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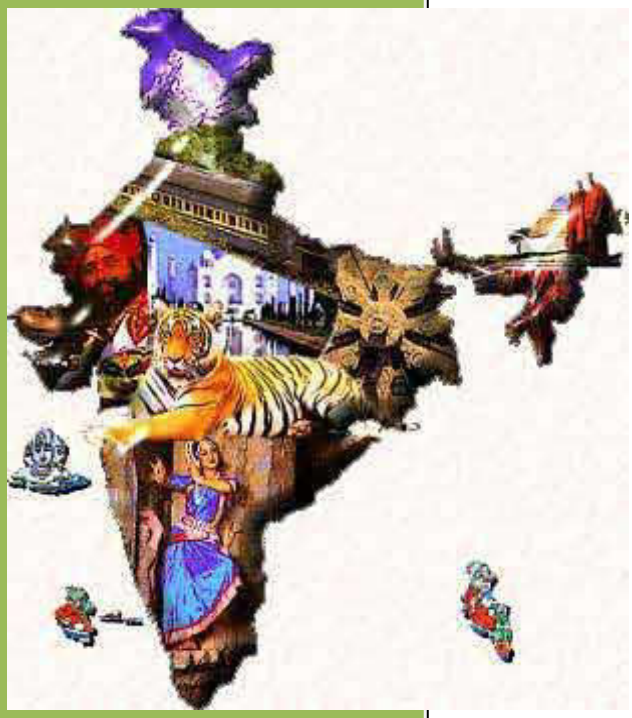

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CHILD DEVELOPMENT & PEDAGOGY

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CHILD DEVELOPMENT AND PEDAGOGY

CONCEPT OF DEVELOPMENT AND ITS RELATIONSHIP WITH LEARNING

Development :

Development is the process of quantitative and qualitative growth of the child and the emergence and differentiation of capabilities over time. It is the function of maturity as well as interaction with the environment.

Difference Between Growth And Development

The terms **growth** and **development** are often used interchangeably. Actually they are conceptually different. Neither growth nor development takes place all by itself. **Growth** refers to quantitative changes in size which include physical changes in height, weight, size, internal organs, etc. As an individual develops, old features like baby fat, hair and teeth, etc., disappear and new features like facial hair etc.. are acquired. When maturity comes, the second set of teeth, primary and secondary sex characteristics, etc., appear. Similar changes occur in all aspects of the personality.

Development, by contrast, refers to qualitative changes taking place simultaneously with quantitative changes of growth. It may be defined as a progressive series of orderly, coherent changes. The term progressive signifies that changes are directional, that they lead forward rather than backward. Orderly and coherent suggest that there is a definite relationship between the changes taking place and those that precede or will follow them. Development represents changes in an organism from its origin to its death, but more particularly the progressive changes which take place from origin to maturity.

Stages Of Development

All children progress in a definite order through these stages and they all follow similar basic patterns. These stages along with the corresponding ages of the child have been identified by developmental psychologists as follows.

Stage :	Time frame
prenatal	before birth
infancy	Birth to 1 year
early childhood	1-3 years
preschool	3-6 years
school childhood	6-12 years
adolescence	12-20 years
young adulthood	20-30 years
adulthood	30-50 years
mature adult	50-65 years
aging adult	65+

1. Prenatal Period (before birth)
Life begins at the time of conception. When the child is in the mother's womb the particular period spent there is known as prenatal period. All important external and internal feelings start to develop at this stage.

2. Infancy (Birth to 3 years)
From birth up to the third year of life, the stage is known as infancy. Babies grow very rapidly in size during their first three years. The acquisition of motor skills like holding things, crawling, walking proceeds from simple to complex.

3. Pre-school childhood (3-6 years)
The growth in height is not as rapid during this stage as it is in infancy. Children improve eye, hand and small muscle coordination. For example they can draw a circle, pour fluids into a bowl, button and unbutton clothes, and language development is rapid.

4. School childhood (6-12 years - Primary school years)
School children between the age of 6 to 12 years look much taller and thinner. Children exhibit rapid gains in strength and swiftness. They achieve new motor skills and their competence becomes more pronounced in all areas of development.

5. Adolescence (12-20 years)
It is the span of year between childhood and adulthood which begins at puberty. This is the period of rapid physiological growth. There are a number of psychological changes which also take place. Children jump rope, bicycle, ride horses, dance and indulge in all possible games. Cognitively they are more agile and socialrelationships become important. But the hallmark of this stage is the search for identity. A number of psychological changes also take place. Given sex-role expectations, girls attach greater importance to good interpersonal relationships and the family while boys emphasize the importance of their own social prestige and career.

6. Adulthood (20-65+ years)
For better understanding, adulthood can be divided into three stages. These are:
(a) Young adulthood (20-50 years)
(b) Mature adulthood or the Middle years (50-65 years)
(c) Aging adulthood (65+ years)
Strength and energy characterize this time of life from the middle twenties when most bodily functions are fully developed, until about the age of 50. Thereafter there is gradual decline in energy level.

Aspects Or Areas Of Development
There are five types of aspects of developments.
1.Physical development
2.Emotional development
3.Cognitive (mental) development
4.Language Development
5.Moral Development

Relation to learning
According to psychologist's view-point, the organism, from the moment of birth rather from the time of conception, is surrounded by some kind of environment. The organism does not simply live in the environment but is also acted upon by it. In turn the organism also acts upon the environment. All such action-reaction behaviours involves changes and modifications in the organism. This kind of change or modification is termed 'learning'. These changes can be intentional deliberate and controlled, or may take place without intention

INFLUENCE OF HEREDITY & ENVIRONMENT

FACTORS INFLUENCING DEVELOPMENT OF PERSONALITY
Really speaking, a human being's personality is a product of his/her genetic endowment and cultural environment.
As Cole and Bruce described, "from the moment of conception it grows 'whole', having within itself possibilities of developing into a dynamic, active, walking, talking, thinking, feeling human being, provided that the environment furnishes the raw materials and the appropriate conditions of stimulation."

Differences in individual personalities are caused because
(i) the possibilities within itself are different, and (ii) the provision of raw materials and appropriate conditions of stimulation by the environment vary widely.
Guilford, for example charted the magnitude of similarity of pairs of children with respects of intelligence (IQ). similarity in heredity varied from the same child (tested twice), to identical twins to only chance similarity in a pair of unrelated children.

HEREDITY

Genetics, or the science of heredity. is a discipline contributing specific details of the impact of heredity on living beings.**Baller and Charles** have compiles some general statements about the inheritance of character that are relevant to behaviour of personality. Basically, we inherit "a tendency toward a certain structure" and "a tendency to function in certain ways". Specially these include the following.

Tendency towards a certain structure includes the following behaviours.

- A tendency to achieve a certain body-weight.
- A tendency towards a general body-type (i.e. skeletal structure, proportion of fat and muscle-tissue, and the length of limbs).
- Sex
- Appearance, i.e., skin, hair texture and colour, eye shape and colour, nose shape, ear shape, head shape.
- Internal structure, for example the size of the heart and lungs in proportion to the body, determining the capacity for prolonged physical effort.

Tendency to function in certain ways includes the following behaviours :

- Natural response i.e. functioning of the nervous system, intelligence, predisposition to react slow or quickly.
- Sensory efficiency i.e. keenness of vision, range of hearing, sensitivity of touch and smell,
- Operation of the "vegetative system" i.e., heart and circulatory system, digestive system, reproductory system, etc.
- Functioning of the endocrine system, is., glandular secretions, e.g., the thyroids control the metabolic rate, the pituitary controlling growth, gonads controlling the sex-drive and sex characteristics and the adrenals controlling emotional "stir-ups".
- Rate of physical growth
- Predisposition to certain characteristics.

Finally a note must be added that the effects of heredity on temperamental quality are not fatalistic as these are on the structural tendency. Medical and surgical interventions are being invented continuously to bring the functioning of hereditary systems and mechanisms under control. Plastic surgery, for example, brings change in the inherited appearance while hormonal treatment changes the functioning of endocrine glands.

ENVIRONMENTAL FACTORS

Technically, environmental factors start exerting their influence through the uterine environment during the prenatal stage. The dietary habits, the health of the mother, etc., may cause prenatal "insult" or damage to the developing organism. Somc disabilities arc inflicted upon the child by uterine environmental factors.

During the first month or so, varying cultural patterns can be seen to shape the physical appearance of thc child. For example, tough-shaping by a strong message of the infant's body in the northern states of India and tender-shaping of the nosc of thc girl-child by strong- pressing in the southern states of India.

As thc child grows, he faces and deals with several environment factors. The child gradually grows in complexity, supporting or contracting various factors as the environment may be varying kinds.

Rearing patterns : Interactions between the infant and mother for satisfaction of biological needs play a significant role in personality development. Care and affection develop a sense of security. Over-indulgence or under-indulgence of the mother in breast-feeding would determine the "oral" personality and severity in toilet-training is the "anal" personality.

Regularity in feeding practices would develop in the child "basic trust" in thc world, irregularity would yield "mistrust". Similarly, toilet-mining severity may cause the child to grow into a doubting and shameful person, training "at ease" develops autonomy.

Parent-child interaction : Once the child grows free of the needs of the mother, parent-child interactions assume social dimensions. Through the interactions, both the individual psyche and the social psyche are communicated to the child and the child develops in him/her "individuous" (individual self and "socius" (social self).

THE PRINCIPLES OF GROWTH AND DEVELOPMENT

Following are the fundamental principles of growth and development.

(i) Development follows a pattern or a sequence:
Development tends to proceed from the head downward. This is called the **cephalocaudal principle.** According to this principle, the child first gains control of the head, then the arms, then the legs. Infants gain control of head and face movements within the first two months after birth. In the next few months, they are able to lift themselves up using their arms. By 6 to 12 months of age, infants start to gain leg control and may be able to crawl, stand, or walk.

Development also proceeds from the center of the body outward according to the**proximodistal principle.** Accordingly, the spinal cord develops before other parts of the body. The child's arms develop before the hands, and the hands and feet develop before the fingers and toes. Fingers and toes are the last to develop.

(ii) Development proceeds from general to specific responses:
It moves from a generalized to localized behaviour. The newborn infant moves its whole body at one time instead of moving only one part of it. It makes random kicking with its legs before it can coordinate the leg muscles well enough to crawl or to walk.

(iii) Development is a continuous process:
Development does not occur in spurts. Growth continues from the moments of conception until the individual reaches maturity. It takes place at slow regular pace rather than by 'leaps and bounds'. Although development is a continuous process, yet the tempo of growth is not even, during infancy and early years growth moves swiftly and later it slacken.

(iv) Different aspects of growth develop at different rates
Neither all parts of the body grow at the same rate nor do all aspects of mental growth proceed equally. They reach maturity at different times. Development also depends on maturation. Maturation refers to the sequence of biological changes in children. These orderly changes give children new abilities. Much of the maturation depends on changes in the brain and the nervous system. These changes assist children to improve their thinking abilities and motor skills. A rich learning environment helps children develop to their potential. Children must mature to a certain point before they can gain some skills. For instance, the brain of a four-month-old has not matured enough to allow the child to use words. A four-month-old will babble and coo. However, by two years of age, with the help of others, the child will be able to say and understand many words. This is an example of how cognitive development occurs from simple tasks to more tasks that are complex. Likewise, physical skills develop from general to specific movements. For example, think about the way an infant waves its arms and legs. In a young infant, these movements are random. In several months, the infant will likely be able to grab a block with his or her whole hand. In a little more time, the same infant will grasp a block with the thumb and forefinger.

(v) Most traits are correlated in development:
Generally, it is seen that the child whose intellectual development is above average is so in health size, sociability and special aptitudes.

(vi) Growth is complex:
All of its aspects are closely interrelated. The child's mental development is intimately related to his physical growth and its needs.

(vii) Growth is a product of the interaction of the organism and environment:
Among the environmental factors one can mention nutrition, climate the conditions in the home, the type of social organization in which individual moves and lives.

(viii) There are wide individual differences in growth:
Individual differences in growth are caused by differences in heredity and environment.

(ix) Growth is both quantitative and qualitative:
These two aspects are inseparable. The child not only grows in 'size'; he grows up or matures in structure and function too.

(x) Development is predictable:
It is possible for us to predict at an early age the range within which the mature development of the child is likely to fall. However, mental development cannot be predicted with the same degree of accuracy

SOCIALIZATION PROCESS:

Socialization is the process by which children and adults learn from others. We begin learning from others during the early days of life; and most people continue their social learning all through life.Socialization occurs throughout our life, but some of the most important socialization occurs in childhood. So let's talk about the most influential agents of socialization. These are the people or groups responsible for our socialization during childhood - including family, school, peers, and mass media.

Agents of Socialization

FAMILY

There is no better way to start than to talk about the role of family in our social development, as family is usually considered to be the most important agent of socialization. As infants, we are completely dependent on others to survive. Our parents, or those who play the parent role, are responsible for teaching us to function and care for ourselves. They, along with the rest of our family, also teach us about close relationships, group life, and how to share resources. Additionally, they provide us with our first system of values, norms, and beliefs - a system that is usually a reflection of their own social status, religion, ethnic group, and more.

SCHOOLS

The next important agent of childhood socialization is the school. Of course, the official purpose of school is to transfer subject knowledge and teach life skills, such as following directions and meeting deadlines. But students

don't just learn from the academic curriculum prepared by teachers and school administrators. In school, we also learn social skills through our interactions with teachers, staff, and other students. For example, we learn the importance of obeying authority and that, to be successful, we must learn to be quiet, to wait, and sometimes to act interested even when we're not.

Ram, like other children, might even learn things from his teacher that she did not intend to teach. For instance, he might learn that it's best to yell out an answer instead of raising his hand. When he does so, he gets rare attention from the teacher and is hardly ever punished.

PEERS

However, our peers also give us a chance to develop many of the social skills we need as adults. For instance, Alexander will certainly experience moments when his friends' behavior and/or values contradict the norms and values he obtained from his family

MASS MEDIA

The last agent of childhood socialization we're going to discuss in this lesson is mass media, which includes television, Internet, radio, movies, books, and magazines - just to name a few. This is another agent that our parents are understandably concerned about. As with our peers, we often learn things through mass media that our parents would probably rather we didn't. Especially today, children are exposed to a wide variety of content, including violence and sex, which many deem inappropriate. Mass media also seems to reinforce gender and other stereotypes.

PIAGET : CONSTRUCTS AND CRITICAL PERSPECTIVES

Cognitive development deals with studying how human beings think, reason and form concepts. In other words, it deals with the development of the mind. **According to a leading psychologist, Piaget,** the mind like the body also has structures.

Structures (units) of Mind:

1.Schema

The basic unit or structure of mind is called 'schema'. A schema is an abstract representation of the original elements in an object. For example the infant's schema for a face is likely to emphasize an oval frame containing two horizontally placed circular shapes (the eyes). It is likely that a schema is not an exact copy of any particular object or event. This complex concept involves both mental organization (a child's conceptualization of a specific situation), and observable behaviour. A schema is known by the behaviour it involves, e.g., the schema of sucking implies that a baby recognizes the

schema of hunger and therefore sucks. Here hunger is the schema and the effort to get food or sucking is the behaviour which is observable

2.Schemata

Schemata (plural of schema) are intellectual structures that organize events as they are perceived by the organism into groups according to common characteristics. For example, in the schema of face the child perceives common characteristics that are organized in a particular way in all human faces. They are repeatable psychological events in the sense that a child will repeatedly classify stimuli in a consistent manner.

Cognitive development is influenced throughout by two general principles:

1. Organization

Organization involves the integration of all processes into one overall system. Initially an infant's schema of looking and of grasping are quite different, resulting in faulty hand-eye coordination. Eventually the baby organizes these schemata in order to hold and look at the object at the same time.

2. Adaptation

Adaptation is a twofold process through which children create new structures to deal effectively with their surroundings. It involves both assimilation and accommodation, which are the essence of intelligent behaviour.

a. Assimilation

Assimilation is the taking in of a new object, experience or concept into an existing set of schemata. When children use them to respond to a new stimulus, they are assimilating. In this, the child interprets the meaning of an object in relation to an existing schema. For example, a child of 8 or 9 months who sees a ball will probably try to put it in his mouth. In Piagetian terms, the child is assimilating the ball into his sucking schema.

2. Accommodation

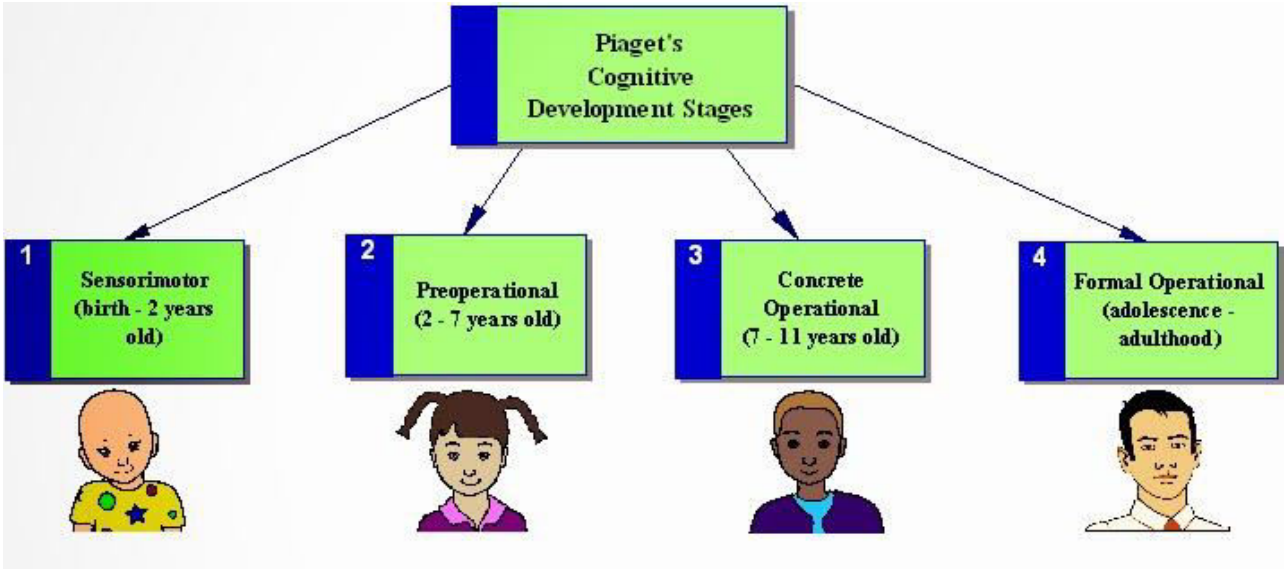
In the process of accommodation, the child changes his schema so that his response is better tailored to the object. The process by which children change their actions to manage new objects and situations is called accommodation. The example of accomodation is imitation of others. In the process of imitation child suppresses his/her available schema and strives to establish new schema.

Equilibrium :

Assimilation and accommodation are necessary for cognitive growth and development and constantly work together to produce changes in a child's conceptualization of the world and reactions to it. The state of balance between assimilation and accommodation is called equilibrium.

STAGES OF MENTAL DEVELOPMENT :

According to Piaget, cognitive development progresses through four major stages:



(i) Sensory motor (birth to 2 years):

Sensory motor stage is characterized by reflex actions of the infants.Children are using their physical or motor skills and their senses to explore their world and develop their cognitive understandings.

(ii) Preoperational (2 to 7 years)

(a) Preoperational (2-4)
(b) Intuitive (4-7)

Children during this period are egocentric and do not have the concept of object permanence. 2 to 7 years. In this stage children are less reliant upon senses and physical exploration and, according to Piaget, are 'illogical thinkers' . During this stage, for example, children can be shown that two balls of dough are exactly the same size, and they will agree that the balls are the same size, but when one is flattened, they will usually tell you that one of them is now bigger. This inability to conserve is a feature of the preoperational stage.

(iii) Concrete operations (7 to 12 years)

7 to 12 years. In this stage, which aligns with middle childhood, children are beginning to be able to demonstrate much more logical thinking, although they need concrete materials to help them reach the correct conclusions. Thus in this stage you will see children working on mathematical problems but using blocks, counters or even their fingers to help them work out the answer. Children of this age are able to differentiate themselves from the environment, learn about the object permanence, and

do goal-directed behaviours. They can arrange things or objects in a sequence.

(iv) Formal operations (12+years)
12 years and over. This final stage encompasses the rest of our lives. Piaget believed that once we reached the age of 12 we were capable of much more abstract thinking and able to solve problems in our 'heads'. We can deal with much more complex issues. During this period, children are able to do abstract reasoning and are able to think like adults.

PIAGET'S VIEWS ON MORAL DEVELOPMENT

Piaget (1932) proposed two stages of moral development that are heteronomous morality and autonomous morality. He derived his theory from observing, interviewing and quizzing the children on their thinking about game's rules. He extensively observed and interview 4 to 12 years old children. He watched them play marbles, seeking to learn how they used and thought about the game's rules.

Stage 1- Heteronomous Morality (4 – 10 years old)

- From 4 to 7 years of age, children display heteronomous morality. Children think of justice and rules as unchangeable proper- ties of the world, remove from the control of people.
- From 7 to 10 years of age, children are in transition showing some features of the first stage of moral reasoning and some features of the second stage, autonomous morality.
- Because young children are heteronomous moralist, they judge the rightness or goodness of behaviour by considering its consequences, not the intentions of the actor.

For examples : Killing 10 birds accidentally is worse than killing 1 bird intentionally.

Stage 2 - Autonomous Morality (10 years and above)

- From about 10 years of age and older, children show autonomous morality. They became aware that rules and laws are created by people, and in judging an action. They consider the actor's intentions as well as the consequences.
- The older children, moral autonomist, accept change in rules example accept change in new rules of playing marbles suggested by Piaget, contrast with younger children, they resist change because they believes that rules are unchangeable.
- So older children accept change in rules and recognize that rules are merely convenient conventions, subjects to change.

