

PREFACE

In a bid to standardise higher education in the country, the University Grants Commission (UGC) has introduced Choice Based Credit System (CBCS) based on five types of courses: Core, Generic, Discipline specific elective, and Ability/Skill enhancement for graduate students of all programmes at Elective/Honours level. This brings in the semester pattern, which finds efficacy in tandem with credit system, credit transfer, comprehensive and continuous assessments and a graded pattern of evaluation. The objective is to offer learners ample flexibility to choose from a wide gamut of courses, as also to provide them lateral mobility between various educational institutions in the country where they can carry the acquired credits. I am happy to note that the University has been recently accredited by National Assessment and Accreditation Council of India (NAAC) with grade “A”.

UGC Open and Distance Learning (ODL) Regulations, 2017 have mandated compliance with CBCS for U.G. programmes for all the HEIs in this mode. Welcoming this paradigm shift in higher education, Netaji Subhas Open University (NSOU) has resolved to adopt CBCS from the academic session 2021-22 at the Under Graduate Degree Programme level. The present syllabus, framed in the spirit of syllabi recommended by UGC, lays due stress on all aspects envisaged in the curricular framework of the apex body on higher education. It will be imparted to learners over the six semesters of the Programme.

Self-Learning Materials (SLMs) are the mainstay of Student Support Services (SSS) of an Open University. From a logistic point of view, NSOU has embarked upon CBCS presently with SLMs in English. Eventually, these will be translated into Bengali too, for the benefit of learners. As always, we have requisitioned the services of the best academics in each domain for the preparation of new SLMs, and I am sure they will be of commendable academic support. We look forward to proactive feedback from all stake-holders who will participate in the teaching-learning of these study materials. It has been a very challenging task well executed, and I congratulate all concerned in the preparation of these SLMs.

I wish the venture a grand success.

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Vice-Chancellor

Netaji Subhas Open University
Under Graduate Degree Programme
Choice Based Credit System (CBCS)
Subject: Honours in Education (HED)
Course: Child Development and Approaches to Pedagogy
Course Code: GE-ED-31

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**Netaji Subhas
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**UG : Education
(HED)**

**Course: Child Development and Approaches to Pedagogy
Course Code: GE-ED-31**

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Module -I
CHILD DEVELOPMENT

Unit-1 □ The Child

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1.1 Objectives

After completing this unit you will be able to—

- Understand the concept of child development;
- Explain the nature of child development;
- Describe the significance of child development;
- Apply the principles of child development;

- Explain the concept of socialization of the child;
- Understand the process of socialization of a child;
- Describe the importance of socialization for a child;
- Understand Erickson's theory of Psycho-social development.

1.2 Introduction

All the living things of this dynamic planet are continuously changing their forms both quantitatively and qualitatively. Living organisms are different from non-living things as they pass through a specific complex cycle of life. All living organisms including humans too are dynamic and ever-changing. The changes in human being are mainly due to biological and psychological factors and partly due to the personal choices and incidents that may happen in one's life due to chance. Changes in human life start right from the birth. Changes that are visible and quantitative are generally referred to as growth like increase in height, weight, shape and expansion of vocabulary etc. In contrast, the comprehensive changes in a human that are both quantitative and qualitative are referred to as development. The development includes both biological, emotional, and psychological changes that occur in a human from birth to the end of life, so it is a lifelong process though its rate may vary at different stages of life depending on various elements. Development is controlled and supported by many factors like genetic, environment, social interaction, learning etc.

In this unit, we are going to understand the concept of child development as it passes through different stages of life. Then we will explore the nature of child development and its significance. Since it has been found that development follows a systematic and sequential pattern so there are some guiding principles behind the development of child which are also discussed in this unit. It is important to understand that we the human are social beings and thus a human child develops more appropriately in a supportive social setting. The interaction of child and society during the process of development is discussed at the end of this unit under the concept and process of socialization of child. We will also learn the importance of socialization and the principle of social development.

1.3 Child Development: Concept, Nature and Significance

1.3.1 Concept of Child Development

The life of a human starts from the womb of the mother, after birth a human passes through five different stages of development: infancy, childhood, adolescence, adulthood,

and old age. All these stages are marked by certain approximate years of age but one should be very clear here that these age demarcations are hypothetical as there is no very clear separation between the two consecutive stages. During all these developmental stages human beings acquire different physical, behavioural, emotional, and personality characteristics the qualitative sum of which is known as development.

If we focus on the childhood stage of the human then it has two sub-stages: pre-childhood, which ranges from 3 years to 6 years of age and later-childhood that ranges from 7 years to 12 years. The next stage of human development is adolescence, which ranges from 13 years to 19 years. Before childhood comes infancy that ranges from birth to 2 years of age. Childhood development involves all the physiological, emotional, moral, social, and psychological changes that occur in a human child from birth till the conclusion of adolescence so it roughly covers the range of age from birth to 18 years. Studying child development seeks to explore, understand, and explain how and why human changes from birth to the end of adolescence. A study of a child's development examines how the motor skills of child changes and how the child's other physiological changes are related to the social environment, emotional expressions, cognitive abilities, personality traits etc. Development in human is a lifelong process but not uniformly continuous, it is somewhat non-uniform that means at some stage of life the development may get accelerated and at some point, it may slow down then again may raise at later stages of life. Child development is characterized by a very high degree of changes in life as compared to any other stages which may be attributed to the rapid physical, cognitive, and affective changes associated with childhood and adolescence.

1.3.2 Nature of Child Development

The nature of child development presupposes that development is a continuous process. This continuity is governed by principles and laws that are valid for all the stages of the ongoing growth process. All the developmental changes that happen in one stage of human development is related to the other prior stages as two consecutive stages are being overlapped with no strictly distinct boundaries. Child development is progressive that never goes in a backward direction but the developmental progress path is not linear, it is rather spiral in nature. At any particular stage of child development, there is likely to be a period where instead of new development the already acquired developmental traits get consolidated for some time then the process again get progressed upward in a spiral manner to facilitate new developments based on previously achieved ones.

Child development comes under human psychology and thus is a part of developing

positive science. It is called 'developing positive science' because unlike developed positive science like mathematics, physics, biology, chemistry etc. here the observations, findings and interpretations are not objective or absolute. The development in a child to some extent varies from children to children, the observations and characteristics of development are subjective in nature. For example, the way a child socializes with the family and then with the peers cannot be measured and studied experimentally, it can only be observed in a naturalistic way. The way a child develop values, ethics, assimilates cultural values, develop emotions are very subjective and depends on the environment that occur naturally in uncontrolled conditions. It is undesirable to develop emotions in children forcefully, instead we must provide the proper environment to help them to inculcate positive emotions. Only in case of the development of negative emotions among children, we must intervene ethically to cease it. Children should never be subjected to any form of unethical practices to study or modify their developmental processes.

The imprints of genetics and environmental factors contribute to the process of developmental changes. There is a reciprocal relationship between the child and its development, appropriate description of observations, facts, and quantification of changes could help to understand this reciprocal relationship better.

1.3.3 Significance of Child Development

The growth and development of the child start inside the mother's womb and after birth to three years of age, the growth and development are unprecedented. During this time the child uses all the senses and take control over its organs through motor skills, such activities become possible due to the formation of millions of new neural links in the brain. From three to six years of age, the brain of the child develops to 90% of the size of an adult, during this period, the child collects an enormous amount of information from their experience and through contacts with physical as well as social environments. These childhood experiences are both positive and negative and that affect their future by deciding their mental wellbeing, physical health, moral values, social bonding, and ability to adapt in any adverse environment. Various literature on child psychology, growth and development suggested that early childhood development plays an important role in deciding the future role of the child in the society as it has a direct positive impact on a child's long-term health outcomes and will improve future opportunities, school attainment, and even their occupational potential.

For parents and guardians, the period of child development is an opportunity where with a proper investment with love, care, protection, nutrition, education, and positive

social support the child is more likely to become mentally and physically a healthy person. Such a child can support positively to the society, trust others, be helpful to everyone, understand the responsibility as a citizen, and participate in the process of growing the economy. In contrast to it, the developmental period of a child is a period of great vulnerability and risk too. Many children who do not get the supportive and protective social environment like those who are neglected, abused, homeless, orphan, war displaced or malnourished cannot realize their true potentials.

Studies revealed that children who are socially neglected, living in extreme poverty, surrounded by a toxic environment, and those who do not get adequate positive parenting failed to develop proper psycho-motor skills. Such children often suffer anxiety, stress, disparity, and get psychologically disturbed. These ill effects and negative experiences of childhood development continues incrementally to adulthood. Adverse effect to early child development negatively impacts the children's readiness to school and learning abilities. Such children perform poorly not only in academics but also in life skills, they often remain left-alone among their peers which may lead to suicidal tendency. However, recovery is possible with appropriate interventions and supports. Investment in child development policies and programs will result in long-term returns, as children with adequate support in their early years healthier and better educated are more likely to contribute to society and the global economy.

A very significant part of childhood development is that it allows children to express their emotions, not only to their family members but also to outsiders. In pre and late childhood, children interact with other children of the same age where they learn some important emotional lessons like sharing toys or food that give them the joy of companionship. This emotional experience is extremely educational also that remain throughout their lives.

Social and communication skills are another significant part of early childhood development, it help them to overcome the shyness and develop empathy for peers. Children learn to deal with an entirely new situation when they are exposed to a new environment with close family support. Fighting and conflict are normal behavioural expressions among children during the developmental process but should be dealt with patiently and constructively. Children in preschool develop a feeling for interacting with others and learn some social behaviours. This experience complements the child's home life and promotes their emotional and intellectual development.

Proper childhood development lays the foundation for children to take up new hobbies. Hobbies and novel interest among the children give them confidence, better start at school, and place them ahead of those children who lack proper environment during the development

process. Such development of hobbies make them free thinkers, problem solvers, explorers, and prepare them to grow as a creative individual.

Cognitive development is an important part of the child development process. Cognitive development includes skills associated with thinking, reading, learning, remembering, reasoning, and paying attention. In early childhood development, children develop the ability to distinguish between various objects based on their shape, size, colour, and texture.

They also learn how to arrange materials and categorize them. Cognitive development in children increases their attention span and ability to count numbers, identify colours, increases vocabulary, and reading simple words. Childhood development builds the future pathway for children and plays a crucial role in preparing the children to adapt to the environment, both social and physical. Schools also play an important role in supporting childhood development, early years of schooling help them to understand the importance of socialization and lifelong learning, these in turn, support their lifelong development.

1.4 Principles of Child Development

Already it is stated that to some extent child development is unique to every single child but chronological studies on child development around the world suggested that there exists a logical and sequential pattern from the conception of the child to adulthood. Based on such logic and sequences of pattern certain principles of child development was formed. We will now discuss all those principles of child development in detail :

a. Principle of continuity: The development of the child is a continuous process that means it is a non-stop process that starts from conception and ends with death. The rate of development may not be the same at all stages. Generally, the development in a child is much prominent and higher than the other stages of life. Changes may be small but continuously occur throughout life and affect all the dimensions of one's life.

b. Principle of individual difference: Even within the same species every organism is distinct and this distinction known as the individual difference is more contrasting among humans. Due to impacts demography, social environment, race, culture, economy, personal choice, and heredity human beings are very different from each other and for the same, the child development is also found different between any two children as no two children get a similar environment and supports. Thus, individual differences play an important role in deciding the developmental process among the children.

c. Principle of non-uniform development rate: We already know that child development is a continuous process but its nature is non-uniform. The developmental rate

always follows a non-uniform pattern where it does not exhibit steadiness and streamline increase in different dimensions of personality or the developmental periods and stages of life. On passing from one stage of development to another the signs of development sometimes become very hard to notice and at some stage, they become very prominent. For example, infants, spend learning crawling is not the same as the time they take to develop the ability to walk alone.

d. Principle of sequential pattern: Although development depends largely on the individual difference which makes the development process unique for each child, still there is a unique trend or pattern in the child development. Among all human beings, it is found that the continuous process of development follows a definite universal pattern in one or other dimension like the development of language among the kids occurs more or less at the same time band. This is true for all other cognitive, emotional, motor, social, and psychological developments with some individualistic rare exceptions. So, over the different developmental stages and periods of the human child, the existence of a universal sequence is predominant.

