When integrating cooperative or collaborative learning strategies into a course, careful planning and preparation are essential. Understanding how to form groups, ensure positive interdependence, maintain individual accountability, resolve group conflict, develop appropriate assignments and grading criteria, and manage active learning environments are critical to the achievement of a successful cooperative learning experience. In addition, the Program in Support of Teaching and Learning can provide faculty with supplementary information and helpful techniques for using cooperative learning or collaborative learning in college classrooms.

Integrating Technology: Today, educators realize that computer literacy is an important part of a student's education. Integrating technology into a course curriculum when appropriate is

proving to be valuable for enhancing and extending the learning experience for faculty and students. Many faculties have found electronic mail to be a useful way to promote student/student or faculty/student communication between class meetings. Others use list serves or on-line notes to extend topic discussions and explore critical issues with students and colleagues, or discipline- specific software to increase student understanding of difficult concepts.

Currently, our students come to us with varying degrees of computer literacy. Faculties who use technology regularly often find it necessary to provide some basic skill level instruction during the first week of class. In addition, watch for information throughout the year about workshops and faculty conversations on the integration of technology, teaching and learning.

Distance Learning: Distance learning is not a new concept. We have all experienced learning outside of a structured classroom setting through television, correspondence courses, etc. Distance learning or distance education as a teaching pedagogy, however, is an important topic of discussion on college campuses today. Distance learning is defined as 'any form of teaching and learning in which the teacher and learner are not in the same place at the same time.' (Gilbert, 1995).

Obviously, information technology has broadened our concept of the learning environment. It has made it possible for learning experiences to be extended beyond the confines of the traditional classroom. Distance learning technologies take many forms such as computer simulations, interactive collaboration/discussion, and the creation of virtual learning environments connecting regions or nations. Components of distance learning such as email, list serves, and interactive software have also been useful additions to the educational setting.

Assignment:
1. Are teachers aware of how they are responding to students?
2. Are they aware of what students already know? Are they aware of their students' prior knowledge in relation to the content of the lesson?

Homework:

Write a lesson plan in which you suggest your selected teaching strategies. Justify your choice.