KOHLBERG'S : CONSTRUCTS AND CRITICAL PERSPECTIVES

When people are confronted with moral dilemmas, it is their reasoning that is important, and not their final decision, Kohlberg theorized that people progress through three levels (comprising six stages) as they develop abilities of moral reasoning.They are:

Kohlberg's stages of moral growth-

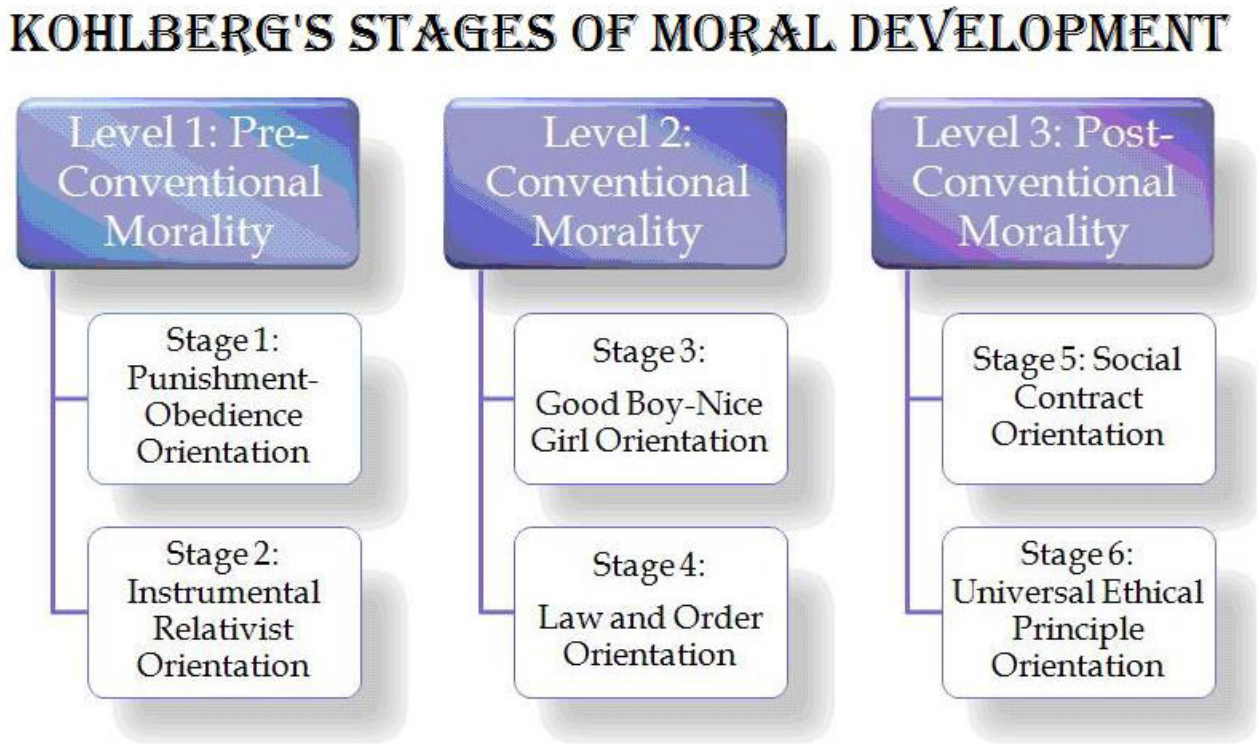
i) Pre-conventional level : This level of moral reasoning includes the rules set down by others and the children follow them. Morality at this stage is determined by the consequences of an action rather than by the inherent goodness or badness of an act. That is, they reason that an act is moral if the consequence of obeying a rule results in their obtaining something positive. A child reasoning at this hedonistic stage may argue that Heinz was right in stealing the drug if he left a note promising to do a favour for the druggist.There are two stages of this level:

Stage one - punishment and obedience orientation :
At the first stage physical consequences of an action determine whether it is good or bad.
Stage two - instrumental relativist orientation :
What's right satisfies one's own needs and occasionally the needs of others. Elements of fairness and reciprocity are present, but they are mostly interpreted in a "you scratch my back, I scratch yours" fashion

ii) Conventional level :
At this level the individual adopts rules, and sometimes subordinates his own needs to the needs of the group. The expectations of the family, the group, or The nation from adolescents are seen to be valuable in their own right, regardless of immediate and obvious consequences.

Stage three - good boy-good girl orientation :
Good behavior is what pleases others and is approved by them. One earns approval by being nice.

Stage four - law and order orientation :
Law and order orientation means performing one's own duty properly, showing respect for authority, and maintaining the given social , order for its own sake.



iii) Post-conventional level :
People define their own values in terms of ethical principles they have chosen to follow.

Stage five - social contract orientation :
What's right is defined in terms of both the general individual rights and in terms of the standards that have been agreed upon by the whole society. In contrast to the stage four, laws are not frozen, they can be changed for the good of society.

Stage six - universal ethical principle orientation :
What's right is defined by the decision of the conscience according to self-chosen ethical principles. These principles are abstract and ethical (such as the golden rule), not specific moral prescriptions.
At the Pre-conventional level of moral reasoning, children simply obey authority figures to avoid being punished. For example, if a piece of chocolate/biscuit falls from the child's hand and the mother has seen it, the child usually will not eat it. Children's needs and desires become important at this stage, yet they are aware or take care of the interests of other people. In a nutshell, they consider the interests of others when they make moral judgments. But they still look out for ways to satisfy their needs.

Limitations of Kohlberg's theory of Moral Development

- One of the major limitations of this theory is its focus on reasoning rather than on actual behaviour.
- It is a common observation that children of various ages exhibit undesirable behaviour while copying from peers answer books on tallying answers (generally objective type of questions) during examinations while the invigilator is not around or he/she encourages those children who behaved honestly in every case, and discourages those very few who behaved dishonestly.
- It shows that children's moral reasoning and moral behaviour may be quite weak.
- Children may have learned to say certain things about moral decisions at various ages but what they do is different.
- Indian philosophers and educationalists also believe that values should be a part of an individual,his reasoning or decision-making, so that what he/she does (sho

LEV VYGOTSKY'S ZONE OF PROXIMAL DEVELOPMENT

Cognitive View (theory) Of Lev Vygotsky

Lev Vygotsky's sociocultural theory relates to both cognitive and social development .While this Russian theorist died in 1934, his work only found a broader audience in the 1990s

Vygotsky developed his theories around the same time as Jean Piaget yet he emphasised the importance of relationships and interactions between children and more knowledgeable peers and adults .

Scaffolding:
He believed that children's cognitive understanding were ' scaffolded' by parents, teachers or peers (Berk, 1996). Unlike Piaget, Vygotsky did not see the child as a solitary discoverer of knowledge, but as learning within social interactions that involve communicating. Vygotsky therefore also emphasised the role of language in the development of thinking processes. Like Piaget, he saw children as active partners in their own learning, and increasingly so as their ability to interact with others develops. He therefore emphasised the importance of language development, learning and teaching to the child' s cognitive development.

It was Vygotsky's view that thinking in concepts was not possible without verbal thinking. While thought and language initially develop independently, they are merged once language is developed to create verbal thought. Speech and thought change over time and become more internalised. Vygotsky saw the adult as vital to the process of 'scaffolding' the child's behaviour. When you scaffold a building, you support it structurally while internal

developments occur. It is a common sight on building sites. We scaffold children's development almost without thinking.

Consider this example:
Bonnie is completing a three-piece puzzle with knobs on top. She has the last piece over the space, but it is upside down. She pushes harder. Her caregiver says, 'Try turning it, Bonnie', but Bonnie looks confused. The caregiver puts her hand over Bonnie's, and turns the piece slightly, saying, 'See, Bonnie? Turn it'

Vygotsky's Zone Of Proximal Development

Vygotsky also saw the child s ability to think logically as developing in stages. He outlined four different stages of conceptual development, as in Table below.

Stage	Characteristics
1. Thinking in unordered heaps	• Preschool stage of development • Beginnings of conceptual thought· • Children use trial and error • Children use problem-solving techniques • Three sub-phases
2.Thinking in complex stage	• Children begin to make connections between objects, but not in a consistent manner • Five sub-phases
3. Thinking in concepts stage	• Children are able to think in more abstract • concepts and make associations Cannot see two associations simultaneously
4. Thinking in true concepts stage	• Mature thinking • Children can manipulate a number of abstract concepts

While Piaget felt there was no use in presenting materials and problems to children beyond their developmental capacity, Vygotsky saw an important role for adults in extending children s learning beyond areas in which they are independently capable. Vygotsky used the term Zone of Proximal Development to describe the extension of skills a child is capable of with adult help.

Consider this example:
A toddler has a large knob puzzle with a simple bear shape. The toddler tries to put the teddy in the hole, but has it upside down. He tries to get it in, cannot and moves away. This child, operating independently, is unable to complete the puzzle. A caregiver might then help the toddler with the puzzle and say 'Look, here are his ears, see, here is the space for the ears . The caregiver then puts the teddy bear the right way up and just to the side of the hole. The toddler slips the puzzle into place. Now the toddler is capable

of doing the puzzle. By careful scaffolding, the child's Zone of Proximal Development has been expanded.

Physical development

The American theorist and researcher Arnold Gesell (1880 1961) was an early proponent of maturational theory.

He identified the role of nature or heredity in children's development. There is a long-running debate about whether our biological heritage (nature) is more important than the environment we are brought up in (nurture).

In this context, environment or nature is seen to be everything external that contributes to our development, such as care giving strategies, parenting styles and other influences. Nature is considered to be our biological inheritance.

The genes in our bodies determine what colour eyes we have, for instance, and also at what age we start walking. Gesell gathered normative data on a range of children and made this information accessible to the general public.

He unfolded according to a genetic timetable. He developed a timetable of developmental events which we still use today.

Language development

Understanding theories of language can form a foundation for your own views and beliefs on how you think children develop their language and communication skills. The theories discussed here are those by Lev Vygotsky, BF Skinner, John Watson, Albert Bandura and Noam Chomsky.

Lev Vygotsky

Vygotsky identified four different stages of speech development.

1.Primitive speech stage- Birth to 2 years. During this stage, the child is beginning to learn to speak, mainly imitating words and naming objects, or responding emotionally (crying) or socially (laughing).

2.Naïve psychological stage -2 to 4 years. The child in this stage is beginning to realise that words are symbols for objects. They have a great curiosity as to what objects are called.

3.Egocentric or private speech stage- 4 to 7 years. Children often talk aloud to themselves as they perform tasks or solve problems in this stage of development. This "private speech" is the child's demonsration of their thinking.

4.Ingrowth or inner speech stage- 8 years on. During this stage childern's private speech declines and becomes much more internalised. They solve problems "in their head' or usng inner speech; however, you will

still hear people using private speech when faced with unusual or complex problems (Nixon and Aldwinckle, 2003).

BF Skinner, John Watson and Albert Bandura

Skinner, Watson and Bandura belong to a group of theorists called the behaviourists, or 'learning theorists'. The behaviourists have played an important role in our understanding of language development. One main premise of behaviourism is that if behaviours are rewarded, they will be repeated, but behaviours that are ignored or punished will decrease. For example, when a 'child says' Da. Da. Da' for the first time, we promptly get very excited and repeat the sounds to the child, reinforcing the behaviour so the child is more likely to try to reproduce it. Behaviourists focus on the process of how language is acquired. The emphasis is on environmental factors of imitation, learning and conditioning.

Noam Chomsky

Noam Chomsky developed the nativist approach. Proponents of this approach believe that children have innate abilities to learn language an in-built 'language acquisition device' (LAD) which is "wired' to help them learn language. Once they begin to hear language around them, nativists suggest that children are 'programmed to understand the structure of that language' (Nixon and Gould, 1999) theory focuses on biological dispositions, brain development and cognitive readiness. It emphasises the need for language in the environment to stimulate children's innate abilities.

Other language theories

Interactionists see language development as a result of the interaction between both nature and nurture (the environment and experiences of the child).

Erik Erikson's Theory of Psychosocial Development

Erik Erikson (1950, 1963) does not talk about psychosexual Stages, he discusses psychosocial stages.

His ideas though were greatly influenced by Freud, going along with Freud's (1923) theory regarding the structure and topography of personality.

However, whereas Freud was an id psychologist, Erikson was an ego psychologist. He emphasized the role of culture and society and the conflicts that can take place within the ego itself, whereas Freud emphasized the conflict between the id and the superego.

According to Erikson, the ego develops as it successfully resolves crises that are distinctly social in nature. These involve establishing a sense of trust in others, developing a sense of identity in society, and helping the next generation prepare for the future. Erikson extends on Freudian thoughts by focusing on the adaptive and creative characteristic of the ego, and expanding the notion of the stages of personality development to include the entire lifespan.

Erikson proposed a lifespan model of development, taking in five stages up to the age of 18 years and three further stages beyond, well into adulthood. Erikson suggests that there is still plenty of room for continued growth and development throughout one's life. Erikson put a great deal of emphasis on the adolescent period, feeling it was a crucial stage for developing a person's identity.

Like Freud and many others, Erik Erikson maintained that personality develops in a predetermined order, and builds upon each previous stage. This is called the epigenic principle.

The outcome of this 'maturation timetable' is a wide and integrated set of life skills and abilities that function together within the autonomous individual. However, instead of focusing on sexual development (like Freud), he was interested in how children socialize and how this affects their sense of self.

Like Freud, Erik Erikson believed in the importance of early childhood. However, Erikson believed that personality development happens over the entire course of a person's life. In the early 1960s, Erikson proposed a theory that describes eight distinct stages of development. According to Erikson, in each stage people face new challenges, and the stage's outcome depends on how people handle these challenges. Erikson named the stages according to these possible outcomes:

1. Infancy: Birth-18 Months Old

Basic Trust vs. Mistrust – Hope

During the first or second year of life, the major emphasis is on the mother and father's nurturing ability and care for a child, especially in terms of visual contact and touch. The child will develop optimism, trust, confidence, and security if properly cared for and handled. If a child does not experience trust, he or she may develop insecurity, worthlessness, and general mistrust to the world.

2. Toddler / Early Childhood Years: 18 Months to 3 Years

Autonomy vs. Shame – Will

The second stage occurs between 18 months and 3 years. At this point, the child has an opportunity to build self-esteem and autonomy as he or she learns new skills and right from wrong. The well-cared for child is sure of himself, carrying himself or herself with pride rather than shame. During this time of the "terrible twos", defiance, temper tantrums, and stubbornness can also appear. Children tend to be vulnerable during this stage, sometimes feeling shame and and low self-esteem during an inability to learn certain skills.

3. Preschooler: 3 to 5 Years

Initiative vs. Guilt – Purpose

During this period we experience a desire to copy the adults around us and take initiative in creating play situations. We make up stories with Barbie's

and Ken's, toy phones and miniature cars, playing out roles in a trial universe, experimenting with the blueprint for what we believe it means to be an adult. We also begin to use that wonderful word for exploring the world—"WHY?"
While Erikson was influenced by Freud, he downplays biological sexuality in favor of the psychosocial features of conflict between child and parents. Nevertheless, he said that at this stage we usually become involved in the classic "Oedipal struggle" and resolve this struggle through "social role identification." If we're frustrated over natural desires and goals, we may easily experience guilt.
The most significant relationship is with the basic family.

4. School Age Child: 6 to 12 Years

Industry vs. Inferiority – Competence
During this stage, often called the Latency, we are capable of learning, creating and accomplishing numerous new skills and knowledge, thus developing a sense of industry. This is also a very social stage of development and if we experience unresolved feelings of inadequacy and inferiority among our peers, we can have serious problems in terms of competence and self-esteem.
As the world expands a bit, our most significant relationship is with the school and neighborhood. Parents are no longer the complete authorities they once were, although they are still important.

5. Adolescent: 12 to 18 Years

Identity vs. Role Confusion – Fidelity
Up until this fifth stage, development depends on what is done to a person. At this point, development now depends primarily upon what a person does. An adolescent must struggle to discover and find his or her own identity, while negotiating and struggling with social interactions and "fitting in", and developing a sense of morality and right from wrong.

Some attempt to delay entrance to adulthood and withdraw from responsibilities (moratorium). Those unsuccessful with this stage tend to experience role confusion and upheaval. Adolescents begin to develop a strong affiliation and devotion to ideals, causes, and friends.

6. Young adult: 18 to 35

Intimacy and Solidarity vs. Isolation – Love
At the young adult stage, people tend to seek companions hip and love. Some also begin to "settle down" and start families, although seems to have been pushed back farther in recent years.
Young adults seek deep intimacy and satisfying relationships, but if unsuccessful, isolation may occur. Significant relationships at this stage are with marital partners and friends.

7. Middle-aged Adult: 35 to 55 or 65

Generativity vs. Self absorption or Stagnation – Care

Career and work are the most important things at this stage, along with family. Middle adulthood is also the time when people can take on greater responsibilities and control.
For this stage, working to establish stability and Erikson's idea of *generativity* – attempting to produce something that makes a difference to society. Inactivity and meaninglessness are common fears during this stage.
Major life shifts can occur during this stage. For example, children leave the household, careers can change, and so on. Some may struggle with finding purpose. Significant relationships are those within the family, workplace, local church and other communities.

8. Late Adult: 55 or 65 to Death

Integrity vs. Despair – Wisdom
Erikson believed that much of life is preparing for the middle adulthood stage and the last stage involves much reflection. As older adults, some can look back with a feeling of *integrity* — that is, contentment and fulfillment, having led a meaningful life and valuable contribution to society. Others may have a sense of despair during this stage, reflecting upon their experiences and failures. They may fear death as they struggle to find a purpose to their lives, wondering "What was the point of life? Was it worth it?"

Erikson's Stages of Psychosocial Development

Stage	Conflict Faced	Typical Age Range	Major Challenge(s)
1	Trust vs. mistrust	First year of life	Having basic needs met, attaching to people
2	Autonomy vs. shame and doubt	1–3 years	Gaining independence
3	Initiative vs. guilt	3–6 years	Acting in a socially responsible way
4	Industry vs. inferiority	6–12 years	Competing with peers, preparing for adult roles
5	Identity vs. role confusion	Adolescence	Determining one's identity
6	Intimacy vs. isolation	Early adulthood	Developing intimate relationships
7	Generativity vs. self-absorption	Middle adulthood	Being productive
8	Integrity vs. despair	Old age	Evaluating one's life

Sigmund Freud's Theory of Personality

Sigmund Freud's psychoanalytic theory of personality argued that human behavior was the result of the interaction of three component parts of the mind*: the id, ego, and superego*. His structural theory placed great

importance on the role of unconscious psychological conflicts in shaping behavior and personality.

Dynamic interactions among these basic parts of the mind were thought to carry human beings through five psychosexual stages of development: *oral*, *anal*, *phallic*, *latency*, and *genital*. Each stage required mastery for a human to develop properly and move on to the next stage successfully. Freud's ideas have since been met with criticism, mostly because of his singular focus on sexuality as the main driver of human personality development.

Freud's Structure of the Human Mind

According to Freud, the human personality was structured into three separate parts: *the id, ego, and superego* . The *id* was the most primitive structure, functioned unconsciously, operated on the pleasure principle, and sought instant gratification. The *ego* was less primitive, functioned in partial consciousness, operated with reason on the reality principle, and regulated the id by satisfying urges only when appropriate. The *superego* was the most modern structure, functioned consciously, operated on the moral principle, and regulated the id based on social learning and issues of morality. Freud believed that these three basic structures were in constant conflict. The results of these internal struggles throughout childhood were thought to influence the development of adult personality and behavior.

According to Sigmund Freud's psychoanalytic theory of personality, personality is composed of three elements. These three elements of personality - known as the id, the ego and the superego - work together to create complex human behaviors.

The Id

- The id is the only component of personality that is present from birth.
- This aspect of personality is entirely unconscious and includes of the instinctive and primitive behaviors.
- According to Freud, the id is the source of all psychic energy, making it the primary component of personality.

The id is driven by the pleasure principle, which strives for immediate gratification of all desires, wants, and needs. If these needs are not satisfied immediately, the result is a state anxiety or tension. For example, an increase in hunger or thirst should produce an immediate attempt to eat or drink. The id is very important early in life, because it ensures that an infant's needs are met. If the infant is hungry or uncomfortable, he or she will cry until the demands of the id are met.

However, immediately satisfying these needs is not always realistic or even possible. If we were ruled entirely by the pleasure principle, we might find ourselves grabbing things we want out of other people's hands to satisfy our own cravings. This sort of behavior would be both disruptive and socially

unacceptable. According to Freud, the id tries to resolve the tension created by the pleasure principle through the primary process, which involves forming a mental image of the desired object as a way of satisfying the need.

The Ego

- The ego is the component of personality that is responsible for dealing with reality.
- According to Freud, the ego develops from the id and ensures that the impulses of the id can be expressed in a manner acceptable in the real world.
- The ego functions in both the conscious, preconscious, and unconscious mind.

The ego operates based on the reality principle, which strives to satisfy the id's desires in realistic and socially appropriate ways. The reality principle weighs the costs and benefits of an action before deciding to act upon or abandon impulses. In many cases, the id's impulses can be satisfied through a process of delayed gratification--the ego will eventually allow the behavior, but only in the appropriate time and place.

The ego also discharges tension created by unmet impulses through the secondary process, in which the ego tries to find an object in the real world that matches the mental image created by the id's primary process.

The Superego

The last component of personality to develop is the superego.

- The superego is the aspect of personality that holds all of our internalized moral standards and ideals that we acquire from both parents and society - our sense of right and wrong.
- The superego provides guidelines for making judgments.
- According to Freud, the superego begins to emerge at around age five.

There are two parts of the superego:

1. The ego ideal includes the rules and standards for good behaviors. These behaviors include those which are approved of by parental and other authority figures. Obeying these rules leads to feelings of pride, value and accomplishment.
2. The conscience includes information about things that are viewed as bad by parents and society. These behaviors are often forbidden and lead to bad consequences, punishments or feelings of guilt and remorse.

The superego acts to perfect and civilize our behavior. It works to suppress all unacceptable urges of the id and struggles to make the ego act upon idealistic standards rather that upon realistic principles. The superego is present in the conscious, preconscious and unconscious.

The Interaction of the Id, Ego and Superego

With so many competing forces, it is easy to see how conflict might arise between the id, ego and superego. Freud used the term ego strength to refer to the ego's ability to function despite these dueling forces. A person with

good ego strength is able to effectively manage these pressures, while those with too much or too little ego strength can become too unyielding or too disrupting.

According to Freud, the key to a healthy personality is a balance between the id, the ego, and the superego.