e. Principle of proceeding from general to specific: It is a common observation that a child first learns general abilities then gradually moves to the specific abilities. In infants we can see that during the early stage of developments they used to cry for all their needs then with gradual development they learn to use vocal or sign language to express their needs. Similarly, we see that for babies all kinds of plants are just simply 'plants' they cannot distinguish between trees, shrubs, herbs etc. Slowly with growing age and developing cognitive skills they learn to distinguish between them. This gradual change of exhibition of responses and skills from general to specific is governed by the principle of proceeding from general to specific which states that development always occurs from general to specific or from whole to part.

f. Principle of integration: From the previous principle we understood that children first learn the general responses then move to the specific, now the developmental process also let them combine the specific responses and form the general one which is governed by the principle of integration. It is the integration of the whole and its parts as well as of the specific and general responses that make a child develop satisfactorily in various dimensions of his/her growth and development.

g. Principle of interrelation: Many dimensions of child development are interrelated, the development that has been achieved in one dimension may be related to other dimensions also and may play an important role in maintaining the continuous but non-uniform nature of the child's overall development. A healthy baby is very essential to have healthy mental

health, for example children who are physically challenged (or specially challenged) often may suffer from depression, inferiority complex, and low self-confidence resulting in poor mental and social development. This is why the goal of education is directed towards achieving homogenous and all-round development in children as a deficit in one part may affect the whole personality of the children.

h. Principle of interaction: As soon as a child is conceived in the mother's womb a continuous interaction of the baby with the environmental forces begins. This interaction is in between the genetic inheritance of the child and the environment that may be physical, social, emotional or economic, such interactions influence the development and each child develops their own unique personality traits. This interaction during the development is never-ending just like the process of development itself.

i. Principle of predictability: The continuous, and sequential pattern of child development has one great advantage which is that development is predictable in nature. In most cases, we can predict the changes in a child in one or more dimensions at any particular stage of its growth and development. For example, when a child starts crawling we can predict that is going to come next and approximately the age when the child is stand up and walk soon. Not just such simple general predictions we can also possibly predict the range within which the future development of an individual child is going to be. For example, with the mental and cognitive development of the child during early childhood, we can predict about his/her future performance at school and in the later future also, though such prediction may not turn out to be completely true always, as development depends on individual differences and environment.

j. Principle of spiral advancement: Child development does not follow a straight path instead it is spiral in nature. Once a child starts developing, the rate keeps on changing, sometimes it becomes very slow and looks negligible then it may move backwards which is known as the period of consolidation. At this period the child reinforces on the past and previous developments then again start moving forward in a very characteristic of spiral nature of the developmental process.

k. Principle of cephalocaudal and proximodistal tendencies: Growth and development in a child have their own orderly, definite sequence, and direction. This direction and sequence of development are defined by the principle of cephalocaudal and proximodistal tendencies. According to cephalocaudal tendency, the development of a child occurs from head to foot that is longitudinally from top to bottom. It can be seen that a child first learn, to control the head, hand, and upper part of the body so then at later stages take control of legs and feet. Proximodistal tendency suggests that development in a child

occur radially from the centre to extremities, development is first seen in the central portions of the body like the chest then toward the hand and finally the fingers.

l. Principle of cumulation and recapitulation: The development in a child is not based on any single experience but is due to the sum total of all the experience with the environment. All the new experiences are compiled based on old experiences which consolidates the present experience and support the development.

m. Principle of interaction of maturation and learning: Another important principle of development is that it occurs as a result of both maturation and learning. Maturation refers to changes in a developed organism due to the emergence of abilities, characteristics, traits, and potentialities present at birth. Learning denotes the changes in behaviour due to training and or experiences. Maturation is the inner growth process unaffected by training. Another factor that causes growth is 'learning'. Learning is the process of conducting the repeated exercise and building experiences. Learning may result from practice, which in due course of time may bring about a change in the individual's behaviour. Maturation and learning are closely related and one influences the other. This means that traits potentially present in a child will not develop to their maximum without an effort or learning. Thus, learning has a great influence on growth and development, maturation provides the raw material for learning and determines to a large extent the more general patterns of the individual's behaviour.

1.5 Socialization Process: Child and Social World

1.5.1 Concept of Socialization

Human is a social being and society plays the most crucial role in the all-round development of the individual. Society acts as the umbrella for the human that provides security, shelter, food, and emotional supports. Societies are the shared community with complex codes, norms, and organizational structures, it is the pool of cultural and moral values that shapes the children to become responsible contributor to their society in future. Now we can define socialization as the process of acceptance of a set of norms and values by the individual through transparency from the society. This makes the process of socialization of a child a foremost requirement during the process of development. In fact, socialization is an inseparable part of child development. Socialization is the process through which social and cultural continuity is achieved. Generally, people use the word 'socializing' very often in place of 'socialization' but one should understand that socializing is the process of interacting with others like family, peers, friends, colleague etc. and thus it's the sociological process by which an individual gets socialized.

1.5.2 The Process of Socialization of a Child

Just like development, socialization in human is also a lifelong process and both are complement to each other. Social-psychologists suggest that socialization represents the lifelong learning process of human and for a human child, socialization is the key factor that influences the kid's behaviour, thinking, believes, and all actions in future as an adult.

Charles Cooley (1864-1929) a renowned sociologist asserted that people's 'self' understanding is constructed, in part, by their perception of how others view them, a process termed the 'looking glass self'. George Herbert Mead (1863-1931) for explaining the process of socialization propagated the concept of 'self' as a distinct identity of an individual developed through social interaction. An individual right from childhood always tries to see 'self' as what others want to see in him or her from their eyes. Through the process of socialization, children simply learn to put themselves in someone else's shoes and look at the world through their perspectives. This assists the children in becoming self-aware, as they look at themselves from the perspective of the "other." In absence of the socialization, a child will lose the 'self' as there will be no mirror of 'others' from the society to show who he or she is and what he or she should be? In this way, children gradually learn to take the roles of others in society and at the final stage generalized all experiences to use the socio-cultural norms and values as a reference for evaluating others.

If we want to simplify the process of socialization then it can be said that socialization occurs at two stages—primary socialization and secondary socialization. Primary socialization occurs when a child learns the attitudes, values and actions appropriate to individuals as members of a particular culture. Primary socialization is due to interaction with the immediate family and close friends. The secondary socialization process is the result of interaction with the smaller community or group of people within a larger society. Such socialization is done by school or workplace or religious group or by any other larger agencies of society. For example, when children get admitted to school, they learn new behaviours, values, and conducts other than what they have already acquired from their families.

1.5.3 Importance of Socialization for a Child

The social environment is deeply related to many dimensions of a child's all-round development this is the reason that makes socialization of child from early stages of life an undeniable necessity. Socialization among the family and in the school helps the child to understand the 'self', they develop the sense to understand the things from others point of view and they want to see them as what others expect in them. For children, thus school plays an important role in socialization and social development as it gives them the chance

to interact with peers and teachers which helps them to understand the social and moral codes of society. Playing with other children helps to overcome shyness and egocentric nature, they learn to care for others, set their goals, overcome the obstacles, solves the problem, and get emotionally connected all these are the distinct features of childhood socialization. The absence of social interaction gives unrepairable damage to a child's overall development. A remarkable example of the consequences of such absence of social interaction in the child was the “Victor of Aveyron”, he was found in the wild areas of France, wandering like animals at the age of 12. He was brought to the city and people tried to socialize him but it didn't work. For the rest of his life, he was speechless, emotionless and socially inert with a limited cognitive capacity just like that of a toddler's. He failed to live the full life and died at the age of 40.

Socialization is not only important for the children but it is also important for society. Socialization helps the child to see in it what society want to see in him or her. This leads to the development of future members of the society with all the desired values and morals of that society, who can be able to respect their culture, helps in its assimilation and transmission.

1.5.4 Principle of Social Development: Erickson's Theory of Psycho-Social Development

A developmental process that includes cognitive and affective behaviour is strongly related to socialization. In fact, social behaviour is the reflection of an individual's cognitive, emotional, and moral development. Famous psychoanalyst Erik Erickson being inspired by the works of Sigmund Freud studied the dependence of human development on its social surrounding and postulated the famous principle of 'Psycho-social development theory'. Unlike Freud's theory of psychosexual development, Erikson's theory described the impact of social experience across the whole lifespan. Erikson was interested in knowing how social interaction and relationships play a role in the development and growth of human beings.

'Conflicts or crisis' of life: According to Erickson from birth to the death of an individual the social development present him with what he called as the 'conflict' or situation of 'crisis', each of this crisis makes some specific demands at different ages or stages of growth and development. It is the individual who tries to resolve this crisis and his success or failure determines his advancement to the next stage of development. Success in resolving the crisis makes a positive impact on personality development whereas failure often harms social development and personality. So, stages of growth and development are

like steps of a ladder where each previous step is essential for the upcoming step and failure in any one stage of it get propagated to all the other forthcoming stages of development.

Stages of Psycho-social development: Erickson discovered eight such crisis of life arising at different ages of any individual's development and linked them with the eight stages of psychosocial development by dividing the entire life span. In table 1.1 all the stages of development are given with a summary of the characteristic of all the stages.

Table 1.1 Psycho-social developmental stages

Infancy (birth to 18 months)	Trust vs. Mistrust	Feeding	Hope
Early Childhood (2 to 3 years)	Autonomy vs. Shame & Doubt	Toilet Training	Will
Pre-school (3 to 5 years)	Initiative vs. Guilt	Exploration	Purpose
School Age (6 to 11 years)	Industry vs. Inferiority	School	Confidence
Adolescence (12 to 18 years)	Identity vs. Role Confusion	Social Relationships	Fidelity
Young Adulthood (19 to 40 years)	Intimacy vs. Isolation	Relationships	Love
Middle Adulthood (40 to 65 years)	Generativity vs. Stagnation	Work and Parenthood	Care
Maturity (65 to death)	Ego Integrity vs. Despair	Reflection on Life	Wisdom

The above table 1.1 outline the developmental ages, the type of crisis that needs to be resolved at a particular stage or age of any individual, important life events respective to that age or period and expected outcome or personality that is likely to develop. Upon resolving all the crisis of different periods of life a person may acquire positive traits like trust, autonomy, initiative, industry, identity, intimacy, generativity, and ego integrity. On other hand, falling at a developmental period may develop a negative personality like mistrust, shame, doubt, guilt, inferiority, role confusion, isolation, stagnation, and despair. All these stages do not start all of a sudden or end up abruptly but they are overlapped. One stage of psycho-social development lays the foundation for the next stage, failure or success of the previous stage to some extent decides the process and outcome of the next successive stage. Let's see each of the stages of psychosocial development in details.

Stage 1: Trust vs. Mistrust (0 to 18 months). This stage of development occurs between birth to 18 months of age. At this period the infant is completely dependent on his/her mother and family for care, food, protection, and love. If a caregiver fails to provide

adequate care and love, the child will come to feel that they cannot trust or depend upon the adults in their life whereas fulfilment of all the requirements they develop trust. Thus, it is called the period of trust vs. mistrust in psycho-social stages of development. It is truly an infant that cannot develop 100% trust or mistrust but it's the perfect balance between the two extremes that Erickson considers necessary for a child to have better hope of success for the next stages.

Stage 2: *Autonomy vs. Shame and Doubt (18 months to 3 years)*. This stage starts at eighteen months of age and continues to three years of age. After developing the sense of trust and security from his/her environment the child from the age of eighteen months starts gaining more control over the motor and linguistic skills this allows exploring the environment and testing its limits. This develops the sense of autonomy in the child so at this stage, the parents must give them support, freedom, and safety. If at this stage the children are restricted or given too much protection then they don't develop the sense of confidence in themselves and lose the autonomy to develop the negative senses like shame and doubt over their abilities. Erickson suggested maintaining a balance between the two that means complete freedom should not be given to the child, a reasonable amount of doubts help the child to set his limits and the development of shame helps the child to develop a sense of right and wrong.

Stage 3: *Initiative vs. Guilt (3 years to 5 years)*. This stage of psycho-social development happens between the ages of three to five years. This stage is characterised by the crisis of initiative vs. guilt. Gaining trust and autonomy from the earlier stages of development the child now starts actively interacting with the environment. They become curious and starts asking questions about everything, do plan and take new initiatives for various exciting new things. Like the previous two stages, parents play a crucial role in this stage also, parental support and encouragement in taking new initiative helps the child to decide the course of actions. Whereas any discouragement and failure may result in guilt. So parents should not humiliate and scold the child on their failures they must be taught how to overcome them and correct them through the process of self-evaluation. So supervision and guidance from parents or guardians play an important role at this stage.