Concepts of Child Centered and Progressive Education

As the public increasingly views children as persons with rights, educators are implementing more child-centered approaches. Our discussion of the rights of children fits in nicely with the topic of child-centered Education.

Child-centered is a widely used term that is often misinterpretation of instructional practices. It will be helpful to keep these guiding principles about child-centered education in mind as you work with children, parents, and colleagues:

- All children have a right to an education that helps them grow and develop to their fullest; this basic prmise is at the heart of our understanding of child-centered education. Therefore, daily interactions with children should be based on the fundamental question, Am I teaching and supporting all children in their growth and development across all domains – social, emotional, physical, linguistic, and intellectual? Such teaching is at the heart of developmentally appropriate practice.
- Every child is a unique and special individual. Consequently, we have to teach individual children and be respectful of and account for their individual uniqueness of age, gender, culture, temperament, and learning style.
- Children are active participants in their own education and development. This means that they should be mentally involved and physically active in learning what they need to know and do.
- Children's Ideas, preferences, learning styles, and interests are considered in the planning for and implementation of instructional practices.
- Child-centered education has been an important foundation of early childhood education since the time of Froebel. As a professional, you will want to make your teaching and practice child centered. In addition, you will want to advocate for the inherent right of every child to a child-centered education.
- A reemphasis on child- centered education is occurring as society in general is becoming more interested in the whole child and efforts to address all of children's needs, not just their academic needs. As a result, there is much more concern for encouraging children to be healthy and lead healthy lifestyles. Providing children with medical immunizations and seeing that all children are fully immunized by age two have received a lot of attention, and programs to help children be free of drugs are common in early childhood and primary programs.

Concern for the welfare of children in all areas of their growth and development is evident and attests to the public's growing awareness of their basic rights.

- All great educators have believed in the basic goodness of children; the teacher is to provide the environment for this goodness to manifest itself. A central theme of Luther, Comenius, Pestalozzi, Froebel, Montessori, and Dewey is that we must do our work as educators well, and we must really care about those whom we have been called to serve. This indeed is the essence of child-centered education.

Preparing for Meaningful Learning

"**Meaningful learning**" means that we link what is being learned (the topic or content) and how it is taught to the everyday lives of children and their families. As we all know, teaching is a complex activity. We must consider many things when preparing for meaningful learning. Above all, no one can make a children. Children will learn when they are motivated to learn. They will learn when given opportunities to learn effectively and when they feel that the skills they have will lead to success. They will learn when they receive positive feedback from friends, teachers, and parents who compliment them on how well they are learning. How can we prepare for meaningful learning? Here are some questions to ask yourself in preparing your lessons

- **Motivation**. Is the topic meaningful and relevant to the children? Are they interested in what they are expected to learn?
- **Opportunities**. Are the opportunities suited to the development level of the children? For instance, is the topic too hard or too easy for many of the children? Are the activities appropriate for both girls and boys? Are they appropriate for children with diverse backgrounds and abilities?
- **Skills**. Do the children have the skills to achieve the expected result?
- **Feedback**. Is the type of assessment and feedback given to the children designed to increase motivation to continue learning?

What is "Learning-Friendly"?

Many schools are working to become "child-friendly," where children have the right to learn to their fullest potential within a safe and welcoming environment. The aim is to improve every child's participation and learning in school, rather than concentrating on the subject matter and examinations. Being "child-friendly" is very important, but it is not complete.

Children come to school to learn, but as teachers, we are always learning, too. We learn new things about the world to teach our students. We learn to teach more effectively –and joyfully – so that all students learn how to read or do mathematics, and we learn new things from our students as well.

A "**learning-friendly**" environment is "**child-friendly**" and "**teacher-friendly**." It stresses on the importance of students and teachers learning together as a learning community. It places children at the centre of learning and encourages their active participation in learning. It also fulfils our needs and interests as teachers, so that we become capable of, giving children the best education possible.

It is the child who has to learn. The teacher only helps him to learn. Therefore, what the child has to learn, the teacher is only to help him in learning that. But, what child has to learn, should be judged according to the ability, interest, capacity and previous experience of the child. Is he mature enough to understand the new material or do the assigned task? Does he possess necessary skills and abilities for doing the present task?

THEORIES OF INTELLIGENCE:--

Charles Spearman - General Intelligence:

British psychologist Charles Spearman (1863-1945) described a concept he referred to as general intelligence, or the *g factor*. After using a technique known as factor analysis to to examine a number of mental aptitude tests, Spearman concluded that scores on these tests were remarkably similar. People who performed well on one cognitive test tended to perform well on other tests, while those who scored badly on one test tended to score badly on others. He concluded that intelligence is general cognitive ability that could be measured and numerically expressed.

Louis L. Thurstone - Primary Mental Abilities:

Psychologist Louis L. Thurstone (1887-1955) offered a differing theory of intelligence. Instead of viewing intelligence as a single, general ability, Thurstone's theory focused on seven different "primary mental abilities." The abilities that he described were:

- Verbal comprehension
- Reasoning
- Perceptual speed
- Numerical ability
- Word fluency
- Associative memory
- Spatial visualization

Robert Sternberg - Triarchic Theory of Intelligence:

Psychologist **Robert Sternberg** defined intelligence as "mental activity directed toward purposive adaptation to, selection and shaping of, real-world environments relevant to oneâ€™s life." While he agreed with Gardner that intelligence is much broader than a single, general ability, he instead

suggested some of Gardner's intelligences are better viewed as individual talents.

Sternberg proposed what he refers to as 'successful intelligence,' which is comprised of three different factors:

Analytical intelligence: This component refers to problem-solving abilities.

Creative intelligence: This aspect of intelligence involves the ability to deal with new situations using past experiences and current skills.

Practical intelligence: This element refers to the ability to adapt to a changing environment.

Howard Gardner - Multiple Intelligence Theory:

This theory was propounded by **Howard Gardner of Harvard University**. Through his theory he challenged the notion of general intelligence. According to him it is not possible to capture an individual‘s intellectual capacities in a single measure of intelligence. Therefore he tried to give a broad base to the concept of intelligence and it‘s measurement by providing a multiple frame. He asserted that human intelligence or cognitive competence can be better described as a set of an individual‘s multiple abilities, talents and mental skills related to a multiple number of domains of knowledge in a particular cultural setting. He concluded that there are seven independent types of intelligence that grow and develop differently in different people depending upon their hereditary characteristics or environmental experiences. According to Gardner independent intelligence means each intelligence is a relatively autonomous intellectual potential, which is capable of functioning independently of others. These different types are –

1. Linguistic intelligence
2. Logical-Mathematical intelligence
3. Spatial intelligence
4. Musical intelligence
5. Bodily kinesthetic intelligence
6. Intra-personal intelligence and
7. Inter personal intelligence.

MEASUREMENT OF INTELLIGENCE BY INTELLIGENCE TESTS

You know that to measure something we need a unit a measure. For example to measure the length we use a scale, weighing machine for measuring weight etc. To know how much of anything exists, we have to measure it. So in your mind question may arise to know how much intelligence you have? Do you know how to measure it? Can you measure it through kilogram, kilometer, litre, scale or other measure like this? No, to measure the amount of intelligence, there is no such one specific measuring scale. Because intelligence is not an object, it is not observable, but it is a relative mental ability. Though it can not be measured directly though any single unit of measure, still if can be measured. Let us discuss how intelligence can also be measured. Al of you may be very curious to know if.

It is important to note that intelligence is inferred from a variety of elements i.e. behaviour and speed of doing things correctly etc. In ancient India intelligence was measured through conversation, physical features, gestures, gait, speech, changes in the eye and facial expression. But today, many intelligence tests are widely which primarily measures abstract intelligence as exemplified by competence in dealing with symbols in a meaningful way. A number of tests measuring social intelligence as well as mechanical intelligence have also been developed. An intelligence test is an objective and a standard measure.

General (or abstract) Intelligence test

The general intelligence test was first designed by psychologists for use in schools. These were intended to serve primarily as tools in determining a child's ability to carry on schools work, to use symbols and numbers quickly and accurately and to read with comprehension. It is for this reason that tests designed to measure abstract abilities came to be known as general intelligence tests. Another purpose of designing such tests was to measure the abilities that distinguishes the bright child from the dull. Since this distinction is significant for schools and vocational success and also for social adjustment, the intelligence test is an important tool in psychology.

Types of Intelligence Test

The general intelligence tests have been classified into three groups. Individual, group and performance tests.

- **Individual Test**
- **Group Test**
- **Performance Test**

Individual Test:

The individual intelligence test is administered to only one individual at a time. A trained psychologist is expected to administer the test for a definite period of time and interpret the result. These tests cover age group from 2 years to 18 years. These are (i0 The Binet simon tests, (ii) Revised tests by Terman, (iii) Mental scholastic tests of Burt and (d) Weschler test.

Group Test:

The group intelligence tests are meant for assessing the intelligence of a large number of individuals in one sitting. There are two kinds of group intelligence tests verbal and nonverabal.

Verbal:

The verbal group test requires an individuals to read out certain problems and write out solutions of these problems.

Non-Verbal:

The non-verbal group tests presents similar problems as the verbal test but in a different way. The problems are presented in the form of pictures, diagrams, puzzles and mazes. If does not require the individual to read or write, but only to be able to make a mark with a pencil.

Performance Test

Performance tests are designed to test problem solving ability using certain objects such as pictures and blocks, instead of words. These tests are specially useful with young children, illiterates, persons with speech defects and persons who do not have proficiency in language. Some of the famous tests are (i) Koh's Block design test (ii) The cube construction tests and (iii) The Pass Along tests.

Group tests had their birth in America when the intelligence of the recruits who joined the army in the first world war was to be calculated. These are (i) The Army Alpha and Beta test (ii) Terman's group tests, (iii) Out self administrative tests.

Intelligence tests consists of different types of questions to test the intelligence of individual. These questions are based on the following factors.

Vocabulary

The extent of an individual's vocabulary is one of the most reliable indices of his intelligence. It can be tested through arranging words in difficult order or giving synonym or antonym of a word.

Verbal analogies:

In this section question are asked like Branch is to a tree as brook is to river.

Sentence completion :

India has …… states is one of the example of this type of questions.

Arithmetic reasoning:

Simple arithmetical sum increasing in difficulty is included in the test.

Number series:

A series of number is given and asked what will be the next?
For example 11, 13, 15, 17, 19, 21 ……..?

Comprehension:

It consists of questions designed to measure general understanding. It includes questions such as why are coins made of metal?

Digit Span:
For testing on memory, digits are spoken and the subject is asked to respect them in the same or reverse order. For example if the examiner says 8, 4, 3 the subject is to say 3, 4, 8.

Similarities:
The subject is asked to describe the way in which certain objects are similar. In way cotton and silk are a like?

General Information:
If consists of questions from everyday life. Kinds of questions asked. How many inches are there in a foot?

Picture arrangement:
Each item consists of a collection of cartoon like drawings which make a story when arranged in proper order.

Picture completion:
This test consists of a series of pictures which are presented to the subject one at a time. An important part is missing from each picture and must be identified by the subject.

Block design:
The subject must arrange a collection of colored cubes in such a way that they reproduce certain printed design.

Object assembly test.
Three jigsaw type puzzles are presented to the subject one at a time and in order of increasing difficulty.

Digit symbol test:
The subject is required to match each one of series of printed digits with an appropriate symbol, using a prescribed code.

These are different verbal and non-verbal factors on which questions are framed to test the intelligence of the individual. But this process of determining the intelligence is a complicated process. It involves a comparison and establishment of a relationship between chronological age (C. A.) and mental age (M. A.). This relationship is expressed by the term I. Q. (Intelligent Quotient)

CONCEPT OF MENTAL AGE (M.A.) AND INTELLIGENCE QUOTIENT (I.Q.)

Mental Age:

In categorizing children of different abilities Binet developed a scale of units he called mental age. A Child's intelligence was determined by the mental age

level which he could attain on the test. A ten years old child who was able to all the tests meant for ten years old children was said to be normal or average. If he could do the test meant for a higher age level his mental age was said to be more than his chronological age and he was described as a bright child. If he was unable to do the tests meant for his own age level, the child's "mental age" was said to be lower than his chronological age and he was described as slow or retarded. Mental age is a simple and useful concept. You can easily interpret it, when deal with children differing in metal ability.

Chronological Age: (C. A.)

Chronological age is nothing but the actual calendar age of the child. The real age of the child in mental into consideration for test is called chronological age.

Intelligent Quotient (I.Q.):

The intelligent quotient represents the degree of brightness possessed by an individual. It expresses intelligent as the ratio of the metal age of the chronological age. When the mental age is divided by the chronological age and the quotient is multiplied by 100 the result is I. Q. So the formula of finding out I. Q is.

$$\text{I.Q} = \frac{Mental\ Age(M.A)}{cronological\ Age\ (C.A)} \times 100$$

$$\text{Or I.Q} = \frac{Attained\ or\ Actual\ score}{Expeced\ mean\ square\ for\ Age} \times 100$$

The fraction is multiplied by 100 in order to remove the decimal point and to give the I. Q. a value of 100 when mental age is equal with chronological age. This if the M. A. is above the C. A.

I. Q. will be above 100. If the M. A. is less than the C. A. the resulting I. Q. will be less than 100. thus the scale has the same meaning from one age to another. I. Q, may also be regarded as an index of brightness. The following table shows the relationship between I.Q. and the degree of brightness given by **Dr. Merrily** based on the studies by Terman Merely Revision.

I. Q. Range	**Classification**	**Percentage ofpopulations**
140 and above	Very superior	1.5
129 -139	Superior	11
110 – 119	High - Average	18
90 – 109	Average	47
80 – 89	Low Average	14
70 – 79	Borderline defective	6
Below 70	Mentally defective	2.5

The lowest classification mentally defective sometimes subdivided into three classes as:

Moron	I.Q. – 50 – 70
Imbecility	I. Q. – 20 – 50
Idiot	I. Q. – Below 20

Thus you can use the intelligence tests already developed or you can also prepare an intelligence tests of measure the intelligence of an individual.

CONCEPT ON INTELLIGENCE

The word intelligence forms part of own ordinary stock of words which we use everyday. In the field of psychology too, the word intelligence finds a fairly comprehensive use. In fact, there are as many definitions of intelligences as there are writers on the subject. On account of the different ways in which intelligence is interpreted, it has become less acceptable and more exposed to criticism by psychologists. Nevertheless, it is traditionally acknowledged by the parents and teachers that intelligence is the most important single variable which affects success in school and in life. In general terms, intelligence means the manner with which an individual deals with facts and situations.
First, intelligence is defined interns of observable objective behaviour. Second, most definitions refer both to an individual's capacity to learn and to knowledge that has already been acquired. Many definitions also suggest that the ability to adapt to the environment is a sign of intelligence.

A variety of definitions on intelligence have been suggested by the psychologists which can be classified into at least four distinct groups as follows.

INTELLIGENCE

Ability to Adjust

According to this group, intelligence is general mental adaptability to new problems and new situations of life. Some definitions come under this group are as follows.

Binet (1905): "Intelligence is the ability of an individual to direct his behaviour towards a goal".

Ability to Learn

This group of definitions of Intelligence stresses the ability to learn. The more intelligent the person, the more readily and extensively he is able to learn and enlarge his field of activity and experience is the key words of these definitions.

Buckingham (1921) "Intelligence is the learning ability."

Superman (1927) "Intelligence may be though of interns of two abilities i.e. "g" or general and 's'
or specific."

Ability to do abstract reasoning

This group of definitions maintains that intelligence is the ability to carry on abstruct thinking. This implies the effective use of ideas and efficiency in dealing with symbols, specially numerical and verbal symbols.

L. M. Termon (1921): "An individual is intelligent in proportion as he is able to carry on abstract thinking."

P. E. Vernon (1927): "Intelligence is an allround thinking capacity or mental deficiency."

NATURE OF INTELLIGENCE

I am sure that you got idea about what intelligence is. Now we will discuss the nature of intelligence. You may have the experience of discussing about the nature of your friends, parents, teachers etc., but today you will get the joy of discussing the nature of intelligence which changes the nature of persons.
The nature of intelligence was first though of by a brilliant English Scientist **Sir Francis Galton**. His general conclusion that intelligence is a hereditary trait is reflected by the title of his book "**Hereditary Genius.**"

Intelligence is inherited

The amount of intelligence that a person possesses in inherited and fixed. The amount though fixed does not reveal itself at the start of life with the growth of the child, the amount inherited by a child also grows. The general belief is that the growth of intelligence stops and it reaches it's limit at the age of sixteen. But you know and it is also true that a man of forty knows more than he was a boy of sixteen. But this does not mean that the amount of intelligence possessed by him has increased. This may be due to his experience. As regards his intelligence, his positions remains the same.

Intelligence is influenced by environment factors

Love, affection, concern & generosity judiciously bestowed on growing children, have very desirable effects. Poor environment retard development of intelligence. Intelligence helps in adjustment & inventions An intelligent

person has the ability to adjust himself to the changing circumstances with ease, efficiency and speed. He has the capacity to assimilate ideas very quickly and clearly. He can
cope? With new situations very successfully. All the inventions of the word can be attributed to persons of very high intelligence.

Intelligence has no sex differences

Various studies have been conducted by psychologists & researcher a to find out whether women are more intelligent that men and vice versa. The result of these researches hangs in one way or the other. In some of the cases no significant difference has been found. Research studies also so that the average scores of the sense are strongly similar. Therefore it is proper to think that difference in sex does not contribute towards difference in intelligence.

Intelligence has no racial or cultural differences

Now, students we will see whether a particular race, caste or cultural group is superior to other in intelligence. This hypothesis are also examined by so many research workers, the results of earlier studies proved that intelligence is not the birth right of particular race of group. The bright and the 'dull' can be found in any race, caste or cultural group. In this regard **Franze Boas** states. "If we were to select the most intelligent, imaginative, energetic and emotionally stable third of mankind, all races would be represented. "you can also take any study & prove if."

Intelligence can be recognized in three broad areas

Students, you know that all the individuals are not same in their physical appearance. Here you will also able to know that all people are not having same type and same amount of intelligence in solving all problems. According to **Thurstone** intelligent behaviour can be recognized in three broad areas.

Abstract Intelligence
Abstract intelligence is the ability to understand and manage ideas and symbols. Such as words, numbers etc. In the case of students this is very close to scholastic aptitude.

Mechanical Intelligence
Mechanical intelligence is the ability to clean, understand and manage things and mechanisms, such as a knife, a gun, a moving machine and automobile etc. Social Intelligence social intelligence is the ability to understand and mange men and women, boys and girls, to act wisely in human relations.

Social Intelligence
social intelligence is the ability to understand and mange men and women, boys and girls, to act wisely in human relations.

Functions of Intelligence:

- Intelligence directs one's behavior towards a goal.
- It helps one to adjust to a new situations.
- It helps an individual to adopt to physical and social environment.
- It helps to learn new things and to solve new problems.
- It directs the individual to think rationally and act purposefully.

Characteristics & Functions Of Language Development

It is assumed that every living being has its language. But all of them cannot communicate like human beings. The language of human beings has certain characteristics which give a definite meaning to their communication. We can talk about the past, the present and the future with the help of language.

Language development and its usage both verbal and non-verbal is universal and central to human existence. Language functions as a means of communication, as a means of reflecting on and reorganizing experience, and as a way to receive and transform the accumulated knowledge and values of the community.

According to Chomsky (1968). "language development is the result of the progressive gain of maturity - the unfolding of the child's genetic capability for language."

Nature and Characteristics of Language Development

The following are the characteristics of language development :

- **Semanticity** : The quality of language in which words are used as symbols for objects, events or ideas.
- **Syntax** : The rules in a language for placing words in proper order to form meaningful sentences.
- **Productivity** : The capacity to combine words into original sentences.
- **Displacement** : The quality of language that makes one communicate information about objects and events in another time and place. Language makes possible the efficient transmission of large amounts of complex knowledge from one person to another, and from one generation to another. Displacement permits parents to warn children of their own mistakes. Displacement allows children to tell their parents what the) did in school.

Functions of Language

Language performs a number of functions based on the purpose of its use. Language with a functional purpose is illustrated by **Michael Halliday** as follows :

1. **Instrumental** : Language performs'an instrumental function the way an individual satisfies the need by asking for something (May I drink some water?).
2. **Regulatory** : It performs a regulatory function controlling another's behaviour (e.g. Teacher asks the student, "Stay quiet, please").
3. **Interactional** : It performs an interactional function-used for maintaining interpersonal (eg. wishing a friend a happy birthday).
4. **Personal** : Language performs a personal function - where one talks about oneself (e.g. I am feeling very elated today).
5. **Heuristic** : It performs a heuristic function to find out about the world in general eg. Is there a drug to cure AIDS?)
6. **Imaginative** : It performs an imaginative function where one talks about one's imagination (e.g. write an essay on the topic "you are on the clouds").
7. **Informational** : It also performs an informational function - to seek and give varied types of information (e.g. What is the current rate of population growth in our country. ?)

Problems of Language Development

Children develop language skills through socialisation. School is a socialising agency where children learn their language. But all children are not in equal their language ability.
Some children face problems in this regard. The main problems of language development faced by children are presented as follows :

- Lack of initial listening and speaking opportunities.
- Inability to express through the spoken or written medium.
- Blocks due to genetic impairment of emotional problems of an impoverished environment.
- Ambiguities in comprehension such as phonological, lexical **or** deep structural ambiguities, etc.
- Inadequate cognition of word meanings.
- Poor concept development.
- Over emphasis on writing prematurely.

Implications for Teachers

The effective teacher should be aware of the problems faced by students in the classroom. He should create a homely environment in his class where students feel free to express and share their feelings, opinions and viewpoints with their teacher. Such an environment will facilitate the acquisition of language competency.

- Language is learned and developed in a social context for functional purposes.
- For older children, one should provide ample scope to develop listening, speaking, reading and writing skills.
- One should create settings where language may be used for various purposes.
- One should be cognisant of multilingual interferences, identify them and provide remedies.
- One should encourage students creative efforts.
- One should de-emphasise excessive writing or rote repetition, provide a relaxed environment for free expression of ideas, thoughts and feelings, provide structural and semi-structural setting to express verbal and non-verbal ideas, organise debates, class discussions and displays, etc.
- One should help students develop early reading habits and enable them to do book reviews.

Theories of Language Acquisition

The nature vs. nurture debate extends to the topic of language acquisition. Today, most researchers acknowledge that both nature and nurture play a role in language acquisition. However, some researchers emphasize the influences of learning on language acquisition, while others emphasize the biological influences.

Receptive Language before Expressive Language

Children's ability to understand language develops faster than their ability to speak it. Receptive language is the ability to understand language, and expressive language is the ability to use language to communicate. If a mother tells her fifteen-month-old child to put the toy back in the toy chest, he may follow her instructions even though he can't repeat them himself.

Environmental Influences on Language Acquisition

A major proponent of the idea that language depends largely on environment was the behaviorist **B. F. Skinner** (see pages 145 and 276 for more information on Skinner). He believed that language is acquired through principles of conditioning, including association, imitation, and reinforcement.

According to this view, children learn words by associating sounds with objects, actions, and events. They also learn words and syntax by imitating others. Adults enable children to learn words and syntax by reinforcing correct speech.

Critics of this idea argue that a behaviorist explanation is inadequate. They maintain several arguments:

- Learning cannot account for the rapid rate at which children acquire language.
- There can be an infinite number of sentences in a language. All these sentences cannot be learned by imitation.
- Children make errors, such as overregularizing verbs. For example, a child may say *Billy hitted me*, incorrectly adding the usual past tense

suffix *-ed* to *hit*. Errors like these can't result from imitation, since adults generally use correct verb forms.

- Children acquire language skills even though adults do not consistently correct their syntax.

Neural Networks

Some cognitive neuroscientists have created neural networks, or computer models, that can acquire some aspects of language. These neural networks are not preprogrammed with any rules. Instead, they are exposed to many examples of a language. Using these examples, the neural networks have been able to learn the language's statistical structure and accurately make the past tense forms of verbs. The developers of these networks speculate that children may acquire language in a similar way, through exposure to multiple examples.

Biological Influences on Language Acquisition

The main proponent of the view that biological influences bring about language development is the well-known linguist **Noam Chomsky**. Chomsky argues that human brains have a language acquisition device (LAD), an innate mechanism or process that allows children to develop language skills. According to this view, all children are born with a universal grammar, which makes them receptive to the common features of all languages. Because of this hard-wired background in grammar, children easily pick up a language when they are exposed to its particular grammar.

Evidence for an innate human capacity to acquire language skills comes from the following observations:

- The stages of language development occur at about the same ages in most children, even though different children experience very different environments.
- Children's language development follows a similar pattern across cultures.
- Children generally acquire language skills quickly and effortlessly.
- Deaf children who have not been exposed to a language may make up their own language. These new languages resemble each other in sentence structure, even when they are created in different cultures.

THE CENTRAL ROLE OF LANGUAGE IN HUMAN SOCIETY

The use of language as the primary means of communication is one of the defining characteristics of the human species. Many animal species also use signs of various types to communicate or convey information .

But these sign systems are very simple and inflexible. They are very far removed from the **complexity** and **versatility** and **creativity** that goes with human or natural languages. The primary position of language (especially speech) in the life of mankind is highlighted by the expression 'talking animal' that is sometimes used to describe humans.

This central role of communication through natural language in human social life is made possible by the fact that all human individuals are able to handle or operate the language (or languages) of their societies.

This is so obvious that we simply take it for granted. But it is useful to note that there is an important principle here. Nearly everyone in any society is a competent and effective language user. This applies to all normal human beings. Only that tiny proportion of the population of any country with major physiological handicaps (brain damage, mental retardation. deafness and dumbness) remain unable to use language.
The learning of the mother tongue or first language (L1) is a slow and long drawn-out process. It is difficult to say when a person has fully mastered his/her L1 and so has finished learning it. Further many people learn more than one language. This is especially true of multilingual societies like ours; and with modern communication breaking down national/linguistic boundaries, learning foreign languages is also becoming increasingly common.

These additional languages are learned slowly (even if there is a crash course) and like the L1, complete mastery is never attained. Thus it is possible to say that for practical purposes, everyone is a language learner

THINKING

Concept of Thinking:

Thinking is a complex process which involves manipulation of information as we form concepts. It also engages in problem solving, reasoning and making decisions. Thinking is a higher cognitive function and the analysis of thinking processes is part of cognitive psychology. Thinking is a pattern of behaviour in which we make use of internal representations (symbols, signs etc.) of things and events for the solution of some specific, purposeful problem.

Definitions of Thinking:

Ross: Thinking is a mental activity in its cognitive aspect.
Kolesnik: Thinking is the reorganization of concepts.
Woodworth: Thinking is mental exploration for finding out the solution of a problem.

Characteristics of Thinking:

- It is one of the most important aspects of ones cognitive behavior.
- It depends on both – perception and memory.
- Thinking is a mental process which starts with a problem and concludes with its solution.
- It involves trail and error; analysis and synthesis; foresight and hindsight.
- It is a symbolic behavior.
- It is a cognitive activity.
- It is always directed to achieve some purpose.
- It is different from day-dreaming and imagination.
- It is a problem-solving behavior.
- Thinking is a symbolic activity. (e.g.: engineers use mental symbols to design the plan for buildings)
- There is mental exploration instead of motor exploration.

(e.g.: if a person gets locked in a room and loses his keys and he starts searching for them in different places then this becomes motor exploration; but if he tries to think of different ways of how he can get out of the room then this becomes mental exploration- THINKING.)

Tools of Thinking:

1. Percepts, 2. Images / Object, 3. Concepts, 4. Symbols and Signs, 5. Language.

- **Percepts**: A mental impression of something perceived by the senses, viewed as the basic component in the formation of concepts is called percepts. Percepts are recognition and interpretation of sensory stimuli based chiefly on memory. Thus, the percept is a perceived form of external stimuli. The percept also binds sensations from all of the senses in a whole.
- **Images / Objects**: Often images are used as an instrument of thinking. These images may be images of personal experiences of objects, persons or scenes actually seen, heard or felt. These mental pictures symbolize actual objects, experiences and activities.
- **Concepts:** A concept is a 'general idea' that stands for a general class and represents the common characteristic of all objects or events of this general class. The concept formation saves our efforts in thinking. E.g. 'Man is mortal'; you do not perceive a particular man but mankind in general i.e. including women. Thus the generalized 'man' is a concept.
- **Symbols & signs:** These represent & stand for a substitute for actual subjects, experiences and activities. e.g. Traffic lights, railway signals, school bells, songs, slogans etc stand for symbolic expression. Thus

symbols and signs stimulate & economize thinking. They tell us at once what to do or how to act.

- **Language:** It serves not only as a link for intercommunication but also acts as a tool for thinking. It consists of words therefore uses symbols; sometimes we use gestures in our language. When one is listening, reading or writing, one is stimulated to think. Language is a most effective & developed tool for the process of thinking.

Thinking is a complex process which involves manipulation of information as we form concepts. It also engages in problem solving, reasoning and making decisions. Thinking is a higher cognitive function and the analysis of thinking processes is part of cognitive psychology. Thinking is a pattern of behaviour in which we make use of internal representations (symbols, signs etc.) of things and events for the solution of some specific, purposeful problem.

- Concept of Thinking : Definitions , Characteristics and Tools

Types of Thinking

a) Convergent Thinking
b) Divergent Thinking
c) Critical Thinking
d) Reflective Thinking
e) Lateral Thinking

a) Convergent Thinking

Convergent thinking proceeds on the assumption that there is one single best solution to any problem, and also that the solution can be arrived at on the basis of the existing knowledge. Thus, convergent thinking involves the direction of all thought process in one single direction. "Convergent" thinking is in which the person is good at bringing material from a variety of sources to bear on a problem, in such a way as to produce the "correct" answer. Because of the need for consistency and reliability, this is really the only form of thinking which standardized intelligence tests (and even national exams) can test.

b) Divergent Thinking

"Divergent" thinking may start from existing knowledge, but it proceeds in different directions and are not limited or bound by existing knowledge. At times divergent thinker may question and doubt the adequacy of the existing knowledge. This type of thinking may start from a common point and move outward into a variety of perspectives. When fostering divergent thinking, teachers use the content as a vehicle to prompt diverse or unique thinking among students rather than a common view. Divergent thinking is also creative thinking. It generates something new or different. It involves having a different idea that works as well or better than previous ideas.

Thus, divergent thinkers have an open mind. He is not controlled by the belief that there is "one best solution" to any problem or "the correct answer" to any question.

Difference between Convergent Thinking & Divergent Thinking

Convergent Thinking	Divergent Thinking
• Non creative people have convergent thinking.	• Creative people have divergent thinking.
• Produces single correct answer.	• Produces variety of responses.
• It is stimulus bound.	• It is stimulus free.
• The problem is solved by known or common method.	• The problem is solved by different innovative methods.
• It is rigid, stereotyped & mechanically operated.	• It is novel, exploratory & venturesome.
• It is measured by intelligence test which includes remembering, recognition & manipulation of some concrete material.	• It is measured by creativity tests in which novelty, flexibility & originality are given more weightage.
• It is known as Reasoning or Rational Thinking.	• It is known as Creative Thinking, Imaginative or Original Thinking.

c) Critical thinking

Critical thinking assesses the worth and validity of something existent. It involves precise, persistent, objective analysis. When teachers try to get several learners to think convergent, they try to help them develop common understanding.

Norris, Stephen P: "Critical thinking is deciding rationally what to or what not to believe."
According to Moore and Parker, Critical Thinking is "the careful, deliberate determination of whether we should accept, reject, or suspend judgment about a claim, and the degree of confidence with which we accept or reject it.

"Broadly speaking, critical thinking is concerned with reason, intellectual honesty, and open-mindedness, as opposed to emotionalism, intellectual laziness, and closed-mindedness."

Attributes of a critical thinker:

- asks pertinent questions
- assesses statements and arguments
- is able to admit a lack of understanding or information
- has a sense of curiosity
- is interested in finding new solutions
- is able to clearly define a set of criteria for analyzing ideas
- is willing to examine beliefs, assumptions, and opinions and weigh them against facts
- listens carefully to others and is able to give feedback
- sees that critical thinking is a lifelong process of self-assessment
- suspends judgment until all facts have been gathered and considered
- looks for evidence to support assumption and beliefs
- is able to adjust opinions when new facts are found
- looks for proof
- examines problems closely
- Is able to reject information that is incorrect or irrelevant.

d)Reflective thinking

Dewey's definition of reflective thinking:
"Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends"

Reflective thinking is normally a slow process. It takes considerable time to work on inferring and combining by reflecting upon what we have learnt:
This is a higher form of thinking.

- It aims at solving complex problems.
- It requires reorganization of all the relevant experiences and the finding of new ways of reacting to a situation or of removing an obstacle instead of a simple association of experiences or ideas.
- There is insightful cognitive approach in reflective thinking.
- It takes all the relevant facts arranged in a logical order into account in order to arrive at a solution of the problem in hand.
- It links the information we possess into tighter network, thus helps to remember the matter better.
- It criticizes what one has learned and tries to expose weaknesses and shortcomings.
- Enhancing decision making requires that we learn from our successes and failures and catalog mentally for future retrieval what has occurred and why.

e) Lateral thinking

Lateral thinking is a term coined by Edward de Bono, a Maltese psychologist, physician and writer. It first appeared in the title of his book The Use of Lateral Thinking, published in 1967. De Bono defines lateral thinking as methods of thinking concerned with changing concepts and perception. Lateral thinking is about reasoning that is not immediately obvious and about ideas that may not be obtainable by using only traditional step-by-step logic.

De Bono identifies four critical factors associated with lateral thinking: (1) recognize dominant ideas that polarize perception of a problem, (2) searching for different ways of looking at things, (3) relaxation of rigid control of thinking, and (4) use of chance to encourage other ideas.

Lateral Thinking helps individual to develop skills to:

- Increase productive idea output.
- Design the future.
- Find fresh new solutions to intractable problems.
- Escape the constraints of routine thinking.
- Appreciate the diversity of thinking among team members.
- Plan and lead innovation meetings that deliver powerful results.
- Find new areas of opportunity.

Gender as a social construct; gender roles, gender-bias and educational practice

Every individual is unique. This uniqueness of the individual is one of the most fundamental characteristics of life. Even children in the same family differ from one another. At all periods of human history, attempts have been made to observe and describe differences between individuals and among various groups of individuals. Educationlists, politicians. planners. sociologists and administrators have felt a need for some way of organizing or systematizing the many-faceted complexity of individual differences. Both

philosophers and psychologists have attempted to produce such system.

GENDER ISSUES : THE CONCEPT

Variability among individuals is a universal phenomenon. This fact gives rise to a question about the characteristics in terms of which these differences are found. Such differences have been measured in both physiological as well as psychological terms. Differences in intelligence and the more narrowly defined intellectual processes such as memory, judgement and problem solving have been demonstrated a number of times.

Group Differences

When we talk of group differences, we intend to talk about characteristics in terms of which various groups differ. These groups may be formed on the basis of sex, age. caste, socio-economic status and personality. You may like to know about such group differences. The information received may be helpful to you in dealing with such groups in day-to-day life. specially during the process of teaching and learning.

Equality is a dominant concern of the modern time. It refers to equivalent qualifications, equivalent abilities, equivalent capabilities. same rights and same opportunities of learning and of working. In other words. it does not perceive any difference between two sets of individuals : males and females. But the very ideology of gender is based on an idea of assumed differences between males and females, even though there is a concern to obtain equality between the two in the social as well as educational world. This give rise to the pertinent question whether females differ from males in terms of traits. skills. values and competencies or not. If they are not different. the reasons for discrimination between males and females in various areas/domains and notably whether the reasons arc inherent in the individuals or they are because of economic and political reasons have to be studied.

Differences in Terms of Sex

No topic in Psychology is of more perennial interest than sex differences. Many social problems having to do with adjustment in marital life, education and living and working conditions in general depend upon such knowledge for their successful solutions. Many educationists or educational psychologists compared the performance of males and females as the subject of the study. They divided the sample into two separate categories. males and females. Research studies done in this area have demonstrated such differences on both sociological as well as biological bases. The purpose of the studies following this phase was to achieve better understanding of differences between two groups formed on the basis of sex.

Many of these studies related to the psychoanalytic theory postulating basic emotional differences determined by biological rather than social causes. Later on. studies were conducted to find out not only how much average differences in a particular trait the two sexes had but also what other traits and external factors were correlated with each of these sex groups.

Differences in Terms of Age

Age is one of the crucial factors which influences individual difference. With an increase in age, many differences appear in both boys as well as girls. The intra-group differences are also found due to difference in age. It is evident that an individual's ability to adjust to the environment grows with the age. With increasing age the individuals develop ability to deal with more and more different problem solving situations which result in better adjustment with the environment. As a child grows from infancy to maturity, his/her mental powers increase. His/her body, nervous system, brain and its functions mature and there is a corresponding maturity and development in the mental capacity. Also, the child grows in experience and this too adds to his/her mental capacity. Thus you will find that age is an important factor contributing to individual differences. But as compared to its influence in adulthood, you will find that its influence during childhood is greater. It means a few years in the age of the child make much more difference than a few years in the life of an adult.

Differences in Terms of Caste

Studies done on various racial differences showed that the differences were there in the so called higher mental processes such as reasoning, attention, foresight and judgement. The primitive races excelled in terms of sensory and motor characteristics, keenness of the senses, quickness of response and perception of slight details. Such studies on the race difference problem have shown a decrease in the certainty with which it is possible to predict differences. In fact it is very difficult to carry out psychological studies on pure races. When we compare two races living in one country the question of classification becomes very difficult. The influence of cultural and social milieu gets mixed up with that of variety of hereditary endowments of various ethnic groups. The psychological tests used for such studies are also not available to study such group differences. It is also not possible to isolate

innate ability from the influence of environment. Yet it is difficult to identify the influence of particular geographical regions with differences in climate, ways of living or in cultural environments which over a period of time has an impact on the mental make up of the individual. In fact the degree and form of mental development is the result of the interaction between individual abilities and environmental influences. Therefore, it is necessary for you to keep such differences in mind while dealing with various racial groups while organising teaching activities. The flexibility in teaching methods may help overcome such problems. Besides,certain groups may in certain areas which could fruitfully be utilized for peer group learning.

Differences in Terms of Socio -Economic Status

A number of studies have demonstrated consistent differences between the average ability, achievement and aptitude of individuals belonging to different socio-economic backgrounds.
Children with very low mental ability who are classified as stupid children, were born to parents of all SES levels but these are much less common amongst those belonging to higher economic status. When scales are used to measure economic status, the relationship can be correlated with intelligence. The correlations between the two come to be about 0.30. It was observed in some studies that when subjects are asked to rank occupational titles on the basis of prestige, these ranking tend to follow the pattern of the differences in intelligence. While this and many other studies have pointed to a relationship between social status and intelligence, for the groups called infants it does not seem to hold true. What do we understand by class differences? It is important to know the meaning of socio economic class differences because such conclusions are significant for social policies in a country! which tries for equalization of opportunities and has a concern for maximum development of all her citizens. I n fact, as you know, this is more general hereditary environment discussion which raises many questions, for example, "Are poor people poor because they are poor". It is quite probable that some of the differences between social classes do rest on differences i n genetic endowment.

Differences in Terms of Personality

Differences in personality make-up bring about differences in intellectual pursuits and achievement. Individuals, because of diversity in interest and goals. habits, background. mental abilities. etc., seek general outlets for expression realization. Some are extroverts and some introverts. Some feel comfortable with one learning method while others go for a different learning method. Some are aggressive others are submissive.

Nature of Gender Issues : Nature of gender issues as an under :

- Society perceives a female child as different from a male child. As such it assigns stereotyped roles to the female child.
- It is seen that some teachers in the school, while teaching, give examples and use teaching strategies which are biased against girl students. Such teachers opine that girls should have a different type of education which may be helpful for them to develop as a good housewife and a mother.

In fact, girls and boys may to some extent differ in terms of certain abilities and both these sets of individuals excel each other in terms of certain abilities. Therefore we should evolve specific teaching-learning strategies to develop their inherent abilities to the maximum and also to prove extra opportunity for development of other competencies in which they are weak. We must make some bold efforts for replacing the professional value system

by a belief in the equality of sexes. An attempt should be made to recognize the individual differences between girls and boys and make use of these during the teaching-learning process.

Another issue to be discussed is the social attitude towards girls which is reflected not only in the treatment received by girls, but also in the instructional materials meant for them. This becomes more serious in case of girls coming from weaker sections of society i.e., Scheduled castes, scheduled tribes. They carry the stigma of belonging to a weaker section. Both these educational and social perceptions come in our society. Most parents hesitate in sending their daughters to school for educational and social perceptions come in the way of the development of a girl child in our society. Most parents hesitate in sending their daughters to school for education, because to them the money which is required for educating girls could be more usefully spent on their marriage instead of education.

State governments have started a number of welfare schemes for female children and some programmes have been developed to promote their education, yet girls remain the biggest group outside the educational system. The economic educational and social issues related with education of girls are of great importance for the teacher to consider.

Implications for Teachers

The researches have established that various individual differences are found between two sets of individuals i.e. boys and girls. However, reformers and planners have attempted to bring girls at par with boys. In such a situation, it becomes very difficult for a teacher to accommodate two view points in over to deal with the individual girl children in the classroom. Indian girls tend to be timid and take a lot of time to open up and participate in the learning process. To encourage them for participate learning and in performing various curricular and co-curricular activities results in better self-image. For this a teacher may develop specific activities for girls which may bring them at par with boys. This parity may be in terms of all the competencies supposed to be acquired by children studying in the same educational setting.

INDIVIDUAL DIFFERENCES: Meaning, Significance and Cause

In education, ever since the most ancient times, students have been differentiated on the basis of age as difference in age levels entitles the children to differing levels of education.
As the child's age gradually increases, the subjects of his education can be made more complex and difficult. In addition to differences in age, another factor is the difference in levels of intelligence. Besides this, educational attainments were also considered to be important. In this manner, during

the ancient and the medieval periods, individual difference was believed to be the capacity of attaining skills in a particular subject. In modern schools, other kinds of skills and abilities, and peculiarities of personality in individuals are also taken into consideration.

According to Skinner, "**Today we think of individual differences as including any measurable aspect of the total personality.**" From this definition of individual differences it is evident that it comprehends every aspect of the human personality, albeit all aspects that is in some manner measurable.

Aspects of this nature can be many such as variability, conformity, difference in the rate of learning and development of mutual relationship between the various characteristics of personality, etc. In this manner, various individual differences of physical and mental development, nature, learning ability, specific abilities, interest and personality, etc.

Definition: Individual differences are the variations from one person to another on variables such as self-esteem, rate of cognitive development or degree of agreeableness. Historically, psychological science has overlooked individual differences in favor of focusing on average behavior.
Differences that separate individual from one another and make one as a unique individual in oneself are termed as individual differences.

Osborne considers individual differences as dissimilarity between persons that distinguish them from one another.

The nature of individual differences can be summarized as follows

- **Individual differences are differences in the degree :** All persons do have common human traits. But the amount and proportions of such traits differ from person to person leading to uniqueness of personality and behaviors. The concept of individual differences refers to quantitative differences found among individuals in respect of a specific traits or various traits

- **Normal distribution of traits:** All measures of traits that contribute to individual difference tend to distribute themselves according to the laws of normal probability curve.

- **There exist both inter-individual and intra-individual differences:** individuals not only differ among themselves with respect to a specific trait but differences may be also noticed within the same individual when he is studied in respect of various traits.

Educational significance of individual difference

Some of the important implications of individual difference in education are the following:

- As far as possible individual method of instruction may be adopted.
- As every student has his peculiar differences individual attention should be paid by the teacher.
- As individuals differ in their interest and abilities a large number of subjects of study should be provided by the school, so that student may have wide choices in selection of the subject they offer for study.
- Individual differences call for individualized curriculum, methods of teaching, evaluation techniques etc.
- Individuals differ widely in their abilities, needs, interests, aptitudes, attitudes, etc. Therefore it is essential that arrangements should be made to provide educational and vocational guidance to the pupils individually

Causes of individual differences are:

- **Difference in Growth Rate:** Some children grow rapidly and some grow slowly. Some grow mentally at a faster rate, some at a very slow rate. Some grow physically and mature early; some grow late. The different parts of the organism grow at different rates. Each child has his own growth rate.