Stage 4: *Industry vs. Inferiority (6 years to 11 years)*. From the age of six, the children generally start going to school and the school environment plays an important role at this stage of psycho-social development which is characterized by the crisis of industry vs. inferiority. At this stage, the child who is full of trust, autonomy and initiative abilities start participating at various works not only at home but also at school with their peers under the watchful eyes of their teachers. The well-developed motor and cognitive skills also

encourage them to take new projects which develop the sense of industry and success in it gives them a sense of achievement. Such a child will constantly work harder and achieve more in terms of competence and productivity. On the other hand, if their performance is not better than their peers they may lose confidence in themselves and feel inferior. The parents, teachers and school environment play a vital role at this stage of development in resolving the crisis. Therefore, it's the responsibility of the school and teachers to make the environment supportive and encouraging for the children so that they don't develop inferiority complex and consider themselves as a valuable asset to society.

Stage 5: Identity vs. Role confusion (12 years to 18 years). The fifth psychosocial stage takes place during the very turbulent teenage years. This stage plays an essential role in developing a sense of personal identity which will continue to influence behaviour and development for the rest of a person's life. Identity referred to all of the beliefs, ideals, and values that help to shape and guide a person's behaviour. Teens need to develop a sense of self and personal identity. Success leads to an ability to stay true to themselves, while failure leads to role of confusion and a weak sense of self. During adolescence, children explore their independence and develop a sense of self. Those who receive proper encouragement and reinforcement through personal exploration will emerge from this stage with a strong sense of self and feelings of independence and control. Those who remain unsure of their beliefs and desires will feel insecure and confused about themselves and the future.

Teacher, parents and friends can play a very constructive and supportive role at this stage of the crisis. Adolescents looking for identity must be recognized by their parents, peers and teachers. They should not be treated as a child anymore and must be assigned various responsibilities independently.

Stage 6: Intimacy vs. Isolation (19 years to 40 years). This stage of psycho-social development starts from late adulthood. At this stage, they are confronted with the crisis of intimacy vs. isolation. So at this stage, they look for people with whom they can form personal and intimate relation by merging their identity with another. The relationship grows so intimate at this stage that the individual even risks the loss of ego and self-image for maintaining a harmonious relationship. Such relationship can be seen between lovers, intimate friends and teacher-pupil. When an adult fails to get an intimate partner or friend it leads to a sense of isolation, it is when a person breaks off all ties from friends, partner, and even society. Such an isolated person becomes introvert, self-absorbed, and often mentally ill. Though a certain level of isolation is crucial to maintain one's individuality and the development of one's personality in the desired direction.

Stage 7: Generativity vs. Stagnation (40 years to 65 years). This stage of psychosocial development starts at middle adulthood near about at the age of 40 and continues till 65 years of age. Remember as mentioned at the beginning, these age slabs are just indicative, it depends from person to person and environmental factors. As an individual successfully meets all the crisis of previous stages and develops all the positive behaviours he/she establishes himself/herself well in society. Now at this stage, the individual tries to be an example for the upcoming generations, act as a mentor for the young's. This is often realized by raising their own kids as parents, guiding the juniors, helping the young people, and involving in charity or other social works. This helps in developing the sense of generativity and productivity, whereas failure to do so leads to the development of a sense of stagnation and personal destitution. Here also like other stages, there is a need to have a balance between the two crisis as somewhat stagnation is needed in the form of pause in the flow of life which helps to re-evaluate, re-plan, and re-energizes oneself.

Stage 8: Ego integrity vs. Despair (65 years to death). This stage of psychosocial development is associated with later adulthood or old age, again it is hard to determine when exactly old age starts as every person is different psychologically and physiologically but more or less it starts around the age of 65 in the modern age. At this stage, a person is confronted with the last crisis of the life 'ego integrity vs. despair'. Ego integrity refers to the integration or sum total of all the positive senses of all previous stages of development which gives the person a sense of fulfilment, accomplishment, and completeness. Such a person with a sense of ego integrity remains at peace during the last days of life and often die happily without any regret. Whereas a person who doesn't resolve all the previous crisis of the life remains despair and feel unsatisfied with the life. Erikson's theory differed from many others because it addresses development throughout the entire lifespan, including the old age. Older adults need to look back on life and feel a sense of fulfilment. Success at this stage leads to feelings of wisdom, while failure results in regret, bitterness, and despair.

1.6 Summary

The growth and development of a child begin from the womb of the mother and ends with the death. Growth refers to quantitative changes only whereas development includes all the quantitative as well as the qualitative changes of the child. Studying the development of a child helps us to understand the connection between the physiological, psychological, and social changes in the child. The early stages of development of the child that ranges from birth to early adulthood are very important as the proper nurturing and support during this period help them to develop into a complete personality with perfect physical, emotional,

and mental health. The developmental process always follows certain principles. Development is a continuous process that occurs in a sequential pattern. A child first learns general abilities then moves to specific one, also their development occurs from head to toe and spine to fingers. Due to the sequential nature, one can predict the developmental stages, though it has been found that sometimes the development occurs such slowly that it appears to be ceased but this is the period where the child consolidates by reinforcing on previous stages to move forward.

The process of development of the child is strongly associated with society. Erickson's theory of psycho-social development explains the influence of society on the various developmental stages of a child. Erickson described how the crisis or conflicts confronting the child due to the social environment either support or obstruct him from successfully moving to the next stage of development. During each stage of development, the child acquires the norms and values of the society he belongs to and this process is termed as 'socialization'. Socialization helps the child to become what society expects him to be. Schools play an important role in the socialization of the child by helping them to interact with peers and teachers which give them the opportunity to better understand the norms, morals, values, and culture specific to their society.

1.7 Self-Assessment Questions

1. What do you mean by the 'development of the child'?
2. What is the nature of child development?
3. What are the adverse effects of improper child development?
4. 'Child development is a continuous but non-uniform process'—Explain this statement.
5. How the various dimensions of child development are related?
6. What is the principle of predictability in child development?
7. What is the principle of cephalocaudal and proximodistal tendencies?
8. Briefly explain the relationship between maturation and learning in a child's development.
9. Explain the socialization process of the child.
10. Why socialization of the child is important?

11. What do you mean by 'Conflicts or crisis of life' in Erickson's theory of psycho-social development?
12. Describe the various stages of psycho-social development as proposed by Erickson.

1.8 References

- Carmichael, L., & Mussen, P. (1970). *Carmichael's manual of child psychology*. Wiley.
- Erikson, E. (1950). *Childhood and society* (p. 263). Norton.
- Lickona, T., Geis, G., & Kohlberg, L. (1976). *Moral development and behaviour*. Holt, Rinehart and Winston.
- Mangal, S. (2012). *Advanced educational psychology*. PHI Learning.
- Messer, D., & Millar, S. (1999). *Exploring developmental psychology*. Arnold.
- Panda, K. (1994). *Elements of child development*. Kayani Pub.
- Saracho, O., & Spodek, B. (2008). *Contemporary perspectives on socialization and social development in early childhood education*. Information Age Publishing.
- Scarr, S., & Salapatek, P. (1973). *Socialization*. C.E. Merrill Pub. Co.

Unit-2 □ Child-Centred Progressive Education

Structure

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2.1 Objectives

After completing this unit you will be able to—

- Understand Piaget's theory of cognitive development;
- Understand Piaget's stages of cognitive development;
- Understand Kohlberg's theory of moral development;
- Understand Vygotsky's socio-cultural developmental theory;
- Understand Vygotsky's periods of child development;
- Explain the concept of child-centred education;
- Explain the characteristic of child-centred education;
- Describe the issues with child-centred education;
- Explain progressive education, its origin and philosophy;
- Explain the principles of progressive education;
- Explain the concept of individual differences;
- Describe the types of individual differences;
- Explain the causes of individual differences;
- Explain education and individual differences.

2.2 Introduction

Sometimes it is difficult to understand how and why people grow, learn, and act as they do. To understand human development, different theories of child development have been developed arisen to explain various aspects of human growth. Many psychologists, educationists and philosophers suggested various theories of development, they are classified in different categories based on their domain of influence on development like psycho-social theory, socio-cultural theory, cognitive theory, attachment theory, behavioural theory, and psycho-sexual theory of development.

This unit introduces the various constructs and critical perspectives of human development through the three most important theories of development: (i) Piaget's theory of cognitive development, (ii) Kohlberg's theory of moral development, and (iii) Vygotsky's socio-cultural developmental theory. Development theories proposed by Kohlberg and Vygotsky

belong to the category of social theory of development. Theories of child development helps in understanding how and why children grow, learn, and behave. Based on these theories educationists design the effective child pedagogy.

Education for children is aimed to prepare the children to adapt to the environment. No two children are same, they differ in their individual needs and personality traits which is known as individual difference in totality. A traditional classroom is rigid in nature which is controlled by teacher and the pedagogy is not designed keeping the individual differences of learners in notice. So in the late 19th century many philosophers and educationists like Rabindranath Tagore, John Dewey, Jean Jacques Rousseau, Frobel, and Johann Pestalozzi started an unorganized movement against the narrowness, rigidness, and formalism of traditional teacher-centred education. Their focus was on making the education for the 'whole child' that is to facilitate the child's cognitive, emotional, moral, and physical development. This movement laid the foundation of progressive education, as this movement was directed toward equipping the child with the ability to think and experiment rather than rote memorization, like in traditional education hence the name 'progressive' was given to such education. One of the key-characteristics of such education is its 'child-centred' nature. Child-centred education places the child first, and an approach with the message that all children have the right to an education that helps them grow to their fullest potential. Child centred learning is focused on the child's needs, abilities, interests, and learning styles with the teacher as a facilitator of learning.

2.3 Constructs and Critical Perspective of Development: Piaget, Kohlberg, and Vygotsky

2.3.1 Piaget's Theory of Cognitive Development

Piaget was a Swiss biologist and psychologist, who initially worked on developing intelligence test at Binet Testing Laboratory in Paris. Later his interest grew towards studying the development of a child and he along with his wife spent a long period of life studying the cognitive development of children. Piaget's theory of cognitive development explains how the human baby collects and organizes information and how this process changes with development. He proposed children are born with few basic abilities like sucking, looking, reaching, and grasping. These basic cognitive abilities are the 'schemas' as he called them. The cognitive structure of an individual contains many such schemas. All the subsequent learning and knowledge development are based on schemas. He explained how cognitive structures and cognitive functioning evolves to help an individual in making

meaning out of their past and present experiences. These experiences ultimately result in successful adaptation to the environment. Piaget explains this developmental process through constructs of schemas, the process of assimilation, accommodation, and equilibrium.

So in Piaget's theory of cognitive development, there are two important aspects of human cognition: (i) cognitive structure and (ii) cognitive functioning. The cognitive structures of any individual have many schemas each specific to a certain cognitive ability. For example, in the case of an infant 'sucking' is one such schema, it refers to one general ability to suck an object. Interaction with the environment taking place using this schema result in learning particular behaviour. Apart from inherited schemas like sucking, gasping, looking, and reaching when children grow, with the interaction of physical and social environment they can form different schemas, resulting in changes and modification in their cognitive structure. The interaction with the physical and social environment through schema allows the individual to adapt to it for survival as well as growth and development. Schemas forming the cognitive structure plays a very vital role in one's cognitive functioning. The adaptation by an individual is carried out through the cognitive functioning or process of assimilation, accommodation, and equilibrium. Assimilation involves the incorporation of new events into pre-existing cognitive structures. Accommodation means existing structures change to accommodate the new information. This dual process, assimilation-accommodation enables the child to form schema. Equilibration involves the person striking a balance between himself and the environment, between assimilation and accommodation. When a person experiences a new event, disequilibrium sets in until he can assimilate and accommodate the new information and thus attain equilibrium. This is how an individual develops by continuously assimilating information and replacing them with new information through accommodation to bring necessary changes for adapting to the environment as per the demand and finally attaining the state of equilibrium between assimilation and accommodation.

2.3.2 Piaget's Stages of Cognitive Development

Piaget's theory emphasized the role of interaction of inherited abilities with the physical and social environment in the cognitive development of an individual. He defined schemas and how schemas form the cognitive structures which help the cognitive functioning to adapt to the environment. However, he concluded that the organization of cognitive structures in every individual always takes place in particular order involving definite stages of cognitive or intellectual developments, thus he suggested four stages of cognitive development. Let's understand all the four stages of development one by one, a summary of the four stages is also given in table 1.2.

Table 1.2. A summary of Piaget's stages of cognitive development

Stage	Age	Goals
(i) Sensori-motor	Birth to 2 years	Object permanence
(ii) Pre-operational	2 to 7 years	Transductive reasoning, symbolic thought
(iii) Concrete operational	7 to 11 years	Logical thought
(iv) Formal operational	11 to 15 years	Hypothetical reasoning, Scientific reasoning

Sensori-motor stage (birth to 2 years of age). Sensori-motor stage of development is characterized by the absence of language and interactions with the environment through sensory and motor abilities. The child is born with a very limited number of reflexes initially like sucking, looking, grasping and reaching. These are uncoordinated but after few months from birth, they develop coordination. Now they can grasp things with their reach, they can look at things they wish and can suck the things they put in their mouth. Till now the infant cannot understand the permanence of thing that means the object which is out of sight does not exist at all for them. Around 8 months onward they realize that objects around them have independent and permanent existence. For example, at this age when an object like a toy is taken away from the child or kept hidden, he realized that the toy still exists even it is not within sight. The main schema that develops at this stage is the ability to form a mental image of things with this the child move to the next stage of cognitive development involving the symbolic world of language.

Pre-operational stage (2 to 7 years of age). At this stage of development, the child leaves behind the direct use of sensory-motor abilities and starts using the newly acquired symbolic abilities like sounds and language. The child now can ask for things using words or sign language instead of using hands to reach them. This stage again has two sub-stages: Pre-conceptual Stage (2 to 4 years of age) and Intuitive Stage (4 to 7 years of age). During pre-conceptual stage, the child develops a sense of very basic concepts. They often generalize things, for example, all green leafy plants for this age group of children are tree, and they cannot classify them into tree, shrubs or herbs. Their sense of logic is at an initial stage, they think transductive rather than inductive or deductive. At this stage, children are egocentric they see everything from their own point of view only. At an Intuitive Stage, the concept formation begins, now the child can generalize as well as specify the objects like a child can now tell that vegetables, herbs, trees, and shrubs all are the forms of plants. Though the child is still not much logical about his/her course of action or thinking. Piaget concludes that at this stage, child misses two important cognitive ability — the concept of reversibility and conservation. Let's try to understand it in this way, a child at intuitive phase

does not understand that course of action or thought can be reserved like his dog is a Labrador and it's a pet animal so he may not be able to conclude that any pet can have a name or breed and can stay with him. Similarly, a child also doesn't understand that a definite quantity of water in a glass, when poured in a bowl, remains the same, this is the concept of (conservation) that remains absent at this stage of cognitive development. So to conclude, at this stage the child interacts with the environment through symbols and mostly remain illogical about the thoughts with full of contradictions.

Concrete operational stage (7 to 11 years of age). The stage is called concrete because children can think logically much more successfully as they can manipulate real (concrete) materials or pictures of them. Piaget considered the concrete stage a major turning point in the child's cognitive development because it marks the beginning of logical or operational thought. This means the child can work things out internally in their head, rather than physically try things out in the real world. Now they develop both the concept of reversibility and conservation of material. The child can now make the relationship among the things he sees, can make logical thinking and find out any irregularities or discrepancies. The child does not remain egocentric as he/she can understand others thought or view and appreciate them. However, his thought process and actions are limited to real world objects or concrete items operated by him, he remains incapable of thinking abstract items and solve hypothetical problems.

Formal operational stage (12 to 15 years of age). The cognitive structures of the child are now very well formed and the cognitive functioning takes place at a very sophisticated level. Children can follow the form of a logical argument without reference to its content. They don't need any real object or problem to think about it, they can consider a hypothetical scenario and think over it. During this time, people develop the ability to think about abstract concepts, and logically test hypotheses. This stage represents the emergence of scientific thinking, formulating abstract theories and hypotheses when faced with a problem. Concrete operations are carried out on objects whereas formal operations are carried out on ideas. Formal operational thought is entirely free from physical and perceptual constraints. During this stage, adolescents can deal with abstract ideas like they no longer need to think about slicing up a pizza to understand the idea of division and fractions. Piaget concluded that the thought process and the intellectual functioning of the child at this stage form the base of the individual's future intellectual development and actualize the potential to the maximum at all available circumstances.

2.3.3 Kohlberg's Theory of Moral Development

Morality is the ability of an individual to distinguish between wrong and right within a specific social structure. It enables the individual to treat everyone fairly with the concern of their welfare. Moral development involves the acquisition of the attitudes, dispositions, sentiments, and cognitive competencies involved in the process of moral judgment and action. The concept of moral development is similar to that of developmental psychology as both originated from the same old philosophical thought of human development. Just like cognitive development which can be assessed as there is a definite way in which a child's cognition develops, moral development can also be assessed. Though there is one striking difference between the two, cognitive development is 'value neutral' that means there is no desired way of development it will follow the natural course but for moral development, there is a defined desired way acceptable to the society. For example, it is perfectly acceptable for one child to be confident and impulsive and another to be quieter and more patient. However, it is not considered an acceptable state of affairs if the first of these children is dishonest and the second is violent toward others. These features make moral development a part of social developmental theory.

Lawrence Kohlberg, a psychologist at the University of Harvard put the most remarkable theory of moral development. His theory rejected the popular belief that a child acquires the morality from their parents, teachers, and peers only. According to him, moral development is dependent on the cognitive development of an individual, a child for instance uses his thinking and reasoning to make judgments they do not just internalize it from outside or from any direct sources like parents or peers. For studying the process of moral development in human, Kohlberg first defined moral development as the development of an individual's sense of justice. He then identified three levels of moral development, each containing two stages as represented in table 1.3.

Table 1.3 Kohlberg's stages of moral development.

Level	Stage	Name	Age (in years)	Characteristic
I	1	Pre-moral level	4 to 10	Obedience for avoiding punishment.
	2	„		Obedience to obtain rewards and favours.
II	3	Conventional moral level	10 to 13	Maintaining mutual relations and approval of others.
	4	„		Obedience to avoid criticism of society.

III	5	Post-conventional moral level	13 to late adulthood	Obedience to the democratically accepted law and mores of community welfare.
	6	„		Conforming to the universal ethical principles and own conscience.

Pre-moral level (4 to 10 years). From four years onwards the child develops a sense of morality. The child makes the judgment about what is wrong and what is right based on the morality of others especially the near relatives. At the initial stage (Stage 1) of the pre-moral level, the child's morality is controlled by the fear of punishment from the parents so they obey them. At the second stage (Stage 2), the child's morality is based on his interest and consideration. He/She follows the others for rewards or favours in return for their judgment. So, the child's morality at this level of development is manipulative.

Conventional moral level (10 to 13 years). The next level of moral development is marked by the acceptance of social rules regarding what is good and morally correct. During this time, adolescents and adults internalize the moral standards they have learned from their role models and society. This period also focuses on the acceptance of authority and conforming to the norms of the group. There are two stages at this level of morality- in the early years (Stage 3) of this level the child focuses on living up to the social expectation and roles. The moral judgment at this stage is based on the desire to obtain the approval of others, they often try to be accepted as 'good boy' or 'good girl'. At the later years (Stage 4) of the conventional moral level, the judgment of the child is governed by the conventions, laws, and norms of the society. At this stage of moral development, people begin to consider society as a whole when making judgments. The focus is on maintaining law and order by following the rules, doing one's duty, and respecting authority.

Post-conventional moral level (13 years onward). This is the ultimate level of moral development where the individual now does not depend on the parents, peers, or any other individual to decide about the wrongs and rights. He/She no longer considers the social norms or laws as the criteria for making judgments, his moral judgment now depends on his own consciences and experiences. This development again occurs in two stages - at the initial stage (Stage 5) of this level, the individual's morality is internalized to such an extent that his/her moral judgment does not contradict the authority or society only if it agrees with the principles upon which the demands of authority are based on. His/Her morality is now rational, based on the welfare of mankind and its rights. In the last stage (Stage 6) of moral development, the individual's all morality is controlled only by his/her conscience and the universal principles of respect, justice, equality, rights, and welfare. At

this stage people go above the legal system to decide about right and wrong, they listen to their inner voice first and lead a life that they can live without any shame and guilt.

2.3.4 Vygotsky's Socio-Cultural Development Theory

Lev Vygotsky was a Soviet psychologist, in his short life of 38 years he worked in the very diverse field like law, language, literature, and psychology. He worked contemporary to Jean Piaget and gained popularity for his contribution in the field of child's developmental psychology. He believed children learn about their world through physical interaction. Vygotsky's socio-cultural theory asserts that learning is an essentially social process in which the support of parents, caregivers, peers, and the wider society, as well as culture, plays a crucial role in the development of higher psychological functions. Vygotsky's socio-cultural theory of human learning describes learning as a social process and the origination of human intelligence in society or culture. The major themes of Vygotsky's theoretical framework are the socio-cultural orientation of learning, mediators of development and zone of proximal development (ZPD).

Socio-cultural orientation of learning : Vygotsky emphasized that human cognitive development is heavily influenced by culture. He suggested that though some higher animals like apes possess some basic cognitive skills just like humans but they are never equivalent to that of humans. The cognitive skills possessed by human beings are very unique, he called them 'higher mental process' and focuses his theory on such cognitive abilities only. He asserted that human culture is not just an ethnographic identity but is associated with the development of these higher mental process and thus shapes human cognition. Culture shapes, modifies, and evolves one's higher cognitive process like perception, attention, memory, and problem-solving. His proposal of socio-cultural dependence of cognitive ability was based on three things:

- i. understanding how the transition of behaviour occurs from animals to human,
- ii. studying the historical change of cognitive abilities with cultural change from a different era, and
- iii. investigation of developmental construction of child psychology in society.

Due to his short-lived life, he didn't get the opportunity to establish all his hypothesis at that time but he gave some valid arguments based on other works with higher animals (Kohler's study with apes). He argued that though some animal possesses both basic cognitive ability of problem solving and communicative skills but these two aspects remain disassociated in them. In human, due to constant association between the problem solving skill and speech, the speech becomes intellectual and problem solving become verbal

intelligence. Studies by the team of Vygotsky found that people of the same culture develop a different level of intellect when they are generation apart. Similarly, in some studies, people of the same culture when migrated to distant land and society also in course of time showed a different level of cognitive evolution. These arguments and findings form the basis of Vygotsky's theory.

Mediators of development : A very important aspect of Vygotsky's theory is the role of mediators, Vygotsky proposed three mediators relevant to the higher cognitive function in humans:

- i. physical tools,
- ii. symbolic tools, and
- iii. human mediation. Physical tools refer to all those physical machines that can shape the environment, human needs physical and mental capabilities to 'handle' such tool.

The presence of such new tools encourages the human to acquire new physical and cognitive skills to operate them properly. The most important among the three mediators is the symbolic tool, like oral speech, reading and writing systems, mathematical symbols, graphic organizers, and pictorial representations. Human first experience these symbolic skills from interaction with people then acquire them and internalize these skills to shape their cognitive structure and functions. These symbolic tools are highly culture specific, thus cultural dependence of development is well justified. Finally, coming to the last tool 'the humans', regarding human mediation Vygotsky mentioned two aspects. On the one hand, he suggested that every higher mental function in the child's development first appears in the interaction between people (inter-psychologically), and then, when internalized, it appears as an inner mental function (intra-psychologically). Vygotsky emphasized the role of caregivers, parents, and mentors as a human mediator, he explained the working mechanism by giving an example of an infant asking for an object through gesture. In this scenario, the adult helps the child to get that object, this mediation helps to develop the higher cognitive processes in infant and instead of gesturing toward the object the infant makes a gesture to the adult for the object. In course of the development of higher abilities, the child learns to replace the gesture with verbal command, thus explaining how interaction resulted in internalization which leads to the development of higher cognitive skills.

Zone of proximal development (ZPD) : ZPD is the most important part of Vygotsky's theory of socio-cultural development and it has gained such popularity that people often falsely consider it the whole theory of Vygotsky. A diagrammatic representation of ZPD is given in figure 1.1. Vygotsky criticized that other theories of development mainly focused

on that psychological functioning of the children which are already fully matured and displayed by the children by their independent activity.