- **Difference in Socio-Economic Backgrounds:** Some of the differences are caused by differences in socio-economic backgrounds. These differences are seen in pupils' reaction patterns. Differences in socio-economic backgrounds may lead to differences in diet, cultural opportunities, ideals, attitudes and in family behaviour habits.

- **Interaction of Heredity and Environment:** *A large number of individual differences*are caused by the interactive process of heredity and environment. To each child, heredity provides a potential. The dynamic forces of the environment act upon that potential in a different way.

- **Physiological Differences:** The layman and the scientist both realize and recognise that differences exist among individuals in the innate ability to learn. Certainly, a mongoloid or a micro cephalic do not learn with the facility of a normal individual.

It is a fact though it may not be obvious that among the pupils who appear to be normal, there are also enormous differences in degrees of ability. These differences are attributed to basic physiological differences.

The basic physiological differences may be, for example, due to visual difficulty or hearing difficulty or other sensory disability or glandular

dysfunction or dietary deficiency. A child who appears to be normal may be having any or some of these difficulties with the consequent impairment of learning.
For example, visual difficulty which is evidenced by rubbing the eyes, leaning forward to see the board, tilting the head, hearing difficulty which is displayed by turning one side of the head towards the source of sound, asking that questions be repeated, and other sensory difficulties like speech defects, inattention and listlessness cause individual differences in learning.
Teachers must recognize that some of the individual differences arise because of basic physiological differences. They must recognize that these differences exist and demand that teachers should not force all children to learn at uniform rate.

When children begin to show indifference, failure, boredom inattention, tantrums, they indicate through these symptoms that teachers are expecting too much or too little from them. Pupils with
sensory difficulties should be given differential treatment.

Evaluation:

Evaluation, particularly educational evaluation, is a series of activities that are designed to measure the effectiveness of the teaching-learning system as a whole. We' are already familiar with the fact that the teaching-learning process involves interaction of three major elements i.e., Objectives, learning experiences and learner appraisal. Evaluation takes care of all the interactive aspects of three major elements i.e.., the whole teaching-learning system.

"Evaluation is the collection, analysis and interpretation of information about any aspect of a programme of education, as part of a recognized process of judging its effectiveness, its efficiency and any other outcomes it may have."

The above Definition offers the following

Evaluation is not just another word for assessment. The quality of our learner's learning may well be one of the outcomes we need to evaluate. But many other factors may be equally worth looking at.

Assessment:
By assessment, we mean the processes and instruments that are designed to measure the learner's achievement, when learner are engaged in an instructional programme of one sort or another. It is concerned with ascertaining the extent to which the objectives of the programme have been met. The term assessment/is often used interchangeably with the terms evaluation and measurement. However, assessment has a narrower meaning than evaluation but a broader meaning than measurement. In its

derivation, the word assess means "to sit beside" or "to assist the judge". It, therefore, seems appropriate in evaluation studies to limit the term assessment to the process of gathering the data and fashioning them into an interpretable form; judgement can then be made on the basis of this assessment.

Assessment as we define it, precedes the final decision-making stage in evaluation e.g., the decision to continue, modify, or terminate an educational programme.

Measurement:

It is mainly concerned with collection or gathering of data e.g., students scores in an examination. It is an act or process of measuring physical properties of objects such as length and mass. Similarly, in behavioural sciences, it is concerned with measurement of psychological characteristics such as neuroticism, and attitudes towards various phenomena.
Evaluation involves assessment and measurement it is a and more inclusive term than assessment and measurement.

Types of Evaluation

Formative Evaluation

The goal of formative Evaluation is to monitor student learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning. More specifically, formative Evaluations:

- help students identify their strengths and weaknesses and target areas that need work
- help faculty recognize where students are struggling and address problems immediately

Formative Evaluations are generally low stakes, which means that they have low or no point value. Examples of formative Evaluations include asking students to:

- draw a concept map in class to represent their understanding of a topic
- submit one or two sentences identifying the main point of a lecture
- turn in a research proposal for early feedback

Summative Evaluation

The goal of summative Evaluationt is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark.

Summative Evaluations are often high stakes, which means that they have a high point value. Examples of summative Evaluations include:

- a midterm exam
- a final project
- a paper
- a senior recita

Continuous and Comprehensive Evaluation

Continuous and comprehensive evaluation is an education system newly introduced by Central Board of Secondary Education in India, for students of sixth to tenth grades. The main aim of CCE is to evaluate every aspect of the child during their presence at the school. This is believed to help reduce the pressure on the child during/before examinations as the student will have to sit for multiple tests throughout the year, of which no test or the syllabus covered will be repeated at the end of the year, whatsoever. The CCE method is claimed to bring enormous changes from the traditional chalk and talk method of teaching, provided it is implemented accurately.

Basic features or characteristics of a good evaluation process are as follows

●**Validity**: A valid evaluation is one which actually tests what is sets out to test i.e., one which actually measures that behaviour described by the objective(s), under scrutiny. Obviously, no one would deliberately. Construct an evaluation item to test irrelevant material but very often non-valid test items are in fact used e.g., questions that are intended to test recall of factual material but which actually test the candidate's powers of reasoning, or questions which assume a level of pre-knowledge that the candidates do not necessarily possess.

●**Reliability**: The reliability is a measure of the consistency with which the question, test or examination produces the same result under different but comparable conditions. A reliable evaluation item gives reproduciable scores with similar populations of students. It is therefore, independent of the characteristics of individual evaluations. In order to maintain reliability, one evaluative question should test only one thing at a time and give the candidates no other option. The evaluation should also adequately reflect the objectives of the teaching unit.

●**Practicability**: Evaluation procedure should be realistic, practical and efficient in terms of their cost, time taken and case of application. It may be an ideal procedure of evaluation but may not be put into practice,

●**Fairness**: Evaluation must be fair to all students. This can be possible by accurate reflecting of range of expected behaviours as desired by the course objectives. To keep fairness in evaluation, it is also desired that students should know exactly how they are to be evaluated. This means that students should be provided information about evaluation such as nature of the materials on which they are to be examined (i.e., Context and Objectives),

the form and structure of the examination, length of the examination and the value (in terms of marks) of each component of the course.

- **Usefulness**: Evaluation should also be useful for students. Feedback from evaluation must be made available to the students and weakness. By knowing their strength and weakness, Students can think of further improvement. Evaluation should suggest all the needful requirements for their improvement.

- **Interpretation of Results:** Another factor which must be considered in the choice of a test is the ease of interpretation of test results. A test score is not meaningful unless the teacher or counselor is able to decide what significance or importance should be attached to it and to make some judgment concerning its relationship to other kind of information about the student. Nearly all test publishers produce manuals designed to aid the teacher in interpreting test results.

But these manuals very greatly on quality and in the thoroughness with which they do this importance job. From the point of view of the teacher, principal, or counselor, the quality of the test manual should be just as important a factor in the choice of a test as the quality of the test itself

Continuous and Comprehensive Evaluation (CCE)

This content refers to a system of school – based evaluation of student that covers all aspect of students development. As the nomenclature also suggests, this new pattern in evaluation is not one, two, three times a year but continuous one. It is a developmental process of assessment which emphasizes on two fold objectives and these objectives are continuity in evaluation and assessment of abroad based learning and behaviourial outcomes on the other.

It is a total teaching-learning process and spread over the entire span of academic session. It means regularity of assessment, frequency of unit testing, diagnosis of learning gaps, use of corrective measures, refreshing and feed back to evidence to teacher and students for their self evaluation.

Second term comprehensive that the scheme attempt to cover both the scholastic and the co-scholastic aspects of students growth and development, CCE therefore a paradigm shift in evaluation, shifting the focus from testing to holistic learning. It aims to create good citizens possessing sound health, appropriate skills and desirable qualities besides academic excellence.

Aims of CCE

- To help develop cognitive, phychomotor and affective skills

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- To lay emphasis on thought process an de-emphasize memorization.

- To make evaluation an intergral part of teacher learning process.

- To use evaluation for improvement of students achievement and teaching-learning strategies on the basis of regular diagnosis followed by remedial instruction.

- To use evaluation as a quality control device to maintain desired standard of performance.

- To determine social utility, desirability or effectiveness of a programme and take appropriate decisions about the learning, the process of learning and learning environment.

- To make the process of teaching and learning a learner-centred acitivity.

Important Functions of Continuous and Comprehensive Evaluation

- Continuous evaluation helps in regular assessment to the extent and degree of students progress (ability and achievement with reference to specific scholastic and non-scholastic areas).

- Continuous evaluation serves to diagnose weakness and permit the teacher to ascertain an individual pupil's strengths and weakness and his needs. It provides immediate feedback to the teacher, who can then decide whether a particular unit or concept needs re-teaching into the whole class or whether a few individuals are in need of remedial instruction.

- It helps the teacher to organize effective teaching strategies,

- Mainly times, because of some personal reasons, family problems or adjustment problems, the children start neglecting their studies, resulting in a sudden fall in their achievement.
If the teacher, child and parents do not come to know about this sudden fall in the achievement and the neglect of studies by the child continues for a longer period then it will result in poor achievement and a permanent deficiency in learning for the child.
The continuous evaluation helps in bringing awareness of the achievement to the child, teachers and parents from time-to-time. They can look into the probable cause of the fall in achievement, if any, and may take remedial measures in time, to help the child overcome it at their own level.

- By Continuous evaluation, children can know their strength and weakness. It provides the child a realistic self-picture of how he and she studies. It can motivate children to develop good study habits, to correct errors, and to direct their activities towards the achievement of desired goals. It helps an individual to determine the areas of instruction in which more emphasis is required.

- Continuous and comprehensive evaluation ascertains areas of aptitude and interest. It helps in identifying changes in attitude, character and value pattern.

- It helps in making decisions for the future, regarding choice of subjects, courses and careers.

- It provides information/report on the progress of students in scholastic and non-scholastic areas and thus help in predicting the future successes of the learner.

Formative Evaluation

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Formative Evaluations are generally low stakes, which means that they have low or no point value. Examples of formative Evaluations include asking students to:

- draw a concept map in class to represent their understanding of a topic
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- turn in a research proposal for early feedback

This process is used to measure and monitor the learning of students during the period of instruction.

Objective: Its main objective is to provide continuous feedback to both teacher and student concerning learning success and failures while instruction is in process. Feedback to students provides reinforcement of successful learning and identifies the specific learning errors that need correction.
Feedback to teacher provides information for modifying instruction and for prescribing group and individual remedial work. Formative evolution depends on tests, quizzes, homework, classwork, oral questions prepared for each segment of instruction. These are usually mastery tests that provide direct measures of all the intended learning outcomes of the segment.

Methodology The tests used for formative evaluation are mostly teacher-made. Observational techniques are also useful in monitoring student progress and identifying learning errors. Since formative evaluation is used for assessing student learning progress during instruction, the results are not used for assigning course grades.

Summative Evaluation

It is used to find out the extent to which the instructional objectives have been achieved particularly at the end of a terminal period. The goal of summative Evaluationt is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark.

Summative Evaluations are often high stakes, which means that they have a high point value. Examples of summative Evaluations include:

- a midterm exam
- a final project
- a paper
- a senior recita

Objective/Purpose: It is used primarily for assigning course grades or for certifying student mastery of the intended learning outcomes at the end of a particular course programme. Although the main purpose of summative evaluation is assigning grades, It also provides information judgment the appropriatentness of the course objectives and the effectiveness of instruction.

Methodology/Technique: The techniques used for summative evaluation are determined by the instructional objectives. For this evaluation, there are external examination as well as teacher-made tests, ratings etc.

Difference between Summative and Formative Evaluation

- Summative evaluation refers to the assessment of worth whileness of the instructional programme which has already been completed, while formative evaluation refers to the assessment or worth of the instructional programme which is still going on and can still be modified.

- A formative evaluator is a partisan of the instructional sequence and does everything to make teaching-learning better. A summative evaluator is an uncommitted non-partisan person who is to pass judgment on an instructional endeavour.

- A summative evaluator gathers information and judges the merit of overall instructional sequence to adapt that sequence. The audience of summative evaluation is the consumer of the instructional programme in contrast to the formative evaluator whose audience is the designer and the developer of the programme.

- Summative evaluation, judgmental in nature. Its purpose is to appraise the teaching-learning process and to distinguish it from-formative evaluation. It is an end of the course activity concerned with assessment of the larger instructional objectives of a course or a substantial chunk of the course.

- Formative evaluation is developmental, not judgmental in nature. Its purpose is to improve students learning and instruction. Therefore, its major function is feedback to the teacher and student to locate strengths and weaknesses in the teaching-learning process in order to improve it.

- Summative evaluation is thus a judgmental activity focused on certification of students achievement But formative evaluation is a means of determining what the pupils have mastered and what is still to be mastered, thereby indicating the basis for improvement of students learning.

ACHIEVEMENT TEST

Teachers teach and help the learners to learn. The learning that takes place is assessed or evaluated not only for the learner's benefit but also for the teacher to evaluate his /her own work. At the end of a lesson or a group of lessons, the teacher needs to get feedback on what the learner has achieved, as a result of the teacher's efforts and also, indirectly to assess his/her own achievement as a teacher. This feedback comes with the help of a tool, generally an achievement test. An achievement test is designed to evaluate a unit during the teaching-learning process.

PURPOSE OF ACHIEVEMENT TESTS

Achievement tests are universally used in the classroom mainly for the following purposes :

1. To measure whether students possess the pre-requisite skills needed to succeed in any unit or whether the students have achieved the objective of the planned instruction.
2. To monitor students' learning and to provide ongoing feedback to both students and teachers during the teaching-learning process.
3. To identify the students' learning difficulties- whether persistent or recurring.
4. .To assign grades.

TYPES OF QUESTIONS

There are mainly three kinds of questions - essay, short answer and objective type.

Essay Type

The essay type questions are still commonly used tools of evaluation, despite the increasingly wider applicability of the short answer and objective type questions. There are certain outcome of learning (e.g. organising, summarising, integrating ideas and expressing in one's own way) which cannot be satisfactorily measured through objective type tests. The importance of essay tests lies in the measurement of such instructional outcomes.

An essay type question may give full freedom to the students to write any number of pages. The required response may vary in length. Limit may be imposed by restricting the content and the length of student's response in the statement of a question. Restricted response type items are quite useful for testing learning outcomes which require interpretation, application of outcomes which are specific and clearly defined in nature. Such types of questions help to reduce subjectivity in marking, which is considered to he the major drawback of essay tests.

In extended response type questions full freedom is given to the student to exercise his-her competence and demonstrate the best he/she possesses, of course, pertaining to the area of the subject. There is freedom to select, organise, integrate, evaluate and express in any way one likes or deems appropriate. Such questions, although useful for measuring global type of abilities, are not suitable for measuring specific learning outcomes, besides being difficult to grade.

Short Answer Questions

Short answer questions generally require exact answers and, although taking many forms, they share the following distinctive features.

i) They usually take less than five minutes to read and answer, many take less than a minute.
ii) They include some guidance on the extent of the answer reacquired c.g. the size of answer, space or specific instruction such as "In not more than 20 words ..."
iii) The answer is supplied by the pupil, not pre-selected as in objective questions.
They can be grouped into two broad categories :
a) extended answer
b) insert and completion

Extended Answer Type

The extended answer version includes questions which reacquire pupils to write a brief description, draw a map, make a list, perform a calculation, translate a sentence, write down a definition or formula and so on. They are probably the commonest form of questions used in schools and are frequently used by examining Boards. They arc deceptively easy to set and usually difficult to mark with any degree of speed and consistency.

Completion Type

The commonest form of completion questions is one where the pupil is required to add one or two words to complete an incomplete statement correctly. Where the missing words are in the body of the statement to be completed it is usually called an insert type. A completion type is where the words are required at the end of the statement. The use of insert or completion questions is not, however, limited to written statements and can be used.to prepare extremely good questions based on incomplete maps, drawings, diagrams, formulae, calculations, and the like.

Objective Type Questions

What is an objective question? Simply, an objective question is one which is free from any subjective bias - either from the tester or the marker. Confusingly, in educational jargon, the adjective' objective' usually means 'not subjective' while the noun'objective' usually means an. aim, a goal, target or intention. This sub-section is not about course objectives-aims, intended learning outcomes, etc. -but about testing which is free from subjective elements. There can only be one right or objective answer to an objective question. Objective questions can take various forms, but invariably they require brief answers with little or no writing. A simple tick or a quick oral answer may be enough.

Simple Recall

The most common used objective type question by teachers as part of their day-to-day teaching is simple recall. The teacher asks a short question, expecting a quick one-word answer or a simple statement completed.

Multiple Choice

A Multiple choice-item consists of three pans -a stem, a key and a number of dis tractors. The key and dis tractors together are often referred to as options. The stem can be either a direct question or an incomplete statement; the key is the correct answer and the dis tractors are plausible but incorrect answers.

True-False

As its name implies, the basic true-false item requires the pupil to select either 'true' or 'false' as the answer. It is usually written in the form of a statement which the pupil must decide as being either 'me' or 'false' or alternatively choose between other work pairs relating to the statement such as greater than-less than, plus-minus, often-rarely, same different, 'faster slower' and so on. It is the possibilities offered by these other pairs which make the true false form a particularly useful one.

Matching Block

The matching block format consists of two lists and the pupil is required to correlate correctly one or more entries from one list with one or more entries from the other so that correct matching by elimination is not possible.

Inclusive Education

Inclusive in education is an approach once thought only necessary for educating students with special educational needs. Now it is crucial that all teachers ensure inclusive practice for all students in their classroom and the wider school. Under the inclusion model, students with special needs spend most or all of their time with non-disabled students. Implementation of these practices varies. Schools most frequently use them for selected students with mild to severe special needs.

Inclusive education differs from previously held notions of *integration* and *mainstreaming*, which tended to be concerned principally with disability and 'special educational needs' and implied learners changing or becoming 'ready for' or deserving of accommodation by the mainstream. By contrast, inclusion is about the child's right to participate and the school's duty to accept the child. Inclusion rejects the use of special schools or classrooms to separate students with disabilities from students without disabilities. A premium is placed upon full participation by students with disabilities and upon respect for their social, civil, and educational rights. Inclusion gives students with disabilities skills they can use in and out of the classroom.

Inclusive Education: What is it all about?

Since independence, year after year the goal of UEE is set, but never achieved so far. One doesn't realise that millions of children in this world are victims of genetic disorders. This "disorder" often puts the victims into a very disadvantageous position, not merely because of the "disorder" but due to lack of proper understanding by the others/all. Education for all, means, the system should bring all the category of the children in the age group of 6-14 years into the school fold. No one can be denied. In this context, efforts are being made to integrate children with the "disorders" into the school system and facilitate learning by making curriculum adaptation.
This "facilitation" calls for a systematic planning with regard to children teachers, teaching learning material, classroom management and material management, starting from classroom to state level. The training institute (DIET) at the district level plays a prominent role in promoting elementary education in terms of quantity, quality and equity.

Type and levels of Disabilities

The disabilities can be broadly classified into the following categories. These categories can be further classified on the basis of level of problems and type of problem.

(i) Visual Impairment

(a) Refractive errors-short sight or long sight.
(b) Partial vision or low vision. who have difficulty in reading print even after wearing spectacles.
(c) Totally blind.

(ii) Hearing Disabilities

(a) Slight hearing loss - (26-40db) decibels.
(b) Mild hearing loss - (41-55 db) decibels.
(c) Moderate hearing loss (56-70 db) decibels
(d) Severe hearing loss (71-90 db) decibels
(e) Profound hearing loss (91db or more) - Hearing aid does not help

(iii) Mentally Retarded

(a) Slow learners - (I Q 75 to 89 IQ)
(b) Mild mentally retarded (IQ 60-65 to 70-75 IQ)
(c) Moderate Mentally Retarded. (IQ 35-40 to 60-65 IQ)
(d) Severely retarded (IQ 20-25 to 30-35 IQ)
(e) Profoundly retarded (IQ 20-25 and below)
(a) Slow learners - (IQ 75 to 89 IQ)
(b) Mild mentally retarded (IQ 60-65 to 70-75 IQ)
(c) Moderate mentally retarded (IQ 35-40 to 60-65 IQ)
(d) Severely retarded (IQ 20-25 to 30-35 IQ)
(e) Profoundly retarded (IQ 20-25 and below)

(iv) Physically Handicapped or Orthopedic Handicap

(a) Polio of hands or legs (Upper or lower limbs)
(b) Central nervous system disorder (cerebral palsy, Epilepsy)
(c) Congenital malformations of limbs (e.g. Spinal bifida, or Club foot, or bow legs)
(d) Diseases of the muscular skeletal system.
(e) Muscular dystrophy or wastage of muscles in arms or legs.
(f) Rigidity of joints - due to Rheumatoid arthritis.

(v) Learning Disabilities

(a) Reading disabilities (dyslexia)
(b) Disability to comprehend or speak - Dysphasia
(c) Writing disabilities - Dysgraphia
(d) Arithmetic disabilities (dyscalculia)
(e) Disability to express orally - aphasia
(f) Disability to read or write printed matter - Alexia

(vi) Speech Disabilities

(a) Stammering - Difficulty in pronouncing certain Sounds.
(b) Stuttering - Fluency in speech lacking
(c) Voice Disorders - Cannot control pitch, loudness
(d) Articulations - Problems, Omissions, and Substitution of words.

(vii) Chronic Health Problems

(a) Congenital heart problems - viz Mitral stenosis
(b) Chronic bronchitis and asthma
(c) Juvenile diabetes
(d) Tuberculosis

(viii) Emotional Disturbance leading to Behavior Problems

(a) Attention deficit disorder (hyper activity)
(b) Aggressive/Violent behavior
(c) Hyper active - or Hypoactive
(d) Anxiety disorder
(e) Shy and withdrawal tendencies
(f) Depression
(g) Conduct disorders
(h) Obsessive-compulsive disorder
(i) Phobia-fear of darkness, heights or depths.
(j) Psychosis.