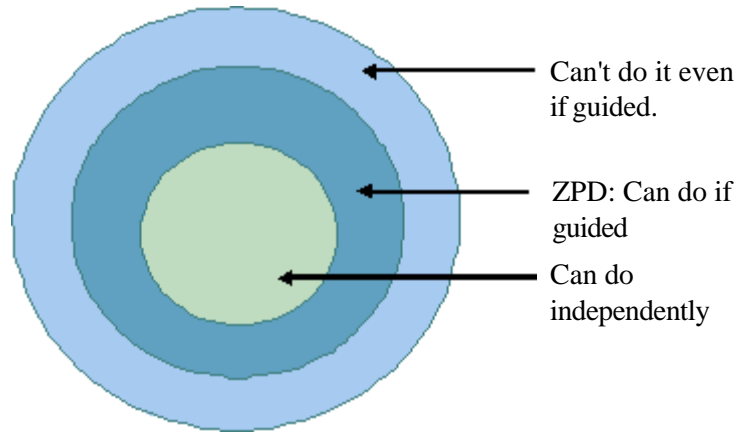


Fig 1.1 Diagrammatic representation of ZPD

ZPD explained about those cognitive abilities also which the children cannot demonstrate on their own. Vygotsky proposed that every child has some cognitive functions by which they can perform functions on their own without some external help. Similarly, there are tasks which a child cannot perform or learn on his/her own but when an adult or mentor guides the child learns to perform some of the activities outside the zone of what he/she can do by himself/herself. This mentoring is done by giving 'scaffolding' and the zone of development under it, is called the 'zone of proximal development'. In the educational context, ZPD helps to explain the relationships between education and child development. Vygotsky asserted that the educational process should include the development of children's cognitive functions as one of its main objectives. Contrary to a popular view that instruction should be based on already fully formed cognitive functions, Vygotsky proposed that it should target those emergent functions that can be shaped by education. In this way, students will not only acquire information and specific skills but will also form higher mental functions.

2.3.5 Vygotsky's Periods of Child Development

Vygotsky along with his young team proposed a model of periods of child's development, this model was based on the concept of 'Leading activity'. According to this concept, a child may be involved in various activities at any particular period of his development but there will be only one activity called the 'leading activity' that will contribute the most in the cognitive and emotional development of the child in that period. Vygotsky proposed this model based on his socio-cultural theory of development, thus the period of child's development is culture specific, so a model prepared for industrial society with a formal educational system will not be the same for the illiterate society with a poor socio-economic

group. It is the main reason for which this model is not widely popular among academics.

The model of development, we are going to discuss is suitable for industrial society with formal education. The periods of child development alternate between those where leading activity has an emotional-interpersonal focus and the periods with cognitive focus. It is important to remember that some children may stay longer in some of the periods or make a quicker transition to the next period depending on their social situation of development so there is no clear distinct separating age between the periods, the age is just indicative gives in table 1.4.

Table 1.4. Periods of child development

Period	Age in years	Emotional-interpersonal focus	Cognitive focus
1	0 to 1	Emotional interaction with caregivers or parents	
2	2 to 3		Object centred joint activity
3	3 to 6	Socio-dramatic play	
4	6 - 12		Formal learning
5	12 - 18	Interaction with peers	
6	18 above		Vocational activity

In the developmental period, the child has three alternate emotional-interpersonal aspects and three cognitive aspects. At each period the child's interpersonal, emotional, and cognitive skills lead to the formation of new motive that helps in the formation of new leading activity in the next stage and this activity influences the development of higher cognitive and emotional skills that propagate to the next stage.

Let's try to understand it with an example. During the first period of development the child focuses on the emotional connection with parents this gives motive to the child to play with them and in the second period of development, the key focus is the joint activity or object (like toys, colours etc.) centred play. In the second period, joint activity develops the motive for the third period focused on socio-dramatic play where the leading activity is the development of the ability to flexibly switch roles, enhanced self-regulation, and the development of symbolic thought. Now the child not only just play with the toys but can imagine it as his real life friends, switch roles with the playmates etc.

Equipped with the skill of emotion, joint activity, and socio-dramatic play child proceed to the fourth period of formal learning, which is the period of getting ready for formal schooling. This period is considered very important because whatever higher skills the child

learned in the past is required here, the child should be able to assume a new role of the student which is different from those of son, daughter, sibling, or playmate. Likewise period of formal learning forms a new motive that develops a leading activity of interaction with peers and friends, this is the fifth period of development where the child is completely under the influence of social forces. Interaction with peers then motivates him/her to initiate vocational activities of his/her life. In this entire developmental process through different periods, the interaction with people like parents, mentors, and peers are very crucial as they help the child to acquire cognitive skills beyond the limits of the self-acquired skills. Thus, the social and cultural interactions help the child to reach the zone of proximal development.

2.4 Child-Centred and Progressive Education

2.4.1 Concept of Child-Centred Education

The basic theme behind the child-centred education is the fact that all children have the right to education which will help them to grow and develop completely. Thus, the education and pedagogy within it should be such that the child's right to education is always protected and every child gets an equal opportunity of social, emotional, physical, linguistic, and intellectual development. Every child is a unique and special individual. Consequently, the education and its curriculum must be suitable for every individual child. It must be respectful and account for their individual uniqueness of age, gender, culture, temperament, and learning style. So, it is very essential that in a child-centred education children participate in their own education and development, they should be mentally involved and physically active in learning what they need to know and do. This makes it very essential that children's ideas, preferences, learning styles, and interests are considered in the planning for and implementation of teaching-learning practices under child-centred education. One thing that should be remembered that child-centered education is the part of progressive education because it is aimed to support the child in its progress towards overall development.

2.4.2 Characteristic of Child-Centred Education

In child-centred education the development of the body, mind, and soul of the child must be reflected in the curriculum and teaching-learning practices. Naturalist educationists like Tagore and Rousseau advocated that child should be educated close to nature in the most natural way possible. His/Her needs and desires should be given the utmost priority, education should not be forced upon the child. The child must learn at his/her own pace and as per his/her own curiosity to know such that curiosity forms the basis of the education, this is at the heart of child-centred education. At the early stages of child-centred education

emphasis is given on sensory and motor development instead of reading books. So, as we are now very clear about the child-centred education let's now see some of the important characteristics of it :

a. *Democracy:* The most important characteristic of child centred education is its democratic nature which is aimed to develop democratic values with democratic methods of implementation. Education is considered to bring equality, justice, trust, and respect among children. Child-centred education grants freedom to every child to grow and develop through free-thinking, discovery, exploration, and experimentation. Such education looks beyond the limited scope of books and makes education available from nature for nature.

b. *Self-activities:* Self-activities are the inseparable element of child-centred education. Activities like plays, games, songs, role-play, expedition, and experimentation are encouraged in child-centred education. It allows the child to explore deep down the area of their interest. All children have natural tendency to explore and know, this curious nature of the children are motivated and nurtured in child-centred education. Self-activities make the children self-reliant, expressive, and perseverance to their respective goals.

c. *Spontaneous development:* In traditional education, the development of the child is restricted by the very stringent and narrow curriculum, often the child feels himself/herself as alienated to such systems. They don't get the opportunity to synchronize with the educational process and thus lag behind the natural flow of his development, especially in emotional and social domains. Child centred education keeps the child at the centre of all pedagogy designed to the child's own comfort level so it helps the child to progress at his own pace spontaneously as per his/her own interest. The teacher's role here is just to facilitate the process of development by guiding the child and providing a supportive environment.

d. *Education-based on experience:* An important characteristic of child centred education is to prepare the child to learn from their own experience and the resulting development in the child is permanent. The course and subjects in child-centred education are designed to facilitate experience-based knowledge assimilation to meet the need of the child. The child is the centre of the whole education process. The role of the teacher is like a guide and mentor to provide complete freedom to the child to grow naturally based on permanent experiences. Child-centred Education is the ideal system to manifest the latent talent of the child.

e. *All round development:* Child-centred education is an outcome of the movement of progressive education which was a revolt against considering education a tool of changing

human behaviour as per the need of the society. As a result of it, child-centred education is practiced not as a tool but as a need for the overall development of the child. When a child gets the freedom to explore and experimentation he/she learns through his/her own interest and develop the insight to understand himself, this helps to overcome the faults, limitations, and reluctance. The child through practical experiences and inner knowledge able to proceed towards achieving emotional, intellectual, moral, social, and spiritual development to move to the state of completeness

f. Choice and Consequences: In child-centred education, children are empowered as they take responsibility for themselves as learners and community members. With such responsibility brings the freedom of mind and trust in themselves and society. Child centred education act as a garden where children can explore joyfully by their own to learn and teachers are the gardener with a responsibility of creating an environment where children can experience their own choices and consequences. This is how learning takes place in a child-centred educational setup.

g. Empathy, caring and mutual trust: Children learn better and develop to their highest potential when child and teacher both respect each other and there is empathy between them. Child-centred education has these characteristics, it gives the teacher a scope to understand the need of children and to act as a caregiver not just their instructor. The learning groups are generally small, thus teacher can give individual focus on every children's need, and student develops lifelong interpersonal relationships with their teachers. Teacher and students with such a level of bondage, empathy, care, and trust creates an emotionally and physically safe environment of learning that helps them to develop as a 'whole'.

h. Taking reasonable risk: When the education is child-centric where children grow and develop in such an educational functioning where they are the centre of focus and learning is on their own interest and effort, there is always a chance of failures or setbacks. In order to succeed the children should experience failure and obstacles so that they can know how to overcome it by proper solution. Child-centred education advocates about taking a reasonable risk by the children so that they can know how to overcome it or how to look for solutions but such risk should not threaten the children's overall development and health. The teacher, here plays the role of control to keep the level of any such possible risk under check.

i. Collaborative learning: As caring, sharing, and learning is the key to child-centred education so it makes collaborative learning an important characteristic of child-centred education. Collaborative learning occurs when children with similar interest and curiosity come together to explore, experiment, and learn together. Collaborative learning can also take place

in presence of a teacher where the teacher instead of acting as an expert simply act as a co-learner. Collaborative learning makes students with different backgrounds, race, or upbringing, to work together. They come together in a setting that may not be possible if it were not for collaborative learning. In order to solve a given problem, children need to communicate. They can hear different opinions and learn more about different cultures. The collaborative learning methodology is ideal for children that have difficulties in a social setting.

2.4.3 Issues related with Child-Centred Education

We have already learn, that child-centred education is a result of the movement for progressive education, but even after so many decades the educational system around the world are not completely shifted to it. Most of the countries are still following the traditional teacher- centred and rigid curriculum based education. This issue is multifaceted in nature, one of the main reason behind the non-acceptance of child centred education is its high cost. The progressive education aimed to meet the right to education of every child but child-centred education demands individual commitment to every child for that large number of educators are required that is not economically sustainable for the majority of educational organization. Especially for poor nations and nations with high population density, such individualized education through child-centred education is impossible to achieve. Even in most countries where such education exists, it has become a luxury for the elites. Though in a blended form where child-centred education is incorporated in the traditional methods it has gained popularity in recent days.

Educationists often criticize that child centred-educations are based on the social and cultural philosophy of west without taking any cross-cultural validation in the account. So an approach that may be valid in the city of London may not be applicable at the rural and tribal belt of Indian villages. So non-existence of a uniform code of functioning and operational design is an important issue faced by the child centred education.

The teachers are the important pillar of any pedagogical model, the same is true for child-centred education also where the child is the focus of all activities. For such educational practices, it is very essential to have teachers or mentors who can understand the need of every child. They must also have the highest level of communicative skills and psychologically competent to understand the state of emotions of the children and their state of preparedness. It is very difficult to train such professionally competent teachers on a mass scale as it needs years of experience for the teachers to reach that level. Thus, making child-centred education accessible to every child is a challenging task, so its large scale operational feasibility is constrained by intellectual resources also and this is a big challenge standing in the way of universalizing it.

2.4.4 Progressive Education: Origin and Philosophy

In this section, we will discuss the origin of the movement of progressive education more elaborately and will try to understand the philosophy behind it, as most of the popular educational methods find their roots deep down in this movement only. Near the end of the 19th century, a series of reform movements known collectively as "Progressivism" gained momentum and soon made an impact on politics, culture, journalism, social services, and education in the United States. It resulted as a reaction to the problems created by the dramatic increase in urbanization and industrialization that characterized the second half of the 1800s which made a severe stratification of the society into different classes both economically and socially.

Although progressivism was never an organized and unified movement, it found expression through many separate societies and many individual reformers such as Jacob Riis, Sinclair Lewis, and Jane Addams. One of the major concerns of progressivism was the quality life of the child. Its supporters made efforts to improve health care and nutrition, build children parks and amusement centres, protest against child labour and raise voice for securing human rights, make education freely available to every child, and altering fundamentally the nature of schools and schooling.

One of the strong voices in that element of progressivism was that of John Dewey (1859-1952), who played a key role in changing the focus of education from the school to the student. He believed that a dictatorial, formal, and suppressing school environment was inadequate preparation for life in a vibrant democracy. He understood that children were naturally playful and curious, and held that it was through these qualities that the most meaningful learning could take place. At the famous University of Chicago Laboratory School, he and others developed curricula and methodologies that focused on activities and projects, discovery, investigation, and real-world experiences. Dewey declared that education was not a preparation for life, but a part of life itself. He believed that teacher's or mentor's supervision and guidance was essential for a good classroom but did not need to become oppressive and inflexible. Dewey also had a mammoth influence on teacher training, primarily by establishing teaching methodology as a science and ensuring that it was as important as mastery of any subject area on the path to teacher certification. All the forms of education that exist today against the rigidity of traditional education is originated as a consequence of the movement of progressive education.

This pedagogical movement values experience over learning facts at the expense of understanding what is being taught. He argued that education should not just present the facts in front of the students to be learned mindlessly without understanding its relevance

that will be forgotten by the learners very quickly. He considered education as a journey of experiences and hence progressive in nature, learners must build upon experience over the previous ones to find and learn new things. Traditional schools always try to create a world separate from the students' life that means the contextual nature of learning is completely missing. Dewey always supported that school activities of the students must always be connected to their real life experiences or learning will never occur in a true sense. Progressive education emphasized over connecting the psychological aspects of the students with the society, family, and physical environment, thereby making the journey of learning joyful and memorable for the complete development of the student.

The philosophy behind progressive education says that teacher is not the centre of education any more they are basically the facilitator. Teachers should teach the children how to think, explore, and experiment rather than relying on the rote memorization of unverified facts. Learning by doing is at the heart of progressive education. This form of teaching-learning process is called 'experiential learning', where students participate in hands-on projects and group works that allow the students to use their cognitive abilities to find out the solution and learn from mistakes to propagate the process of knowledge generation as well as assimilation. Progressive education is the best way of educating students through real life experience rather than the experiences of others. It advocates making school a place of creativity, critical thinking, and interaction with peers, it prepares the students to be a better member of the society through utilizing its skills and also by preserving their own individuality.

2.4.5 Principles of Progressive Education

Progressive education was a drive that started to bring equilibrium between the individualism and community of the 19th century. Community refers to the socio-cultural structure comprised of people of different caste, religion, language, race, and sex. In the 19th century, countries like the USA had a much divided community of affluent and poor people, also it was cursed with racial discrimination. Education was also affected by such discrimination so some of the leading visionary educationists like Dewey wanted to give individualism of the people preferences over the communal separation. He tried to bring individualism and community together with the movement of progressive education. The progressive education aimed to bring individual and community together was initiated based on some fundamental principles. Some of the most important principles are described below :

- (1) Progressive education is based on the principle of harmonious relation between the learner, teacher, and the environment. It assumes that each child is unique and their

educational needs are also unique, so it is essential for the teachers to understand their special needs. Progressive education is best accomplished where relationships are personal and teachers design programs which honour the personal trait, linguistic, and cultural diversity of the local community.

- (2) Curriculum balance is maintained by a commitment to children's individual interests and developmental needs, as well as a commitment to the community within and beyond the school's walls. Progressive education demands the active participation of the community in the process of pedagogy as general education cannot meet the individual needs if not prepared in the context of the need of the community.
- (3) Schools following progressive education cuddle the home cultures of children and their families. Classroom activities are the mirror of these values and aimed to bring the various cultural perspective together. This helps in overcoming the barrier of any dominant culture and bring respect to multicultural societal structure.
- (4) Progressive education considers that students are active constructors of knowledge and learn through direct experience and primary sources. The teacher should only act as the facilitator with the primary aim of providing socially, emotionally, and physically a supportive environment conducive to the overall growth and development of the students.
- (5) The school is a model of democracy and human relationships. It is the tool for confronting issues of racism, classism, and sexism. Education should impart a sense of justice and equality among the learners so that every society can overcome the long running discriminations among the different sections of the society.
- (6) Schools actively support critical inquiry into the complexities of global issues. It empowers the learners to understand the problems at the global level, prepare them to take the responsibilities for the entire human race irrespective of their own social status and political considerations. Children or learners can thus assume the powerful responsibilities of world citizenship.

2.5 Individual Difference Among the Learners: Diversity of Language, Caste, Gender, Community and Religion

2.5.1 Concept of Individual Difference

The study of individual differences helps to understand not only what makes humans similar to one another, but also what makes them different. By considering the variations

that can occur from one person to another, one can best be understood with the full range of human behaviour.

According to the 'dictionary of education' by Carter B. Good (1959) :

"Individual differences stand for the variation or deviations among individuals in regard to a single characteristic or number of characteristics."

Also

"It stands for those differences which in their totality distinguish one individual from another. So, we can say that individual differences are the differences among humans that distinguish or separate them from one another and makes one as a single unique individual."

In psychology, especially in educational psychology, the individual difference is the basis upon which the children are compared with each other. Studying and understanding individual difference make the educators capable of recognizing the small variations as well as the extreme differences among the children. In this way, it becomes easier for the educators to identify the children those having special needs. Individual difference enhances the understanding of the developmental process of children at its various stages.

We know that each learner is a unique individual, with different shades of cognitive and affective development, social maturity, linguistic ability, motivation, aspiration, learning styles, needs, interests, and potential. Apart from this, there are other factors underlying student differences like differences in intelligence, differences in social and economic background, variations in past learning experiences, and perhaps variations in the level of harmony between the learner and the curriculum. Given these factors, catering for individual differences is intended neither to minimize the gap between individuals nor to even out their performances and skills. In fact, understanding individual differences should aim for understanding why learners are able or unable to learn well and finding appropriate ways to help them learn better. Education aims to enable every learner to attain all-round development according to their own attributes. The goal of this universal education is to provide support and guidance in accordance with the abilities and learning needs of the learner so that they can develop as a complete individual.

2.5.2 Types of Individual Difference

So we have read that differences and vibrations exist among human beings, making every individual a unique creation. All the differences can be considered to belong to three major categories - physiological differences, psychological differences and environmental

differences. Physiological differences are that variations amongst us which are associated with our physical structure and composition. Psychological differences are associated with the differences in our mental state, emotional consideration, cognitive aspects whereas all other external factors like economy, religion, caste, community etc. that creates variations in humans are referred to as environmental differences. Let's see in detail some of the sub-factors of these three categories of individual difference that are present amongst us:

a. Physical difference: It includes all those differences that are associated with the physical attributes of a human being. The differences in our skin colour, eye colour, hair colour, texture, length and structure of our hand, leg, neck, and ear belongs to this category. Also, our way of walking style, speech, and other body language belongs to it.

b. Intellectual difference: No two human have the same level of intellectual or cognitive abilities. Every individual has a different level of thinking, reasoning ability, creative potential, and problem-solving capabilities. Even if we take general intelligence we see people differ in their levels of intelligence, some people are genius, some are bright, some are normal whereas some are below normal and also a few may be idiot.

c. Motor difference: Though it is somewhat similar to physical difference but unlike physical difference motor differences are mainly associated with all the various motor abilities that we human can possess. It includes differences like muscular movement, reflexes, steadiness, resistance to fatigue, ability to run, jump, and flex etc.

d. Emotional difference: Individual differences also exists between the human in the form of emotional state. Some people are emotionally very stable and expressive whereas some are unstable, immature, and unable to express it. This is the reason why we see some people who are very caring and loving whereas others are introvert and rarely express their feelings.

e. The difference in achievement: It has been found through achievement tests that individuals differ in their achievement abilities. These differences are very much visible in reading, writing and in learning mathematics. These differences in achievement are even visible among the learners who are at the same level of intelligence. Such differences are the consequences of the differences in the various factors of intelligence and the differences in the various experiences, interests, and educational backgrounds.

f. The difference in interest and aptitudes: Variation also exists amongst us based on our field of interest, that's why some of us love to meet people, go to picnic, travel to different places, and attend social functions like parties very often. Whereas we also see people who are less interested in such social activities, they like to stay in isolation, do

work solo rather than in partnership etc. Similarly, people also have a difference in their aptitudes, like some people have mechanical or engineering aptitude whereas some have aptitude in art and music.

g. Racial differences: There are different kinds of racial differences. Differences in the environment is a normal factor in causing these differences. This difference generally makes some people of a particular race taller, darker, and physically fit than others.

h. Difference in beliefs and opinion: People are found to have a difference in their beliefs like some people may believe in ghost some may not, some believe that we are the creation of all-mighty where others may consider it just the process of evolution only. Opinion of the people also differ from person to person, a person's opinion about homosexuality may be positive and supportive where others may have a negative opinion about it.

i. Difference in social and moral development: Human beings are social animal but not every person has the same level of social attachment and commitment. Some people are found to have adjustment well in their social life and living happily whereas some are socially isolated, unsocial, and some even maybe antisocial. Similarly, variation is also seen in the morality of people. All people don't have the same criteria for deciding what is right and what is wrong.

All the above discussed variations made us conclude that in all the dimensions and aspects of human behaviour and personality traits the individuals differ from each other and thus no one can be exactly similar to another.

2.5.3 Causes of Individual Difference

So, now we have the concept of individual difference and the different types of individual differences that exist amongst us. There is a big question that needs to be answered - why the individual differences exist amongst us? Or in another way, what is the cause of individual differences among us? Two main reasons are responsible for catering to individual differences in human being and they are our heredity and the environment. Let's discuss them a little extensively.

a. Heredity: One of the most significant and fundamental causes of individual differences is heredity. It is a very common observation that in a family the resemblance between the siblings is much more than that with any other people who don't belong to that family. The individual inherits many common features from his/her parents and ancestors. When human reproduce they give birth a baby who inherit manys features of both the parents, this occurs

due to the mixing of genes. Genetic factor plays an important role in deciding many of the physical as well as psychological features of an individual. Individuals inherit various physical traits like face with its features, colour of eyes and hair, type of skin, the shape of skull and size of hands, colour blindness, baldness, stub-finger and tendency to certain diseases like cancer, hypertension, diabetics etc. mental traits like intelligence, abstract thinking, aptitudes and prejudices. Now it is an admitted fact that heredity differences result in the quantity and rate of physical as well as mental development being different among different individuals.

b. Environment: Environment significantly influences individual difference. Changes in a child's environment are reflected in the changes in the personality. Psychologically speaking, a person's environment consists of the sum total of stimulation that he/she receives from conception until death. Right from the conception of the child in the mother's womb the external forces start playing their role, after the birth the child tries to adjust to the physical environment. Thereafter, slowly with development, social environment starts interacting with the child and results in the development of unique features and traits causing the variation with other individuals.

So the environment consists of physical, intellectual, social, moral, political, economic, and cultural forces. All these forces cause individual differences. Modern psychologists believe that individual differences are caused by both heredity and the environment. Personality is also the outcome of mutual interaction between heredity and the environment.

2.5.4 Education and Individual Difference

The understanding of individual difference has a huge significance in education. Extensive research work that has been carried on the individual differences of the learners have added a great part of knowledge which in return helped in improving the pedagogy. It is very important to know these differences, their correlations, origin, and causes because it helps in planning the education of a particular child as per his/her unique need. Education is deeply concerned with individual difference resulting from the variation in the level of maturity and growth of the learners also it helps to understand the differences in development as a result of education and training of the past. Education can be made more accessible, efficient, and less expensive if it can be known which differences among the people are due to training and which are due to the difference in the degree of maturity.