Identification of children with disabilities

Hearing Impaired	a) Identification Checklist b) Audiometric Test c) E.N.T. surgeon
Visual Impaired	a) Identification Checklist b) Shellen Chart c) Ophthalmologist for refractive errors and correction.
Mentally Retarded **Learning Disabled**	a) Identification Checklist b) Progress in school c) I.Q. Test administered by a clinical Psychologist d) Developmental Pediatrician and neurophysician
Speech problems	a) ENT Surgeon

	b) Speech pathologist/Therapist c) Audiologist
Health Problems	a) Physician b) Chest Physician c) Pediatrician
Emotional Problems	Psychologist/Child psychiatrist
Physical or Orthopedic Problems	a) Orthopedic Surgeon b) Physiotherapist c) Neuro Surgeon d) Neurologist

Strategies of meeting the special needs of children with disabilities

The following strategies are useful in meeting the special needs of children with disabilities.

(a) Reducing the deviation

This can be achieved in two ways - reducing the defect/disability and reducing the visibility of the defects.

(b) Reducing the disability

This is possible through the following strategies.

(i.) Practice - copy writing, speech training, remedial instruction etc.

(ii) Substitute learning-use of left hand if right hand becomes deformed. Lip reading if unable to develop speech, braile learning, type writing, if unable to write by hand etc. (Devices which help in improving functioning)

(iii.) Functional prosthetics – magnifying glasses for the children with partial sight, hearing aid calculators, if unable to compute, braile type writer, alphabetic chart for those who forget the shapes of the letters etc.

(c) Reducing the visibility of the defect:

This is helpful in developing positive attitude towards the children with physical defect. The visibility of the defect can be reduced through the following strategies.

Use of the cosmetic prosthetics; Use of articifial limbs which are not functional, wearing black glasses by blind person, transparent hearing aid. Etc. Compensatory learning; proper body posture control learning appropriate soial manners etc.

(d) Changing the environment: Manipulation of the environment is also very much essential in meeting the special needs of children with disability. this involves

1. Alteration of physical environment, and,
2. Alteration of the social environment.
3. Alteration of the physical environment has two important objectives
    1. Improving responses-Removing architectural barrier so that mobility is eased, adaptation in the house hold articles so that day to day activities can be carried out without much difficulty, adaptations in the communication devices. like videophone for the deaf, talking machine for the blind etc.

2. Improving stimulus large print book for the partially sighted, proper placement in the class for the deaf avoiding distraction for a child with concentration problems etc.

4. Alteration of the social environment - through parental guidance and Counselling Orientation to the peers, public awareness programmes teacher training programmes.

Role of teachers in meeting the special needs of children disabilities in the inclusive schools

The role of teachers in meeting the special needs of children with liabilities vary from one disability to other. How ever there are certain common roles. They are listed below.

1. Identification of the children with disabilities in the classroom.
2. Referring the identified to the experts for further examination and treatment.
3. Accepting the children with disabilities.
4. Developing positive attitude between normal children and disabled children.
5. Placing the children in the classroom in proper places so that they feel comfortable and are benefited by the classroom interaction.
6. Enabling the children with disabilities to avail the facilities provided for them under IED scheme.
7. Removing architectural barriers wherever possible so that children with disabilities move independently.
8. Involving the children with disabilities in almost all the activities of the classroom.
9. Making suitable adaptation in the curriculum transaction so that the children with disabilities learn according to their ability.
10. Preparation of teaching aids/adaptation of teaching aids which will help the children with disabilities learn.
11. Parental guidance and Counselling and public awareness programme through school activities.
12. Acquiring competencies which are essential in meeting the needs of the children with disabilities.
13. Cooperating with resource teachers if resource rooms are available.
14. Collaborating with medical and physiological personnel social workers, parents and special teachers.
15. Providing scope for cooperative learning among disabled and normal children.
16. Conducting case studies and action research related to the specific problem of children with special needs.
17. Construction of achievement and diagnostic tool.
18. Adaptation in evaluation for children with special needs.
19. Nurturing the talent among children with disabilities.
20. Providing remedial instruction to the children who require it.

The teachers can perform the above roles only when essential competencies are developed among them. This calls for intensive training of the teachers with adequate practical component.

Children With Special Needs:

Children with special needs are often also referred to as 'exceptional children'. These children may either be 'special' because of their innate characteristics or the environment in which they have grown.Children with exceptional talents are called gifted and have their special needs. Similarly, children coming from materially deprived and socio-culturally disadvantaged backgrounds have their own special needs.

Traditionally, children with special needs (except the gifted, who are ignored) are labeled as defective and kept away from regular classrooms. 'Labeling' children under special categories, many people argue helps in identifying their specific problems and arranging special programmes for them. On the other hand, the disadvantages of labeling, many people believe, are overwhelming. Labeling often is an incomplete description of a human being, focusing on the negative and lowering one's self image. Second, incorrect labeling or over generalization may lead to incorrect treatment.

Gifted and Talented Children

Gifted, talented, able, geniuses, bright are terms associated with a group of people who have extraordinary abilities in one or more areas of performance. According to Purcell (1918) the terms gifted and talented refer to children and youth who are identified as possessing demonstrated or potential abilities that show evidence of high performance capability in areas such as intellectual, creative, specific academic or leadership ability or in performing and visual arts. Ramos-Ford and Gardner (1991) defined intelligence or giftedness as "an ability or set of abilities that permit an individual to solve problems or fashion products". This perspective of giftedness is referred to the theory of multiple intelligence. Intelligence manifests itself in linguistics, logical mathematical, spatial, musical, bodily-kinesthetic, interpersonal and intrapersonal behaviours.
Children with IQ of 140 and above are considered to be gifted. Gifted children often begin reading earlyand read above their grade level. They have unusually large vocabulary and wide ranging interest. They display a thirst for knowledge, excellent memory and the ability to transfer information from one topic to another.They are able to learn rapidly and easily and retain what they learn. They usually ask a lot of questions and demonstrate mature reading ability. They often enjoy the company of older children and show interest in humanity and the universe at a very early age. Besides academic accomplishment, they are socially well adjusted and have superior physical ability and moral attitudes in comparison to average children. Often, they excel in every subject.

Gifted children may be identified through screening. During this process school teachers, psychologistsand other school personnel attempt to identify all potentially gifted children. Formal measures of identification include taking intelligence tests and achievement tests. Often however, such tests have a restricted range of topics on which questions are asked. Therefore they are not considered a full proof method of identifying gifted children.
Gifted children are above average in their abilities and therefore require special treatment at school to make full use of their potential. Two ways of providing support are 'acceleration' and 'enrichment'.Acceleration refers to allowing children to take up courses of more than one year in the same year or skipping grades. This means, that a class VIII child would either do courses of both classes VIII and IX in the same year or skip one year and take admission in class X directly after VIII. Enrichment refers to providing a more enriched curriculum, with a wider range of educational experiences. It is greater in depth or broader than the regular curriculum. This may involve providing mini courses or special programmes including mentorship with an expert.
It is important to note that the number of gifted girls appears to decline with age. Girls during elementary years of schooling have been reported to show higher achievement than boys, but by adolescence,their achievement levels tend to decline. One of the reasons for this decline is the gender role socailisationthat girls receive where behaviours associated with competition and independence are generally discouraged.Without independence, opportunities of high levels of creativity, achievement and leadership considerably reduce. It is therefore important to pay adequate attention to girls and encourage them to work towards realizing their potential.

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Creative Children

Some psychologists believe that creativity is a personal quality or a trait. Others suggests that it is not a personality trait but a skill or a process that produces a 'creative product', such as a painting, invention, computer programme or solution to a personal problem. To be creative, a new invention or creation should be intended. A brilliant work of art resulting from an accidental spilling of paint is not considered creative unless the artist recognizes the potential of creating new designs by intentionally spilling paint. Creativity, however, is not restricted to art alone but creative work is possible in all subjects.
Early psychological research in the decade of 1960s suggested that creativity and intelligence are different but related cognitive capabilities. They found that though high levels of intelligence is a requisite trait for high levels of creativity. The following abilities require high levels of both intelligence as well as creativity:

- analyze situations
- see relationships
- separate relevant from irrelevant

- make good decisions
- ask good questions

Guilford (1963) suggested that both convergent and divergent thinking are important in the structure of intellect. In convergent thinking, the answer is often predetermined that is the recognized 'right' or 'best'.Divergent thinking, on the other hand, is characterized by producing a wide variety of alternative solutions,each of which is logically correct. Guilford said that divergent thinking is characterized by fluency, flexibility, and elaboration. Fluency refers to the number of different responses based on retrieval of information from the memory. Flexibility refers to the ability to transform information, to reinterpret it or redefine it and adapt it to new uses. Elaboration refers to thinking about implications and applications of original ideas.

How can creative children be identified? One of the ways of identifying creative children is by looking at their biographical information for creative activities that they have been engaged in. Does the child constantly make or build things? Does he or she have wide interests, hobbies or unique collections? Does the child have unusual experience or talent in art, poetry, creative writing, handicrafts, music, dance, computers or science?Research has shown that involvement of adolescents in theatre is a definite sign of creativity. Children who playwith imaginary friends at the pre kindergarten level also show signs of creativity at a later stage. Besides these,self reported involvement in creative activities, action researches and high levels of task commitment are also signs of creativity. Formal identification procedures include conducting Renzulli's ten item creativity rating scale, Torrance tests of Creative Thinking etc.

How to promote creativity amongst children:

Once a child has been identified as creative, it is important that the creativity be maintained and promoted. Some of the ways to promote creativity amongst children are listed below:

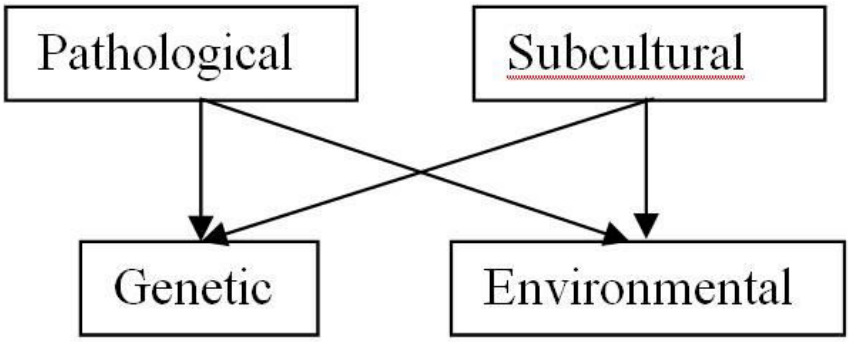
- Encouraging role play and imaginative play
- Helping children apply principles to new situations
- Encouraging children to ask 'why' and 'what if' questions
- Showing that unusual questions and ideas are respected
- Tolerating dissent
- Providing opportunities for self initiated learning and giving credit for it
- Motivating intrinsically and avoiding tangible rewards and focus on evaluation
- Allowing time and space to try out new activities
- Tolerating disorder during the creative process

Slow Learners

Slow learners are often called dull normals. These are students who have trouble mastering learning tasks and keeping up with the classroom. As a

result, many of these learners drop out of school. Their IQ levels usually liebetween 70 and 85.

Reasons for slow learning can be classified as follows:



Pathological-genetic reasons include problems like mongolism, cretinism etc.

Pathological-environmental reasons include pre and/or post natal exposure to radiation, oxygen deficiency at the time of birth etc.

Subcultural-genetic reasons include being born to parents who were themselves slow learners.

Subcultural-environmental reasons refer to belonging to poor socio-economic background and facing protein deficiency.

Cognitive development among slow learners is between half and three fourth of normal children. In **Piagetian**terms, most slow learners would stop at the concrete operational stage. Cognitive development would be slower and stop earlier. Apart from cognitive development, all their other (physical, social and emotional) needs would be the same as other children.

Teaching of Slow Learner

Diverse methods need to be used for teaching in the classroom. Stimuli through multiple sources –auditory and visual- would help in increasing attention span and improving learning. In areas of interest, slow learners have been seen to perform beyond their expected capabilities. Such areas of interest should be identified and learning organized around these areas. Educational of slow learners should not focus on the same career goals as average children. Instead, focus should be on helping them attain personal, social and professional adequacy so that they learn to live independently in their lives. Curriculum should therefore be modified to suit their needs. Basic understanding of all subjects presented in an integrated fashion to revolve around their areas of interest should be provided.

Underachievers

Underachievers are children with IQ levels 85 and above but performing poorly in the classroom. IQ levels showthat they are capable of average or above average levels of achievement. However, in the classroom, such levels are not achieved, i.e. they are performing below their mental capabilities. At

most times, such children are labeled as poor performers and ignored. It is assumed that they are incapable of doing well in studies.
Reasons for underachievement may lie at home or at school. Changing schools too often, not liking the teacher, general dislike for school, belonging to a group of underachievers, frequent illness resulting in absence from school and disturbance at home maybe some of the causes of underachievement.
Underachievement is most visible in languages as well as mathematics. Underachievement in reading,writing, comprehension and handwriting results in underachievement in other subjects also. Underachievers may be identified through observation and teacher made tests or through standardized tests of intelligence and achievement.
In many cases underachievers also tend to be emotionally disturbed. The school psychologist or psychiatrist should therefore work alongside the teacher in ensuring atleast average achievement by these children. Special arrangements for remedial and individual classes should be made. A mechanism of providing systematic rewards and praises should be worked out so that the child is motivated to perform better. Frequent testing can also be organized so that even slight improvements can be appreciated and recorded. Their interest areas can be identified and studies in other subjects can be arranged around the interest area. A system of contingency contracts also works well with underachievers. In a contingency contract, the student and teacher enter into a contract where the student is asked to perform or achieve a target in return of a reward which is contingent or dependent on his achievement.

Socially and Culturally Disadvantaged

Socio-economic disadvantage can accrue due to many reasons. These include belonging to a particular economic class, social caste, gender, language, occupation (migrant children), ethnicity, and being a first generation learner. The problem multiplies when a learner belongs to more than one category. For example, agirl belonging to lower socio-economic class is more likely to face greater disadvantage than one belonging to higher socio-economic class. If we carefully observe, it would seem that most categories revolve around the economic class to which the child belongs. Caste, gender, ethnicity, language may not be as much a disadvantage if the child belongs to higher economic class. The likelihood of a child being a first generation learner is also much higher in the lower socio-economic class.

Socio-culturally disadvantaged children often face difficulty in learning language as they have poor communication skills. Most belong to a family where both parents are working till late in the day. Poor communication at home results in poor language learning abilities. This further influences learning in all other subject areas. Often the dialect spoken at home is different from the formal language taught in schools.

A major disadvantage for these children is the lack of exposure resulting in lesser experiences feeding into learning at school. For example, these children may never have visited historical monuments, zoos etc. Lack of exposure may result in difficulty in understanding concepts in the classroom. They would not be able to relate to the topics in class which do not relate to their everyday life. At home, they try to study by blocking the noise in their surroundings.

A similar phenomenon occurs in school. At a time when the teacher talks of a topic that does not interest them, they learn the art of selective attention and block out the teacher's voice to concentrate on something else. Poor nutritional intake may lead to weakness and inability to sit still without sleeping for long.
The mid-day meal scheme of the government focuses on addressing the problem of poor calorie intake.There should be flexibility in curriculum to suit the needs and the context of the child. Flexibility should also be ensured in testing. A realistic feedback should be given but early tests should be designed to focus on achievements and providing opportunities for success. Regular contact between parents and school becomes important so that parents may be made aware of their role in facilitating the child's education. Remedial classes particularly for languages should be arranged. Attention also needs to be paid to maintaining high self esteem amongst such children.It is most important that the teacher believes that these children are capable of performing as well as the other children if there special needs are met.

How children learn?

Although children are born with some inherited tendencies, an environment that stimulates learning and development is necessary to ensure children reach their learning potential. Adults play a vital role in providing stimulation and support for children's learning. Parents and carers can nurture children's development through understanding the importance of what children experience in the world around them, and providing experiences that arouse their curiosity and interest. Opportunities for children to be actively involved in learning from their experiences are especially important for their development.
Children's knowledge grows over time as they build on earlier understandings. When they encounter new experiences, children look for information that they can use to confirm, add to, or change their ideas.

For example, when a child experiences a new event, he or she first tries to understand the new experience by matching it to pre-existing ideas. If, however, the new experience doesn't fit with what the child already knows, it stimulates the child to come up with new ideas or ways of understanding.

By adding or adapting old ideas and putting ideas together children build knowledge.

How children think?

Developmental patterns in children's thinking and learning

Most children tend to develop skills for thinking and learning in a predictable sequence (eg children start to tell stories by looking at pictures in a book before they learn to recognise words). However, it is important to remember that each child develops at a different rate and that individual differences are common. Differences may be due to children's inherited tendencies, the experiences and opportunities they are exposed to, or a combination of both. As children learn to use language in increasingly complex ways it supports further learning and development. Language helps to organise children's thinking. It allows them to use basic logic and gradually develops their capacities for thinking through situations, solving problems and developing their own ideas.

How and Why Children 'Fail' To Achieve Success In School Performance.

Poor time management skills and procrastination.

Most teachers know when a student has rushed through a project or essay. Students who routinely wait until the last minute to complete assignments will submit substandard efforts and achieve poor performance on exams.
Our natural instinct is to jump in and help "spruce up" the project, correct grammar or spelling mistakes or help our children cram for the test. Encourage good homework and study habits from an early age. Provide graphic organizers, calendars and other tools and encourage their use.

The younger a student can begin developing organized study habits, the better prepared they will be for the transition from high school to college – two very different worlds. Successful students don't rely on parents or teachers to tell them when assignments are due or when test dates are approaching.

An inability to complete tasks.

Students must be encouraged to be thorough in every task and not to quit until it is done. Help your child identify the areas that are giving them problems and don't empower them to seek extra help in school, as need.

Preach to your child that he cannot be too quick to give up or put off an arduous task until it becomes impossible to complete; procrastination can also lead to stress and anxiety, making it impossible to complete the task

and setting up a pattern for future melt-downs. Learning a new skill or a new subject may not always be easy.

Fear of failure and lack of self confidence.

A lack of self-esteem or confidence can prevent a student from building on his or her strengths. Too much confidence can prevent a student from acknowledging and improving on weaknesses. For some children, the very thought of not being able to succeed is enough to stop them from attempting at all.

From the earliest age, children must know that we all learn from our failures and then move on. All new skills require practice and repetition before they can be mastered.

Reliance on others.

Encourage your child to develop academic independence and accountability from the moment they enter school. Each child must know he or she is responsible for their own learning: completing all tasks and assignments; bringing the right books and equipment to every class; and taking everything home each night.

Students who routine leave books or homework at school must learn cause and effect for their behavior. Establishing routines and good study habits at an early stage will pave the way for most students to develop into a self-directed learner. Talk to your child's teacher if they find they are struggling in a particular area, and/or seek a tutor.

Lack of desire.

Many students are underachievers; although capable of completing their school work, they lack the initiative or motivation to succeed.These are students that can do the work, are highly intelligent, but have decided that there are other things that are more important.
In many cases they are distracted by out side factors, emotional issues, or are not challenged enough in school. (In some cases, there may be an undiagnosed learning disability.)
The danger in rewarding younger students for academic achievement is the pattern that they may only achieve when there is something to gain.

Hence, the crash and burn experiment. For all students, there may come a time where you may have to refuse to help. It may be that he or she waited until the last minute to begin a project, study for a test, or refused to attend an extra-help session.

Lack of parental involvement

For a young child, his entire world revolves around his parents; and thus his parents and their involvement in his academic success acts as a huge motivating factor. Yes, we have exceptions in this case as well when some

pupils scores very good grades irrespective of the lack of involvement of his parents in his studies but in majority of cases parents involvements have huge impact on the performance of a child in school. Some parents get the best reference books on tips to get good marks in exams but fail to provide any personal time and active participation in the reading-learning process of their child. I would like to suggest each parent to get actively involved in their child's life as much as possible especially during their growing up days.

Lack of Organizational skill

Every student need to develop his personal organizational skill for keeping pace with the syllabus covered in the class, and to locate his study materials and assignments without any trouble. Mismanagement and poor organizational skills not only decreases his pace of study but also poses a hindrance in his active learning process.

Lack of Motivation

Another basic reason for poor performance of a student in school is the lack of motivational force that usually keeps them moving forward. They do not find pleasure in achieving any goal due to lack of motivation.

Low self esteem

Some students starts believing that they are not good in a particular subject or that they are socially and/or economically backward than the rest of the students of the class; this negative feeling starts hindering their achievements in a particular or all the subject areas. Another issue of concern is the habit of Self talk in children with low self esteem, where in they starts to talk either with themselves or with some imaginary characters in their brain. This habit is usually harmless but may sometimes become a psychological illness in severe case, so try to be available for your child and listen to him/her.

Another reason for low self esteem in students is the social stratification of our society which divides the children within the same classroom on the basis of various social and economical factors.

Poor Reading comprehension

Language is the most important tool to achieve big in any subject. If a child is poor in basic reading and understanding the language used in studies, we cannot expect him to be a high achiever even when he has a very sharp brain.

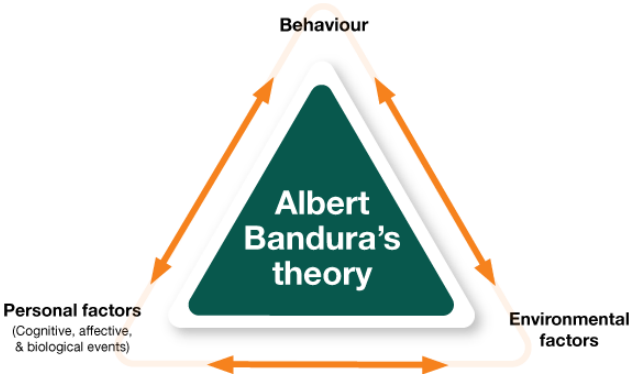
Hunger, thirst, lack of sleep and other physical reasons

Sometimes it is not the mental or memory issue that interfere with the achievement of a child but the physical reasons like hunger, lack of sleep and body ailments.

Other factors

Some other factors that also interferes with the achievements of a student in school are : peer pressure, lack of social, over protection of parents, high expectations of parents and conversational skills, and absenteeism. Parents need to know how much they have to protect and control their child, and when to allow kids for night out with friends and when to say 'no'. These are delicate issues which have to be handled with care and utmost precaution so that this all works as a motivational and supportive power for the child and not as a restricting factor.