Individual differences must be kept in mind by the teacher if the needs of the individual pupil are to be met. It should be remembered that physical and emotional differences must be met, as well as intellectual differences. The teacher must be familiar with the approaches of teaching-learning to modify the learning situation according to the need of the individual

learner. Any program of instruction must take into consideration the important facts about differences in individuals and traits. One thing that should be kept in consideration by the teacher while selecting his approach that there is a wide range of differences but they do not vary distinctly. Some of the differences are overlapped and correlated to each other, thus approaches must follow a common pattern so that most of the differences could be taken care of. Teacher's approach of instruction can never become effective and systematic unless the differences among the learners are not recognized, it's the irony of modern educational practices that here every learner is considered alike and so a common curriculum is imposed upon them. The traditional method of teaching intended to emphasize more the similarities of the learners than the variations. To ignore the fact that people differ in the diversity of language, caste, gender, community, and religion could be a dangerous mistake.

There is an urgent need to keep the functioning of the schools flexible and adaptable along with the proper training of the teacher so that it can have the capability of supporting the proper development of all the learners with a difference. Let's see some of the common individual differences among the learners in a classroom apart from those that we have already discussed in the above sections. We will limit the context of our discussion to Indian classrooms and learners only.

a. Language differences: India is a country with multiple languages, no other country in this world has such diversity concerning language and culture. Each state has its own official language and within the state, hundreds of different languages exist. So each school have a large diverse population of students belonging to different language groups. Instructions in a single language are thus not recommended as many students will not be able to follow it, thus multi-linguistic approach of teaching-learning should be followed with the emphasis on a mother tongue or native language. Language is the basis of all education, so if the language differences are not considered and taken care of then it will going to hurt all other learning and developmental areas of the learner.

b. Caste differences: There are mainly four different traditional castes in India. This classification was made in ancient time based on the nature of work the person used to do. Unfortunately, in our society social classification of an individual is often made based on his work and this continued for a very long time as a result people from certain castes are considered inferior in all aspects from others. Long running caste-based discrimination has resulted in educationally backward learners. The learners from different castes thus have cognitive and affective differences as a result of discriminatory feed from their social environment. In school, such variation should be taken seriously and learners must be given special support to meet their needs.

c. Gender differences: Gender differences have three dimensions- physical, social and cognitive. Physically boys are stronger, more active, and restless whereas comparatively girls are gentle and patient in nature. The physical growth of the boys and girls are also not the same through all the stages of growth and development. Socially, boys tend to have large groups of friends, often outspoken whereas girls like to have few friends in schools. On average, girls are more motivated than boys to perform well in school, at least during elementary school. By the time girls reach high school, however, some may try to downplay their own academic ability in order to make themselves more likeable by both genders. Even if this occurs, though, it does not affect their grades from kindergarten through twelfth grade, girls earn slightly higher average grades than boys. Teachers must understand these gender differences should not treat everyone equally when it comes to the process of learning. It can be done by making teaching efficient and curriculum flexible only then the challenges of gender difference could be resolved.

d. Community and religion differences: Religious faith and beliefs of the learners are different. Their religion and its teaching are the important social factor that affects the various dimensions of a child's development. Some religion gives more freedom towards self-expression whereas some are comparatively conservative, such things make the traits of learners different from each other. Education should allow the learners to develop under their own religious faith and in a classroom where pupil belonging to different community and religion are learning together, it becomes essential to guide them towards understanding and respecting all the different religions. Religion not only represents one faith but is also the basis of their culture and social conducts. Therefore, special attention must be given to develop the knowledge of the teachers about the religious differences and act accordingly to make the learning process suitable for all learners with differences.

2.6 Summary

We discussed about the three different theories of development. Piaget's theory of cognitive development tells us about the four distinct stages of a child's cognitive development- sensori-motor, pre-operational, concrete operational, and formal operational stages. These four stages cover birth to fifteen years of a child's development. It describes how each stage is characterized by a definite cognitive goal to be achieved by the child. By the completion of sensori-motor stage the child develops the sense of permanence of the object, at the pre-operational stage, symbolic thought process starts, at the concrete operational stage he begins to think logically but it's the formal operational stage where he can also think abstractly.

Kohlberg's theory of moral development belongs to the group of social theory of child development. Kohlberg considers moral development as a result of one's cognitive and social development. He describes three distinct levels of moral development - pre-moral, conventional-moral, and post-conventional moral levels. Each level is further divided into two stages. At the first level of development, the morality of the child is influenced by the punishment and rewards from parents, at the second level, the moral judgments of the child are according to social norms and rules, he/she decides the wrong and right for pleasing the others and to get their social affiliation. At the final level of moral development, the child's judgment becomes democratic and he uses his conscience.

Vygotsky's socio-cultural development theory emphasised over the role of culture and society in determining the development of a child. He suggested that humans are different from other mammals as human possess what he called the 'higher mental process', it is the ability to learn and evolve in close association to one's social and cultural groups. He further concluded that there are three mediators: physical tools, symbolic tools, and human mediation which are responsible for the development of a child. In the educational field he suggested that for every child there exists a zone of proximal development where the child can learn more than his/her capacity if assisted by some adult or guide.

In this unit, we have discussed that child-centred education is the need of society where the child will be at the centre of pedagogy. The education will be more democratic, choice-based, collaborative, self-activity based, and self-experience centred. Despite many advantages, it also has some issues like it needs huge resources to function, specialized teachers, and lack of validation in multi-cultural classrooms. We discussed the origin, philosophy, and principles of progressive education. Progressive education was started as a movement against the rigidity of traditional education it is an effort to bring individualism and community in education together. It advocates making learning more joyful, culture-based, and child-centric. Progressive education aims to construct the knowledge among the learners directly through experiences and protect the child's right to education for all.

In the end, we learned about the variations that exist among the learners in terms of their physical, mental, emotional, and social state known as the individual differences. Both the heredity and environmental forces are the determinants of the wide individual differences found in human beings. The knowledge of the individual differences among the learners has a significant implication in education. It helps the teachers and parents to understand the individualities of their children and design their teaching and nurturing methods accordingly. It also helps the learners to know themselves in terms of their own potentialities.

2.7 Self-Assessment Questions

1. Explain the process of 'assimilation and accommodation' in connection to cognitive development.
2. What are the main features of pre-operational stage of cognitive development?
3. Describe Kohlberg's theory of moral development.
4. Explain Vygotsky's periods of child development.
5. What do you mean by Zone of Proximal Development?
6. Write a short note on Vygotsky's socio-cultural developmental theory.
7. What are the main characteristics of child centred education?
8. Describe some of the important issues with child centred education.
9. What do you mean by progressive education and what are its main principles?
10. Highlight the important principles of progressive education.
11. What do mean by 'individual differences' of children?
12. Explain the causes of individual differences and describe the different types of individual differences.
13. How language, community, and religion are related to individual differences among children?

2.8 References

- Good, C. (1974). Dictionary of education. McGraw-Hill.
- Hayes, W. (2007). The progressive education movement. Rowman & Littlefield Education.
- Hoffman, M., & Hoffman, L. (1964). Review of child development research. Russell Sage Foundation.
- Lickona, T., Geis, G., & Kohlberg, L. (1976). Moral development and behaviour. Holt, Rinehart and Winston.
- Inhelder, B., & Piaget, J. (2013). The growth of logical thinking from childhood to adolescence. Routledge.
- Kozulin, A. (1999). Vygotsky's psychology. Harvard University Press.

- Mangal, S. (2012). *Advanced educational psychology*. PHI Learning, New Delhi.
- Panda, K. (1994). *Elements of child development*. Kayani Publication.
- Piaget, J. (1926). *Judgement and reasoning in the child*. Harcourt & Brace.
- Piaget, J. (2013). *The moral judgement of the child*. Harcourt, Brace and Company.
- Piaget, J., & Cook, M. (2011). *The origin of intelligence in the child*. Routledge.
- Rugg, H., & Shumaker, A. (1969). *The child-centred school*. Arno Press & The New York Times.
- Shanker, U. (1978). *Progressive education*. Indian Publications.
- Sprinthall, R., & Sprinthall, N. (1969). *Educational psychology*. Van Nostrand-Reinhold Co.
- Vygotski?, L., Cole, M., Stein, S., & Sekula, A. (1978). *Mind in society*. Harvard University Press.
- Vygotsky, L. (2011). The Dynamics of the School child's Mental Development in Relation to Teaching and Learning. *Journal of Cognitive Education And Psychology*, 10(2), 198-211. <https://doi.org/10.1891/1945-8959.10.2.198>
- Wertsch, J. (1985). *Vygotsky and the social formation of mind*. Harvard University Press.

Unit-3 □ Types of Children

Structure

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3.1 Objectives

After completing this unit you will be able to—

- Explain the meaning of intelligence;
- Describe the multidimensional nature of intelligence;
- Differentiate among different theories of intelligence;
- Emphasise on the importance of intelligence in education;
- Describe the needs of talented and creative learners;
- Understand the educational needs of talented and creative learners;
- Explain the concept of marginalization;
- Describe the socio-culturally marginalized learners in the classroom;
- Explain the strategies for the education of marginalized learners;
- Explain the meaning of specially challenged children;
- Understand the need for the education of specially challenged learners;
- Explain the concepts of gender and sex;
- Explain the concept of gender role and factors determining gender role;
- Explain the gender bias or discrimination;

- Describe the major areas of gender bias;
- Explain the causes of gender bias;
- Describe the connection between gender and educational practices.

3.2 Introduction

In a group of children (or among the individuals) we see they all behave differently, some are a very good speakers, some are good in sports, some can convince others very easily, some are very good in mathematics, some are good in science, some can solve the problems very quickly, whereas some are good in dance, arts or music. Such incidents display exceptionally good behaviour can be attributed to different traits and skills of the children like their level of interest, motivation, knowledge, passion, emotions etc. There is another very important factor which also plays a very important role in deciding the behaviour of human which is known as 'intelligence'. Intelligence has been a very interesting topic of psychology, especially in educational psychology for a very long period. Despite having such a long history of understanding there is no standard definition of what exactly constitutes intelligence. Some researchers have suggested that intelligence is a single general ability. Others believe that intelligence encompasses a range of aptitudes, skills, and talents. The same goes with its definition, this unit will first explore the concept of intelligence, various constructs or factors of intelligence, and its relation to learners.

In most societies we have seen that some people are considered least important, they are not the part of mainstream of society, and such people are culturally different and neglected. They are termed as the socio-culturally marginalized people. Children from such groups of people are subjected to discrimination at schools and they often find education unsuitable to meet their needs. This unit will thus explore why such children are not the centre of society and what can be done for their education. Another important group of children in our schools are those who are suffering from some kind of disability which may be physical or mental. Such children also find education inaccessible, but it is the disability of the society to provide them the appropriate opportunity of learning. In such case it becomes essential to learn how education should be structured to include them also in the present process of teaching-learning by not considering them as disabled but believing in them as a 'specially abled' or 'specially challenged' learners.

Most of the schools and educational institutes in India are co-educational in nature, where both boys and girls enjoy the learning experience together under the same roof. Boys and girls are the two genders that may behave differently in the classroom and their individual

need may also be different. The educators need to understand the psychological and social aspects of gender so that they can be better equipped themselves to understand the student's gender based differences and needs. Both the gender of students come from many different, culture, families, region, and religion, thus forming the base to have a wide variety of experiences which shapes their gender outlook. The biological factor also plays an important role in determining the student's gender perception. The last section of this unit will explore the meaning of gender, issues of gender bias and its effects on educational practices.

3.3 Intelligence: Multi-dimensional Constructs of Intelligence and Addressing the Talented and Creative Learners in Schools

3.3.1 Defining Intelligence

Throughout the psychological history of intelligence, it has been a controversial field of study as despite being a topic of interest of many psychologist and educationist there is a considerable amount of disagreement about the nature of intelligence and about what component make up intelligence. Throughout the timeline of the development of theories of intelligence, researchers have proposed various definitions. Some of the most popular definitions of intelligence are given below:

Stern (1914) : *"Intelligence is a general capacity of an individual consciously to adjust his thinking to new requirements. It is the general mental adaptability to new problems and conditions of life."*

Wagnon (1937): *"Intelligence is the capacity to learn and adjust to relatively new and changing conditions."*

Jean Piaget (1952): *"Intelligence is the ability to adapt to one's surroundings."*

Apart from these three, there are numerous definition of intelligence but all of them if taken separately gives the incomplete picture of the intelligence. The first attempt to give a comprehensive picture of intelligence was done by David Wechsler (1944), according to him *"Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally, and to deal effectively with his environment."*

The current development in the field of intelligence suggested that intelligence is the (a) ability to learn from the experience by acquisition, retention, and use of knowledge as per the situation, (b) ability to identify the problems posed by the environment (c) finally,

to have the skill and knowledge for finding out the useful solution of the problem and learn from the experience to use it in future.