Social Learning Theory of Albert Bandura



Albert Bandura is noted as one of the exponents of theory of social learning and observational learning. Social learning theory explains human behaviour from the point of continuous reciprocal interaction between cognitive, behavioural and environmental influences. For social learning theory to take place, there are four factors which must be present. These are observers (learners), teacher (model), learners' attention and proximity or nearness. The process of learning is influenced by the extent of identifications and imitations by the learners to the other three factors (Bandura, 1978).

In most cases, an individual will like to emulate a model who is perceived to be competent, powerful, and attractive, as well as someone whose behaviour is relevant to the observer (Bandura, 1986). This
means that we learn by observing the behaviour of others (Miller & Dollard, 1941).
The newer version of social learning theory is called the social cognitive theory. The change is due to a greater emphasis on cognitive processes in learning.
There are 4 processes involved in observational learning. These include attention, retention, production, and motivation as explained below.

Process 1- Attention

Before students can imitate a model's behavior, they must pay attention to what the model is doing or saying. For example, seeing a teacher writing from the same perspective as the student see their own makes observational learning easier.

Process 2- Retention
To produce a model's action, students must be able to store the model's action in their memory for future retrieval. Students' retention will be improved when a teacher gives vivid, logical, and clear demonstrations.

Process 3- Production
To attending and remembering, students must be physically capable of reproducing the model's action. Here, the students need a lot of practice, feedback, and coaching before they can reproduce the model's action.

Process 4 – Motivation
The students must be motivated to demonstrate the model's action. Reinforcement can be use to encourage observational learning. For example, a teacher can use direct reinforcement such as saying "Good work!" Alternatively, a teacher may want to use vicarious reinforcement. In this case, a student may simply see other students being reinforced for a particular behavior and then he increases his own production of that behavior.

In social learning theory, reinforcement is not a prerequisite for a learning to occur, but this increases the chance that what has been learnt will definitely be performed. This theory is therefore rested on the fact that an action or behaviour can be performed if the model is pleasantly rewarded. It is also believed that there is probability that an observer might drop a behaviour if he found out that the model has received a negative reinforcement for practicing such a behaviour.

Classroom Implications of Social Learning Theory

1. The teacher is a model for students in his/her classroom, and he/she has a profound effect on students' attitudes, beliefs and behaviour (Crowl, Kaminsiky and Podell, 1997). In this case, the teacher should be a good model.
2. The teacher should always make sure that he/she does not condone any irrational behaviour from his/her students. Any offending student should be appropriately dealt with, so as to serve as a deterrent to other members of the classroom.
3. The teacher should not forget to give complimentary remarks such as "well done", excellent", "good boy/girl," "keep it up", as a way of encouraging other students to imitate a good behaviour.
4. Teacher/parents should discourage their students/children from watching violent films or keeping friends of doubtful characters.

Child as a Problem Solver and scientific investigator':

Children are natural problem solvers, eager to make sense of their world. Supportive adults and stimulating environments can help them develop this important .

PROBLEM SOLVING

Problem solving is part and parcel of our daily life. Every day we solve a number of problems ranging from simple to complex. Some problems take little time where as some take much time to solve. We look for alternative solutions if do not get the right kind of resources to solve the problem in hand. In the case of solving any type of problem our thinking becomes directed and focused and we try to use all there sources, both internal (mind) and external (support and help of others) to arrive at the right and appropriate decision. For example if you want to score good marks in an exam, you study hard, take the help of teachers, friends, and parents and finally you score good marks. Thus problem solving is directed thinking focused towards dealing with a specific problem. This thinking has three elements: the problem, the goal, and the steps to reach the goal. There are two methods which are used prominently in problem solving. These are- "Means-end-analysis" and "Algorithms". In the case of Means-end-analysis a specific step-by-step procedure is followed for solving certain types of problems. In the case of 'heuristics' the individual is free to go for any kind of possible rules or ideas to reach the solution. It is also called rule of thumb.

How children think and learn?

Problem Solving and Mental Set: Sometimes we use a particular strategy/technique to solve a problem but we may or may not succeed in our effort to solve the problem. This creates a set to approach future problems that are incountered by a person. The set continues even if the problem is different. Despite this, we use the same strategy/ technique when ever we come across the same problem and again fail to reach the solution. Such phenomenon in problem solving is called mental set. A mental set is a tendency on the part of an individual to respond to a new problem in the same manner that he or she has used earlier to solve a problem. Previous success with a particular rule produces a kind of mental rigidity/fixedness/set, which hinders the process of generating new ideas to solve a new problem. A mental set inhibits or affects the quality of our mental activities. However, in solving our real life problems we often rely on past learning and experience with similar or related problems.

Steps for Solving Problems

- Defining the problem
- Working on the problem
- Coming to conclusion
- Carrying out the conclusion
- Learning.

Improving Problem Solving Skills in Childrens :

The range of teaching-and-learning activities in the classroom runs from memorization and repetition all the way to solving problems and thinking creatively.

Use blocks, Models, and other objects to teach mathematics, which taps into children's fine motor skills and their visual understanding;

Invite children to talk about (or write about) ideas and process in mathematics, Which links their verbal thinking to understanding mathematics concepts,

Ask children to draw pictures for the stories that we read to them, which connects their visual thinking to the words and events in the story; and

Guide children in making maps of the area around school, which links their experience of movement in space to visual and mathematical concepts. When children survey their community, identify problems within it, and use their skills cooperatively to suggest solutions to these problems, they are learning how to apply what they learn in school. A part from imparting good education, this process helps the community to understand the work of the school, and they may be more motivated to support the work of teachers.

For your classroom to be fully inclusive, you need to make sure that the curriculum is accessible to and relevant for all children in terms of what you teach (content), how you teach it, how the children learn best (process), and how it relates to the environment in which the children are living and learning.

CONCEPT OF LEARNING

Meaning and Definitions of learning

Learning, in psychology, the process by which a relatively lasting change in potential behaviour occurs because of practice or experience. Learning is also a process of acquiring modifications in existing knowledge, skills, habits, or tendencies through experience, practice, or exercise.

Gates and others —Learning is the modification of behaviour through experience‖

Henry, P Smith —Learning is the acquisition of new behaviour or strengthening or weakening of old behaviour as a result of experience‖.

Crow and Crow —Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things, and it operates in an individual's attempt to overcome obstacles or to adjust to new situations.‖

Skinner —Learning is the process of progressive behaviour adaptation.‖

Munn —To learn is to modify behaviour and experience.‖

M. L. Bigge —Learning may be considered as change in insights, behaviour, perception, motivation or a combination of these.‖

The above definitions emphasize four attributes of learning...

1. As Process: the first is that learning is permanent change in behaviour.
2. It does not include change due to illness, fatigue, maturation and use of intoxicant.
3. The learning is not directly observable but manifests in the activities of the individual.
4. Learning depends on practice and experience.

Nature of Learning:

- **Learning is adaptation or adjustment:** All persons continuously interact with their environment. We often make adjustment and adapt to our social environment. Through a process of continuous learning, the individual prepares himself for necessary adjustment or adaptation. That is why learning is also described as a process of progressive adjustment to ever changing conditions, which one encounters.

- **Learning is improvement:** Learning is often considered as a process of improvement with practice or training. We learn many things, which help us to improve our performance.

- **Learning is organizing experience:** Learning is not mere addition of knowledge. It is the reorganization of experience.

- **Learning brings behavioural changes:** Whatever the direction of the changes may be, learning brings progressive changes in the behaviour of an individual. That is why he is able to adjust to changing situations.

- **Learning is active:** Learning does not take place without a purpose and self-activity. In any teaching learning process, the activity of the learner counts more than the activity of a teacher.

- **Learning is goal directed:** When the aim and purpose of learning is clear, an individual learns immediately. It is the purpose or goal, which determines what, the learner sees in the learning situations and how he acts. If there is no purpose or goal, learning can hardly be seen.

- **Learning is universal and continuous:** All living creatures learn. Every moment the individual engages himself to learn more and more. Right from the birth of a child till the death, learning continues.

CHARACTERISTICS OF LEARNING

Yoakum & Simpson have stated the following general characteristics of learning: Learning is growth, adjustment, organisation of experience, purposeful, both individual and social product of the environment.

According to W.R McLaw learning has the following characteristics.

1. Learning is a continuous modification of behaviour which continues throughout life

- Learning is pervasive. It reaches into all aspects of human life.
- Learning involves the whole person, socially, emotionally & intellectually
- Learning is often a change in the organisation of behaviour.
- Learning is development. Time is one of its dimensions.
- Learning is responsive to incentives. In most cases positive incentives such as rewards are most effective than negative incentives such as punishments.
- Learning is always concerned with goals. These goals can be expressed in terms of observable behaviour.
- Interest & learning are positively related. The individual learns best those things, which he is interested in learning. Most boys find learning to play football easier than learning to add fractions.
- Learning depends on maturation and motivation.

THEORIES OF LEARNING: E.L Thorndike, Pavlov and B.F. Skinner

PROCESS OF LEARNING

Learning is a process. It is carried out through steps. Learning process involves –

- A motive or a drive.
- An attractive goal.
- A block to the attainment of the goal.

- **A motive or a drive:** Motive is the dynamic force that energizes behaviour and compels an individual to act. We do any activity because of our motives or our needs. When our need is strong, enough we are compelled to strive for its satisfaction. Learning takes place because of a response to some stimulation. As long as our present behaviour, knowledge, skill and performance are adequate to satisfy all our needs, we do not feel any necessity to change our behaviour or acquire new knowledge and skills. It is this requirement, which initiates a learner to learn something.

- **Goal:** Every individual has to set a definite goal for achievement. We should always have a definite goal for achieving anything. If a definite goal is set then learning becomes purposeful and interesting.

- **Obstacle /block /barrier:** The obstacle or block or the barrier is equally important in the process of learning. The obstacle or the barriers keep us away from attaining the goal.

Now, how can the obstacle be important in the process of learning? If one faces no difficulty of any kind in attaining the goal, he will not bring any change in his present behaviour or stock of knowledge or skills. Thus, the block or the barrier is an essential step in the learning process.

Consider an example. Suppose you wish to be included in your college hockey team. You want to have the esteem of your colleagues, your teachers. You are also motivated to try interesting experiences that you many enjoy. But you are blocked by your lack of skill in dodging, tackling and handling the ball. The obstacles in the path of goal achievement will set you make up your deficiency and acquire essential skill through sufficient practice and coaching.

THEORIES OF LEARNING

A **learning theory** is an attempt to describe how people and animals learn, thereby helping us understand the inherently complex process of learning. **Learning theories** have two chief values according to Hill (2002). One is in providing us with vocabulary and a conceptual framework for interpreting the examples of learning that we observe. The other is in suggesting where to look for solutions to practical problems. The theories do not give us solutions, but they do direct our attention to those variables that are crucial in finding solutions.

LEARNING: CONCEPT, NATURE, CHARACTERISTICS, PROCESS

The three main categories or philosophical frameworks under which learning theories fall are behavioural, cognitive, and constructivism. Behaviourism focuses only on the objectively observable aspects of learning. Cognitive theories look beyond behaviour to explain brain-based learning. In addition, constructivism views learning as a process in which the learner actively constructs or builds new ideas or concepts.

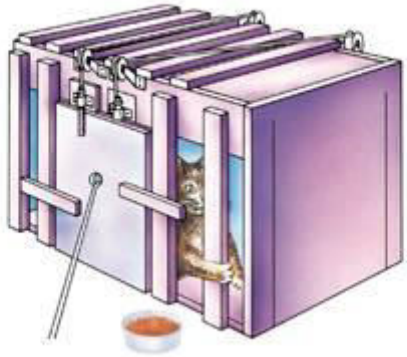
E.L Thorndike- Trial and Error Theory of Learning:

Edward Lee Thorndike (1874-1949) was the first American psychologist who put forward the Trial and Error Theory of learning. According to Thorndike, all learning takes place because of formation of bond or connection between stimulus and response. He further says that learning takes place through a process of approximation and correction. A person makes a number of trials, some responses do not give satisfaction to the individual but he goes on making further trials until he gets satisfactory responses. Thorndike

conducted a number of experiments on animals to explain the process of learning. His most widely quoted experiment
is with a cat placed in a puzzle box.

Thorndike put a hungry cat in a puzzle box. The box had one door, which could be opened by manipulating a latch of the door. A fish was placed outside the box. The cat being hungry had the motivation of eating fish outside the box. However, the obstacle was the latch on the door. The cat made random movements inside the box indicating trial and error type of behaviour biting at the box, scratching the box, walking around, pulling and jumping etc. to come out to get the food. Now in the course of her movements, the latch was manipulated accidently and the cat came out to get the food. Over a series of successive trials, the cat took shorter and shorter time, committed less number of errors, and was in a position to manipulate the latch as soon as it was put in the box and learnt the art of opening the door.

Thorndike Puzzle Box



Thorndike concluded that it was only after many random trials that the cat was able to hit upon the solutions. He named it as Trial and Error Learning. An analysis of the learning behaviour of the cat in the box shows that besides trial and error, the principles of goal, motivation, explanation and reinforcement are involved in the process of learning by Trial and Error.

The Laws of Thorndike

Laws of Learning

Based on Trial and Error Learning Theory, Thorndike gave certain laws of Learning. We shall discuss three fundamental Laws of Learning in this section. These laws are:

1. Law of Readiness

This law refers to the fact that learning takes place only when the learner is prepared to learn. No amount of efforts can make the child learn if the child

is not ready to learn. The dictum that you can lead a horse to the pond but you can't make it drink water unless it feels thirsty' goes very well with this law. In other words, if the child is ready to learn, he/she learns more quickly, effectively and with greater satisfaction than if he/she is not ready to learn. In the words of Thorndike the three stages of this Law of Readiness are :

For a conduction unit ready to conduct, to conduct is satisfying.
For a conduction unit ready to conduct, not to conduct is annoying.
For a conduction unit not ready to conduct, to conduct is annoying.

Thus, the Law of Readiness means mental preparation for action. It is not to force the child to learn if he is not ready. Learning failures are the result of forcing the learner to learn when he is not ready to learn something.

2. Law of Exercise

This law explains the role of practice in learning. According to this law, learning becomes efficient through practice or exercise. The dictum _Practice makes a man perfect' goes very well with this law. This law is further split into two parts — Law of use and Law of disuse. The law of use means that a connection between a stimulus and response is strengthened by its occurrence, its exercise or its use. In other words, the use of any response strengthens it, and makes it more prompt, easy and certain. Regarding the law of disuse, it is said that when a modifiable connection is not made between a stimulus and a response over a length of time, the strength of that connection is decreased. This means that any act that is not practiced for some time gradually decays. Anything that is not used exercised or practiced for a certain period tends to be forgotten or becomes weak in strength, efficiency and promptness.

3. Law of Effect

This is most important of Thorndike's laws, which state that when a connection between stimulus and response is accompanied by satisfying state, its strength is increased. On the other hand, when a connection is accompanied by an annoying state of affairs, its strength is reduced or weakened. The saying _nothing succeeds like success' goes very well with this law. In other words, the responses that produce satisfaction or comfort for the learner are strengthened and responses that produce annoyance or discomfort for the learner are weakened. Thorndike revised this law in 1930 and according to this revision, he stated that reward strengthened the response but punishment did not always weaken the response. Then he placed more emphasis on the reward aspect than on the punishment aspect of Law of Effect.

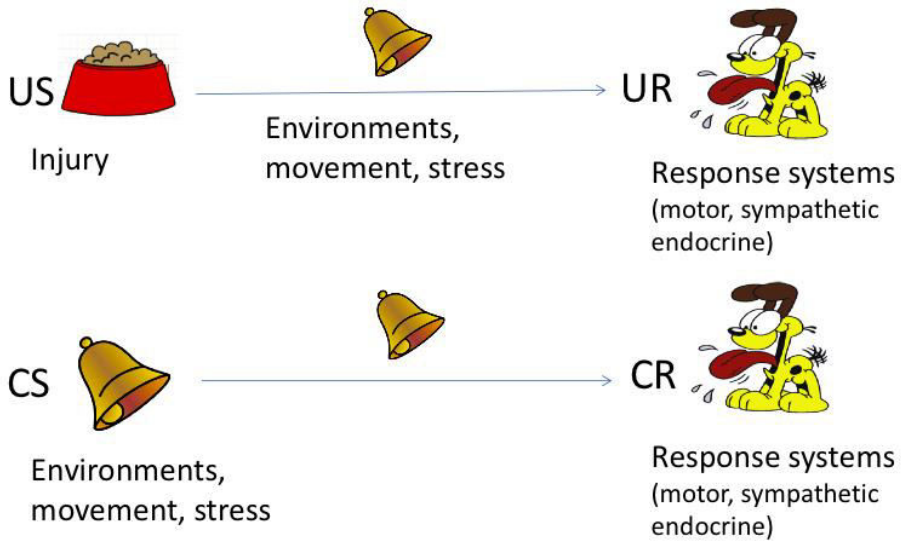
PAVLOV's CLASSICAL CONDITIONING (1849-1936)

Classical conditioning is a term used to describe learning which has been acquired through experience. One of the best-known examples of classical conditioning can be found with the Russian

psychologist Ivan Pavlov and his experiments on dogs.
In these experiments, Pavlov trained his dogs to salivate when they heard a bell ring. In order to do this he first showed them food, the sight of which caused them to salivate.

Later Pavlov would ring a bell every time he would bring the food out, until eventually, he could get the dogs to salivate just by ringing the bell and without giving the dogs any food.

In this simple but ingenious experiment, Pavlov showed how a reflex (salivation, a natural bodily response) could become conditioned (modified) to an external stimulus (the bell) thereby creating a conditioned reflex/response.



Basic concepts in classical conditioning:
There are several principles that are associated with classical conditioning, some of these are:

Extinction: a conditioned response will disappear over time when the conditioned stimulus is no longer presented.
Spontaneous recovery: sometimes there is the weak appearance of a previously extinguished response.
Stimulus generalization: This is when individuals respond in the same way to experienced stimuli. For example, all fuzzy animals scaring a young child instead of just a fuzzy cat.
Stimulus discrimination: Organisms can learn to discriminate between various stimuli.
Higher order conditioning: This is when a neutral stimulus can cause the conditioned response sense if it had been associated with the conditioned stimulus.

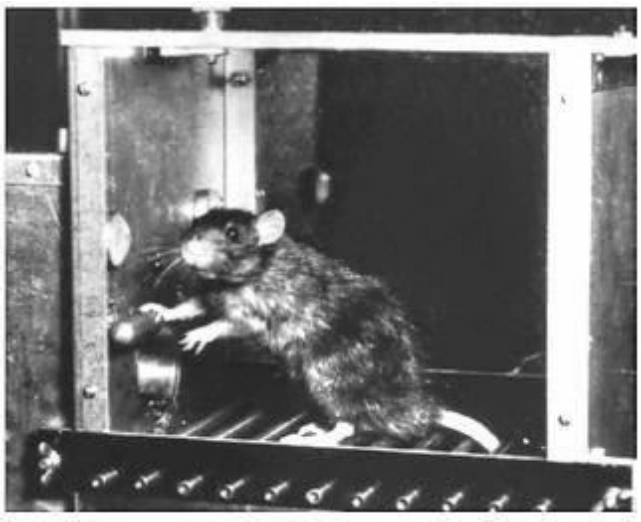
Implications of Pavlov's Theory to Classroom Situations

- The theory believed that one must be able to practice and master a task effectively before embarking on another one. This means that a student needs to be able to respond to a particular stimulus (information) before he/she can be associated with a new one.
- Teachers should know how to motivate their students to learn. They should be versatile with various strategies that can enhance effective participation of the students in the teaching- learning activities.
- Most of the emotional responses can be learned through classical conditioning. A negative or positive response comes through the stimulus being paired with. For example, providing the necessary school material for primary school pupils will develop good feelings about school and learning in them, while, punishment will discourage them from attending the school.

B.F. Skinner Theory of Instrumental or Operant Conditioning

Instrumental conditioning theory of learning was formulated by B.F. Skinner. Who was an American Psychologist. His theory came based on the lapses discovered in the classical conditioning theory. Skinner believed that classical conditioning explained only how behaviour that has already been acquired can occur in the presence of a new stimulus (Iversen, 1992). Operant or instrumental conditioning, however, believed that most learning consist of acquiring new behaviour. He believed that behaviour is an outcome of response that follows the action. The learner will possibly repeat the action or a particularbehaviour if it is followed/ rewarded with a pleasant consequence (positive reinforcement).

Skinner explained the two types of responses in his theory. One can be elicited only by the stimulus or information an individual acquires at a particular period (reflex response). For example, stepping on a sharp object or touching a hot metal will originally make someone to produce reflex response. The second type is the response that an individual elicits following his/her own decision. This type of response is called operant conditioning. It is based on the fact that behaviour operates upon the environment to generate its own response. This operant behaviour emits voluntary response. Operant conditioning believes that behavioural responses become connected to environmental stimuli largely as a result of what happens after the response occurs.



To establish his claims, Skinner performed many experiments with pigeons and white rats in the laboratory. He constructed a box (Skinner box) with a small lever inside it. The lever releases food to the animals whenever the lever is pressed. In one of the experiments, an hungry rat is placed in the box and if the rat presses the lever, the food would drop for it. The lever in this box is mechanically connected to a device that automatically records every attempt the rat made. In the box the rat moved around tirelessly and each time the lever is pressed, the food falls for the rat. The rat becomes persistent in pressing the lever so that the food could fall. The food that comes down for the rat reinforces its action, this lever pressing becomes a conditioned response for the rat. In contrast, if the food is not accompanied with the pressing of lever, the number of presses would fall gradually to the lowest point. In this type of theory, it is the result or consequence of a behaviour that makes that behaviour more likely to be repeated on learned. If the result of behaviour is gratifying, one is likely to respond the same way the next time one encounters that stimulus. In the above experiment, the pressing of lever becomes instrument (instrumental).

Skinner in this theory identified the two types of reinforcers, they arepositive and negative reinforcers. The stimulus that occurs after a response is called a reinforcer. Giving a pleasant or complimentary remark to a student for scoring a good mark in an assignment or homework is a positive reinforcer. By this action, it is likely that such a student will want to continue doing his/her assignment promptly. However, the student who receives punishment for misbehaving in the classroom is not likely to repeat the action for which he/she has received unpleasant/negative reward.

GESTALT THEORY

Classroom Implications of Instrumental/Operant Conditioning Theory

The teacher should know that the environment or the conditions in which the students learn are very significant to the learning outcomes, hence, the teacher should provide conducive learning environment and conditions for his/her students.

1. Reinforcement is an essential factor if the students must perform well in a given task. To this end, the teacher should not neglect the use of motivation that can adequately propel the students into actions.
2. If a student engages in a disruptive behaviour, the teacher should not reinforce such a behaviour rather, he/she should endeavour to tell such a student the dare consequence of that action.
3. When there is interference in the transfer of experiences by the learners, the teacher may use explanations and reinforcement to strengthen the desired facts and weaken the undesired one.

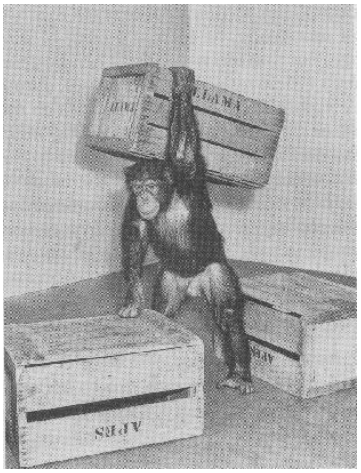
Gestalt Theory

Cognitive Field or Gestalt theory was formulated by a group of German Psychologists. The theory emphasizes insightful learning rather than mechanical conditioning. It is believed that meaningful learning can only take place through a sequence of problem-solving approach. In this theory you will learn how learning takes place through the application of logical principles and previous experience.
The word Gestalt in German literally means **"shape" or "figure".** Gestaltists performed many researches on perception and human learning. They believed learning is the result from good perception, which enable an individual to form correct concept in their mind
The views of many theorists were collected by Gestalt to formulate a cognitive field theory. Notable among them were Max Wertheimer, Kurt Koffka, and Wolfgang Kohler. Gestalt in German language means "organization or fusion". This theory rejected the views that consider the learning process in an isolated form rather than in a total or holistic form. The theory does not support associating bits of experiences as postulated in the stimulus-response theories. This theory is of the opinion that parts are configured or organized to make complete or meaningful experiences or impressions. The emphasis here is on the importance of experience, meaning, problem solving and the development of insights (Burns 1995). The Gestalt therefore placed more credence on insightful learning rather than trial and error like that of Thorndike or mechanical conditioning as performed by Ivan Pavlov in his classical conditioning theory.

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

To establish this fact, Gestalt Psychologists performed several experiments using apes as subjects. In one of the experiments, an ape (Sultan) was put in a cage. This sultan was very intelligent. In the cage
was a stool and banana, hung on the top of the box. Initially, several unsuccessful attempts were made by the apes to get the banana. Suddenly, sultan decided to pull out the stool and climbed it to pluck the banana from

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



Another experiment was performed with several apes including sultan, put in the box with a banana and a stick lying outside the cage. Several experimental apes stretched their hands to pick the banana from outside but were unsuccessful. The brilliant one among them (sultan) devised a solution by picking the stick outside first and using it to draw the banana closer until its hand touched the banana.

The last experiment performed by Kohler on this insightful learning, was an extension of the second experiment. In this case, the apes were put in the cage; banana and two sticks (long and short) were lying outside. None of these two sticks could get to the banana unless by joining them together. The apes in the box made series of attempts to rake in the banana with the two sticks separately without succeeding. It was sultan who later manipulated and fixed the two sticks together before it could finally collect the banana. All these experiments indicated that learning cannot take place in a segregated way but in a complete form.

Insightful learning therefore adopts the following strategies in learning:
(a) identify and define the problem or task;
(b) formulate the hypotheses;
(c) come out with different solutions;
(d) select /implement the viable solution; and
(e) evaluate / appraise the selected solution or revisit the problem.

Classroom Implications of Gestalt Theory

1. This theory has developed the concept that learners have different needs and concerns at different times, and that they have subjective interpretations in different contexts (Burns, 1995).
2. The teacher should realize the importance of instructional aids during teaching–learning activities, hence he/she should make use of teaching aids for a meaningful learning in the classroom.

3. The teacher should make his/her teaching more participatory to the students. It is on this basis that the teacher will be able to discover the hidden talents in his/her students.
4. If the classroom experiences of the students are related, students will be able to transfer the gained experience into future learning. This will then promote inter relatedness.
5. The teacher should not neglect the use of motivational strategies in teaching –learning activities. This reinforcement will stimulate the efforts of the students in the classroom.

PERSONAL FACTORS INFLUENCING LEARNING

The process of learning is influenced by a variety of personal factors. A thorough knowledge of these factors will prove very helpful for teachers and parents in understanding and guiding their children's learning. Some of the personal factors that influence the learning process can be classified as under- sensation and perception, fatigue and boredom, maturation, emotional condition, needs, interests, motivation. attention. intelligence. aptitude. attitude. etc.

Sensation and Perception

Apart from the general health of the students, sensation and perception are the psychological factors which help in learning. Sensation is at the core of perception. There are five sense organs i.e., skin, ears, tongue, eyes and nose. These sense organs are the gateways of knowledge and help in perception of various stimuli in the environment. Any defect in any of the sense organs will affect learning and hence acquisition of knowledge.

Fatigue and Boredom

The difference between the two is that fatigue is mental or physical tiredness which decreases in efficiency and competency to work. Boredom, on the other hand. is a lack of desire or an aversion. to work. Such an aversion makes one feel fatigued without being actually fatigued. Studying seldom causes fatigue. It is mainly boredom which, besides causing the impression of fatigue, decreases student efficiency in learning.

Age and Maturation

Leaning is directly dependent upon age and maturation. No learning can take place unless individual is matured enough to learn. Some children can learn better at earlier age while others take more time to learn the same content.

Emotional Conditions

Desirable emotional conditions enhance the quality and speed of learning. Happiness, joy and satisfaction are always favorable for any type of learning. Adverse emotional conditions, on the other hand, hinder learning. Many

studies have established the fact that emotional strain, stress. tensions, disturbances, etc., are extremely inimical to scholastic pursuits.

Needs

A need is the lack of something which, if provided, would facilitate child's usual behaviour. The lack of something is experienced by the child. The child then tries to perform that activity which culminates in the satisfaction of the need. Thus, the needs are associated with goals. Among human beings, the needs are relatively permanent tendencies which seek satisfaction in achieving certain specific goals. When these goals are achieved, the particular need is satisfied or met for the time being, but it recurs sooner or later and energises further activity.

Interests

Various types of interests of the students can be exploited to facilitate their learning. The interests during early infancy are mostly limited and short lived. As the child grows older his interests diversify and stabilize. You, a school teacher, should have thorough knowledge of children·s interests. You cari eliminate much drudgery, monotony and boredom from the school work if you make your instruction lively and stimulating and arouse student interest in it.

Once the students· interest is aroused in an activity you should ex-pend more effort on it. No

learning can be achieved without proper expenditure of effort on it.

Motivation

Motivation is the heart of the learning process. It generates the will in an individual to do something. Adequate motivation not only engages the student in an activity which results in learning, but also sustains and directs learning. Two types of motivation are commonly recognised. These are : intrinsic and extrinsic motivation.

Intrinsic motivation arises when the resolution of tension is to be found in mastering the learning task itself: the material learned provides its own reward. For example, the student who studies the construction of model aeroplanes diligently so that he can make a model. is experiencing a kind of intrinsic motivation.

Extrinsic motivation occurs when a student pursues a learning task, but for reasons" which arc external. If a student engages in construction of model aeroplanes because he thinks it will please his father, who is an ex-pilot rather than because of intrinsic motivation.

Intelligence

Intelligence as expressed by an I.Q.'score on an intelligence test is positively related to learning Generally, students with higher I.Q. learn rapidly. However_ higher I.Q. in itself is no guarantee for rapid learning, since other

factors such as needs. interest motivation. etc.. of the students and the methods used for learning arc also important.

Aptitude

A student who possesses appropriate aptitude for a particular subject of study or skill will learn better and retain it for a longer time. On the other hand: he will require relatively longer time to study a subject for which he lacks natural aptitude. He is liable to forget it soon besides feeling bored and unhappy all the time while learning it. Hence it is extremely desirable to analyse the aptitude of students before prescribed courses of study for them.

Attitude

The learning process is also influenced considerably by the attitude of the student. If he is alert. attentive and interested in the material to be learnt he is bound to have a favourable attitude towards it.

ENVIRONMENTAL FACTORS INFLUENCING LEARNING

Environmental influences begin since the time of the conception or the child in the womb or the mother. Mother's mental, physical and emotional conditions influence the development of foetus in the womb. The external enviromncnt starts from the time of birth of the child. (external environment) refers to the surroundings which prevail in home. school and locality. At these places, the child interacts with members of the family, teachers. classmates or peers and neighbours and establishes relationship with them. The relationship with the members of the society, and the surroundings may affect the development of the child and also the way he learns. Some of the environmental factors arc discussed as follows:

Surroundings : Natural, Social and Cultural

As the title of the sub-section indicates, we shall discuss here natural. social and Cultural environment the child interacts with and get influenced. Natural surrounding covers the climatic and atmospheric condition. These conditions affect learning directly. It has been found that high temperature and humidity reduces mental efficiency. For a limited time, humidity and high temperature can be tolerated but prolonged humidity and high temperature become unbearable and decrease mental efficiency .

Social surrounding includes especially the environment of home. school and locality Physical conditions at home such as large family, small family, insufficient ventilation, improper lighting, uncomfortable temperature, noisy home environment due to use of radio, TV, etc .. noisy neighbourhood, constant visits by friends or relatives, etc., influence the intellectual learning of the student.

Cultural demands and social expectations also influence learning. The spirit of culture is reflected in its social and educational institutions. Children's learning, therefore, is greatly determined by the demands and expectations of their culture.

Relationship with Teachers, Parents and Peers

The teacher is an important constituent in the instructional process. She/he plays an important role in shaping the behaviour of students. The way he teaches and manages the students has an effect on their learning.
Relationship with parents plays a vital role in the learning process of the student. If the child-parents relationship is based on mutual respect and faith, it can provide the child a congenial atmosphere which in turn can facilitate his/her learning. A distorted and unhealthy environment, on the other hand, adversely affects the learning of the student.

A healthy peer group relationship also plays an important role in Learning, Student-student relationship in the classroom, school, society, etc., create a particular type of emotional climate. The climate solely depends upon their relationships. A sound relationships provides a tension free environment to the student to learn more and to compete in the class. If the relationship among peers is not good, it adversely affects their learning.

Media Influence on Learning

Media has been considered an important component of transmitting information. Media can be divided into two broad categories - print and non-print media. Print media refers to texts or printed materials. It is economical and has traditionally been used for pedagogical purposes.

Motivation:

Motivation is one of the most frequently used words in psychology. It refers to the factors which move or activate the organism. We infer the presence of motivation when we see that people work toward certain goals. For example, we might observe that a student works hard at almost every task that comes to him/her; from this we infer that the person has motive to achieve.

All human behaviour appears to arise in response to some form of internal (physiological) or external (environmental) stimulation. The behaviours, however, are not random. They often involve some purpose or goal. It is often held that behaviours take place as a result of the arousal of certain motives. Thus motivation can be defined as the process of activating, maintaining and directing behaviour towards a particular goal. The process is usually terminated once the desired goal is attained by the person.

The process of initiating action is technically called ‘motivation’. Directing behaviour towards certain goal is the essence of motivation. Motivation is not always directly observable. It is inferred and used to explain behaviour.

When we ask "What motivates a person to do a particular task?" We usually mean why does she behave as she does. In other words, motivation, as popularly used, refers to the cause or why of behaviour.

Interestingly, we are not aware of all our motives. Behaviour can be governed by unconscious motives too. If our understanding of motives is correct, we have a powerful tool for explaining behaviour. We explain our everyday behaviour in terms of various motives.

Motives also help us make predictions about behaviour. We may tell what a person will do in future. Motives may not tell exactly what will happen but they give us an idea about the range of activities a person will do. Thus a person with a need to achieve in academics will work hard in school, an individual with a strong need to excel in sports will put in a lot of hard work in that field; similarly in business and in many other situations.

Types of Motivation

There are two types of motivation or arousals. They can either be internally or externally driven. The desire for food or sex arises from within us (intrinsic), while the yearning to obtain recognition or approval is influenced by the conditions in our environment (extrinsic). In view of the above explanation, motivation is divided into intrinsic and extrinsic.

1. Intrinsic Motivation:

Is an internal force or motive within the individual which propels him/her into emitting certain behaviour. It is an innate or genetically predetermined disposition to behave in a particular way when he/she faces a particular situation. This type of motivation can make an individual to have the feelings of self- confidence and competence (Deci and Ryan, 1985). A student who is intrinsically motivated may carry out a task because of the enjoyment he/she derives from such a task. In another way, a dog that sees a bone and runs for it, did that because of the satisfaction it derives from eating bone. This type of behaviour does not require any prior learning. Sighting the bone changes the behaviour of the dog and propels it to act.

2. Extrinsic Motivation:

Is the external or environmental factor, which sets the individual's behaviour into motion. The incentive/reinforcer drives an individual's behaviour towards a goal. A student who is extrinsically motivated, will execute an action in order to obtain some reward or avoid some sanctions. For example, a student who studied hard for the examination did so because of the desire to obtain better grade. The case also goes for a runner who wants to win a prize, he/she will need constant practice than a person who wants to run for the fun of it. Extrinsic rewards should be used with caution because they have the potential for decreasing intrinsic motivation.

For example extrinsic incentive may spur a student to actively participate in the task for which the student has no interest, but may undermine intrinsic and continuing motivation in him/her (Deci et al, 1985). Therefore, students‘ motivation automatically has to do with the students‘ desire to participate in the learning process. It also concerns the reasons or goals that underlie their involvement
or non-involvement in academic activities.

KEY CONCEPTS OF MOTIVATION

There are certain terms which you will commonly come across when you learn this lesson on motivation such as needs, goals, incentives etc. Let us understand some of these concepts.

(a) Needs and Motives

A need is a condition of lack or deficit of something required by the organism.In order to maintain homeostasis or balance the organism finds it necessary to satisfy the needs.

The needs are of different types. The need for food or water is a physiological need, which arises out of lack or deficit of food or water in the organism. The needs for excretion and urination are also physiological needs. They are due to the organism’s necessity to eliminate waste matter from the body. The need for contact with other persons is a social need. The other social needs include need for prestige, status, affection, self-esteem, and so on. A person becomes more aware of his needs when they are not fulfilled. In other words, when you are hungry, you need food, and, when you are thirsty you need water. In these cases you are in a state of deprivation and your bodily system suffers from some kind of imbalance.

The needs may be broadly categorised as, **primary or physiological needs** and **secondary or social needs**. Needs for food, water, sex, sleep and rest, and elimination are primary needs. Needs for achievement, affiliation, power are examples of social needs.
The term ‘motive’ refers to goal directed behaviour and energising conditions within the organism that drive behaviour. It is generally used to refer to certain conditions which, besides arousing, predispose a person to respond, or behave in a way appropriate to that motive. Motives direct the activity of the individual
towards person’s goals.

(b) Goals

Thinking about the goal motivates a person to organize his or her action. If hunger is a need, eating food is a goal. Thus goal is related to the need state. However, in certain cases, behaviour is also guided by intrinsic goals. It means behaviour does not always need external goal. It may be satisfying and enjoyable in itself. Some people may like to sing, dance or play just for the sake of singing, dancing or playing. They like such activities. Thus goals can be intrinsic or extrinsic.

(c) Incentives

Incentives refers to the goal objects which satisfy the needs. Incentives vary in quality and quantity which make them less or more satisfying and attractive. Thus one can put in greater amount of effort to attain a more attractive incentive. As a matter of fact many incentives assume considerable significance in the lives of people and they do every thing possible to attain those incentives.

(d) Instincts

Instinct is an old concept in the field of motivation. It is defined as an innate biological force that predisposes the organism to act in a certain way. At one time all behaviours were supposed to be results of certain instincts. Some of the instincts identified by early psychologists are fight, repulsion, curiosity, self abasement, acquisition etc. It was thought that instincts were inherited and compelling sources of conduct, but can be modified by learning and experience. This term is no more used in relation to human behaviour. Animal behaviour is sometimes explained using this term. In current usage 'instinct' is reserved for innate response tendencies found among animals.

Motivation and Learning

Motivation has several effects on students' learning and behavior.

1. Motivation directs behavior toward particular goals. Motivation determines the specific goals toward which learners strive. Thus, it affects the choices students make—for instance, whether to enroll in physics or studio art, whether to spend an evening completing a challenging homework assignment or playing videogames with friends.
2. Motivation leads to increased effort and energy. Motivation increases the amount of effort and energy that learners expend in activities directly related to their needs and goals. It determines whether they pursue a task enthusiastically and wholeheartedly or apathetically and lackadaisically.
3. Motivation increases initiation of and persistence in activities.Learners are more likely to begin a task they actually want to do. They are also more likely to continue working at it until they've completed it, even if they are occasionally interrupted or frustrated in the process. In general, then, motivation increases students' time on task, an important factor affecting their learning and achievement .
4. Motivation affects cognitive processes. Motivation affects what learners pay attention to and how effectively they process it. For instance, motivated learners often make a concerted effort to truly understand classroom material—to learn it meaningfully—and consider how they might use it in their own lives.
5. Motivation determines which consequences are reinforcing and punishing. The more learners are motivated to achieve academic

success, the more they will be proud of an A and upset by a low grade. The more learners want to be accepted and respected by peers, the more they will value membership in the "in" group and be distressed by the ridicule of classmates. To a teenage boy uninterested in athletics, making or not making the school football team is no big deal, but to a teen whose life revolves around football, making or not making the team may be a consequence of monumental importance.

6. Motivation often enhances performance. Because of the other effects just identified—goal-directed behavior, effort and energy, initiation and persistence, cognitive processing, and the impact of consequences—motivation often leads to improved performance. As you might guess, then, students who are most motivated to learn and excel in classroom activities tend to be our highest achievers. Conversely, students who have little interest in academic achievement are at high risk for dropping out before they graduate from high school.

Cognition

The term cognition is used in several loosely related ways to refer to a faculty for the human-like processing of information, applying knowledge and changing preferences. Cognition or cognitive processes can be natural and artificial, conscious and not conscious; therefore, they are analyzed from different perspectives and in different contexts, in anesthesia, neurology, psychology, philosophy, systemics and computer science.

The concept of cognition is closely related to such abstract concepts as mind, reasoning, perception, intelligence, learning, and many others that describe numerous capabilities of human mind and expected properties of artificial or synthetic intelligence.

Cognition is an abstract property of advanced living organisms; therefore, it is studied as a direct property of a brain or of an abstract mind on subsymbolic and symbolic levels.

In psychology and in artificial intelligence, it is used to refer to the mental functions, mental processes and states of intelligent entities (humans, human organizations, highly autonomous robots), with a particular focus toward the study of such mental processes as comprehension, inferencing, decision-making, planning and learning (see also cognitive science and cognitivism).

Recently, advanced cognitive researchers have been especially focused on the capacities of abstraction, generalization, concretization/specialization and meta-reasoning which descriptions involve such concepts as beliefs, knowledge, desires, preferences and intentions of intelligent individuals/objects/agents/systems.

The term "cognition" is also used in a wider sense to mean the act of knowing or knowledge, and may be interpreted in a social or cultural sense to describe the emergent development of knowledge and concepts within a group that culminate in both thought and action.

Emotion

The term 'emotion' is derived from the Latin word 'emovere' which means to stirup, agitate, excite or move. Emotions are generally referred to as a stirred up condition involving subjective experience and affective reactions. They may be pleasant or unpleasant. Pleasant emotions are the sources of joy whereas unpleasant emotions are related to disturbing mental states like aggression, fear, anxiety etc.
Each emotion has three basic aspects.

- **Cognitive aspect:** It involves thoughts, beliefs and expectations that are involved when we experience emotions. For example – your friend may find a novel rich in descriptions of people and places whereas you may find it unrealistic.
- **Physiological aspect:** It involves physiological activation. When you experience emotions such as fear or anger, you experience an increase in pulse rate, blood pressure and respiration. You may also perspire.
- **Behavioural aspect:** It includes various forms of emotional expressions. If you observe your father or mother during anger and happiness you will notice that facial expressions, bodily postures and tone of voice vary with anger, joy and other emotions.

DIMENSIONS AND DEVELOPMENT OF EMOTIONS

Recent studies across different cultures have shown that emotions can be placed along two dimensions i.e., *Arousal* and *Valence*. Thus one can have high or low degree of arousal and positive or negative (e.g. pleasant vs. unpleasant) emotional experience.
Although the general ability to respond emotionally is present at birth, emotional development is due to maturation and learning. Infants show emotional responses like crying, smiling etc. With the growth of imagination and understanding a child is able to differentiate family members from strangers and the fear of strangers develops.

Children learn to express their emotions by imitating their parents, siblings and other family members. For example the expressions of anger and happiness are frequently observed in social interactions and a child starts expressing them. The role of learning in emotional development becomes clear if we notice emotional expressions peculiar to some cultures. For example in Indian culture, fathers don't show their affection openly to children because its not welcomed in society whereas there are no such

inhibitions in Western culture. Learning is responsible for conditioning of fear of darkness, lightening, certain animals or objects.

Certain Important Features of Emotions

- You will experience an emotion when any of your basic needs are not satisfied or challenged.You also experience positive emotion on satisfaction of a need.
- Under the influence of an emotion you experience physiological changes such as facial expressions, gestures, change in the rhythm of the heartbeat, blood pressure, and breathing pattern.
- Your thinking, reasoning, memory and other psychological functions are affected by emotions.
- During an emotional state tremendous amount of energy is released which helps facing critical situations. For example if a dog runs after you, you run at a much higher speed than the normal speed.
- Both maturation and learning play an important role in development and expression of emotions.
- When you have pleasant emotional experiences you will be in a happy, good or positive mood. In contrast, unpleasant emotional experiences would lead to sad or negative moods.

The experience of emotion can first increase your performance to some extent but if heightened and prolonged it will decrease the level of performance

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