On a conclusive note, it can be said that intelligence is a kind of mental energy, in the form of cognitive abilities, available with an individual which enables him or her to handle the environment in terms of adaptation to face novel situations as effectively as possible so that the individual can lead a successful and happy life.

3.3.2 Theories and Multi-dimensional Construct of Intelligence

Just like the definition of intelligence, there are numerous theories of intelligence, none of them is absolute and there does not exist any unified theory of intelligence. Various eminent psychologists proposed many theories to explain how intelligence operates and what kind of behaviour is to be expected from an intelligent individual, these theories are an attempt to reveal the dimensions or factors of intelligence.

All the theories of intelligence are basically representing two different paradigms of intelligence, one of them considers that the intelligence of an individual is a single factor structure or one-dimensional. That means a person who is intelligent in one field or area of life he has the ability to excel himself in all other fields of life. Conversely, a person who fails in one area of life is also unable to perform well in other fields. This theory belongs to the old school of thought, longitudinal studies showed that people who failed in some particular field later did exceptionally well in some other fields of life. So, this paradigm of intelligence theory lost its popularity with time. Later, with more progress in the field of intelligence research, a new paradigm emerged that supports the multifactor or multidimensional nature of intelligence. E.L. Thorndike was the propagator of this theory, it considered intelligence to be a combination of numerous separate elements or factors, each one being a minute element of one ability. There is, then, no such things as general ability or single factor and there are only many highly independent specific abilities which go into the accomplishment of different tasks.

One-factor theory and multi-factor theory represent two extreme views or paradigm of understanding and functioning of intelligence. Thus, being an intelligent person in mathematics does not guarantee the success in science and arts as per one-factor theory but if we believe in multi-factor theory, an individual has the potential to be creative in many different fields at the same time. This indicates that there is maybe some correlation between the successes of a person in two or more fields of life. This concept is not new, it was Spearman (1923) who first tried to explain this multiple intelligence through his two-factor theory.

3.3.2.1 Spearman's two-factor theory : Spearman proposed this theory in 1923 as he advocated that intelligence consisted of a general factor (g) and several specific factors (s). All the intellectual activities involve common mental energy which has some upper threshold and runs through all the different tasks this is known as the 'general factor.' For example, consider a child excellent in languages - English and Hindi, it is partly due to his general intelligence for languages and partly due to the specific skills, abilities, and interest in English and Bengali separately which he might possess. So, intelligence in multiple areas is seen among the individual when a general intellectual ability 'g' combines with the specific intellectual abilities in other fields say s_1 , s_2 , s_3 etc. forming the total intelligence of 'I' of the individual. Mathematically,

Thus, it may be represented as, $I = g + s_1 + s_2 + s_3$

One important aspect is that the specific factor does not act independently it is influenced by the state of readiness of the individual, social, and physical environment also. Spearman's theory could explain multiple intelligence well but still, there are some serious drawbacks to it. Two-factor theory does not mean that there are just two factors in fact there may be more than two factors $g, s_1, s_2, s_3, s_4 \dots$ and these specific factors are not mutually exclusive. These factors may overlap and the result of overlapping was not explained by Spearman's theory. This explanation was later made by Thurston, when he proposed his 'Group Factor' Theory which emphasises that various factors come together to give rise to a group factor essential for some particular task. Thus, there may exist many such group factors responsible for various intellectual abilities in an individual.

3.3.2.2 Guilford's Model of Intellect : J.P. Guilford and his associates proposed a model of intelligence. It was based on the factor analytical research studies conducted by them that involved series of intelligence test. They concluded that all intellectual activities can be described in terms of three basic dimensions or parameters—operations, contents, and products. Operations are what the respondent does. These include cognition, memory recording, memory retention, divergent production, convergent production, and evaluation. Contents refer to the nature of materials or information on which intellectual operations are performed. These include visual, auditory, symbolic (e.g., letters, numbers), semantic (e.g., words) and behavioural (e.g., information about people's behaviour, attitudes, needs, etc.). Products refer to the form in which information is processed by the respondent. Products are classified into units, classes, relations, systems, transformations, and implications. Since this classification (Guilford, 1967) includes $5 \times 5 \times 6$ categories, therefore, the model has 150 cells represented in fig 1.2. Each cell is expected to have at least one factor probability;

some cells may have more than one factor. Each factor is described in terms of all three dimensions. The above mentioned theories are representations of the psychometric approach to understand the intelligent behaviour.

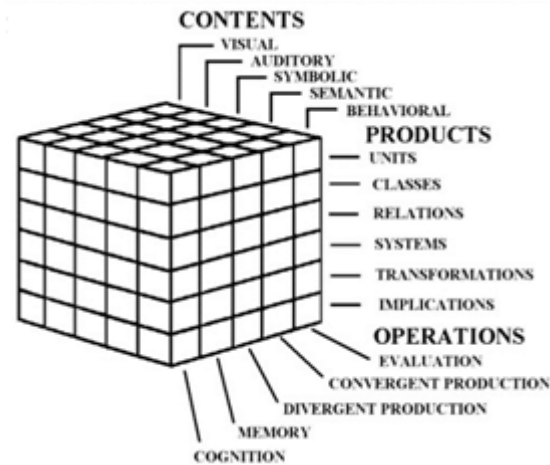


Fig 1.2 Guilford model of the structure of intellect

3.3.2.3 Gardner's Theory of Multiple Intelligence

The theories of intelligence that we discussed so far are based on the notion of factors, but Howard Gardner opposed this concept of the general factor of intelligence and proposed the theory of multiple intelligences based on the consideration that intelligence can be best described in terms of some fundamental cognitive functioning in human. According to him, intelligence is not a single entity; rather distinct types of intelligence exist. These intelligence are independent of each other. It means that, if a person exhibits one type of intelligence, it does not necessarily indicate being high or low on other types of intelligence. He asserted that human intelligence or cognitive competence can be better described as a set of individual's multiple abilities, talent, and mental skills related to multiple numbers of domains of knowledge in a particular cultural setting. Gardner also put forth that different types of intelligence interact and work together to find a solution to the problem. Gardner studied extremely talented persons, who had shown exceptional abilities in their respective areas, and described eight types of intelligence. These are as follows:

(i) **Linguistic intelligence:** It is the capacity to use the language fluently and flexibly to express one's thinking and understanding others. Persons high on this intelligence are wonderful speakers, i.e. they are sensitive to different words can create mental pictures of

the context in the listener's mind through their speeches. Poets, lawyers, teachers, lyricists, and writers are very strong in this component of intelligence.

(ii) Logical-Mathematical intelligence: This intelligence reflects skills in scientific thinking and problem solving. Persons high on this type of intelligence can think logically and critically. They can do deductive reasoning very easily, can solve puzzles and encryptions quickly. They are mathematical genius, problem solver, and super quick with numbers. Scientists, Philosophers, and Nobel Prize winners are likely to be strong in this component.

(iii) Spatial intelligence: Such people have exceptional skills in forming visual images and patterns. It refers to the abilities involved in forming, using, and transforming mental images. The person high on this intelligence can easily represent the spatial world in the mind. Pilots, sailors, sculptors, painters, architects, interior decorators, and surgeons are likely to have highly developed spatial intelligence.

(iv) Musical intelligence: This intelligence is reflected through sensitivity to musical rhythms and patterns. It is well demonstrated through one's ability to compose music, to hear themes in music, and to understand the minute change in pitch and rhythms of sounds. Musician, singer, musical instrument players, and composers are likely to have such kind of intelligence.

(v) Bodily-Kinesthetic intelligence: People with such intelligence can flex their body usefully and creatively which not only looks aesthetically wonderful but they can use it for solving a problem and constructing new things. Athletes, dancers, actors, sportspersons, gymnasts, and surgeons are likely to have such kind of intelligence.

(vi) Interpersonal Intelligence: This intelligence consists of cognitive abilities to be sensitive to subtle aspects of others' behaviours. This is the skill of understanding the motives, feelings, and behaviours of other people so as to bond into a comfortable relationship with others. Psychologists, counsellors, politicians, social workers, and religious leaders are likely to possess high interpersonal intelligence.

(vii) Intrapersonal intelligence: Just opposite to interpersonal intelligence, intrapersonal intelligence is the awareness of one's own feelings, motives, and desires. This refers to the knowledge of one's internal strengths and limitations and using that knowledge to effectively relate to others. Persons high on this ability have finer sensibilities regarding their identity, human existence, and meaning of life. Philosophers and spiritual leaders are the examples of this type of intelligence.

People with such ability have the sensitivity to all the elements of our natural world.

It is reflected in one's ability to relate with the natural world, to be sensitive to the degradation of nature and life. Ability to find sustainable solutions to natural problems. It is useful in recognizing the beauty of different species of flora and fauna and making subtle discriminations in the natural world. Hunters, farmers, tourists, botanists are likely to have such intelligence.

3.3.3 Importance of Intelligence in Education

Intelligence is not just a cognitive function but also depends on emotional state, social, and physical environment. The majority of the students in a classroom have some kind of intelligence like linguistic, logical-mathematical, musical, body-kinesthetic intelligence etc. They may have this intelligence from moderate to high values and theories of intelligence emphasize that such intelligence is very essential for learners to gain knowledge and fulfil their need to develop completely. The teaching-learning process does not completely depend on the technique of the teacher only, the part that intelligence plays in the education of the learner must be considered strongly. In the teaching-learning process, the learner must have the general ability to learn as the learning process is conditioned by the intelligence of the learner. Both activities must meet certain conditions if they have to take place successfully. Learning is impossible without intelligence. In other words, intelligence is the basis of learning. The effectiveness of learning is conditioned by the degree of intelligence. It is a well verified and accepted fact that learners who have moderate to high intelligence are very easy to motivate, guide, and teach than the students with low intelligence as such students then need special care and resources to teach. For intelligent learners teacher can experiment with various innovative ways of teaching which will only be going to help the children as they will get the scope to use their skills and test their limits, such learners will be able to excel very high in life. They also need minimal practice in their work. It is, therefore, possible that a student with high intelligence can perform excellent in school, college or university with moderate energy and normal time. The effectiveness of teaching-learning is conditioned by intelligence. Quality education can easily be achieved if we are able to identify intelligent learners, understand the type of intelligence, and able to foster intelligence in them.

3.3.4 Talented and Creative Learners in the Classroom

We already know that in a classroom no two children are the same they differ cognitively, emotionally, socially, and physically this variation which is popularly known as individual differences creates a special group of children called 'exceptional children'. According to Telford and Sawery (1981) "the term exceptional children refers to those children who

deviate from the normal in physical, mental, emotional, or social characteristics to such a degree that they require special social and educational services to develop their maximum potential."

Among the various kind of exceptional children, talented and creative learners are one of them. Generally, talented or gifted learners are the pupils with unusually high verbal skills, they score very high on achievement tests. However, the most current definition of "gifted students includes unusual talents in a range of activities, such as music, creative writing, art, and sports (Davis & Rimm, 2004)". This definition of gifted students is a result of the idea of multiple intelligence. Gifted children are often creative in their behaviour, creativity refers to the ability of the students to generate novel ideas and products which are useful as well as appreciable by society.

In a classroom, the teacher needs to identify such learners who are talented and creative in behaviour. Since they are very distinct from others they are not very hard to identify, some of the very prominent traits found in talented and creative learners are given below:

- a) They learn very rapidly and easily.
- b) Uses a great deal of common sense and practical knowledge.
- c) They think clearly and divergently.
- d) They can recognize the relationship and comprehends meanings.
- e) Such learner don't practice rote learning but learn with interest and joyfully.
- f) Perform difficult logical problem solving task.
- g) Ask many questions and have a wide range of interest.
- h) They are very original in thinking, uses good but unusual methods to accomplish the task.

It is not always necessary that to identify such learner one need to conduct special intelligence and creativity test, it can be done very easily by the teacher through observation of above mentioned behaviour of the learners.

3.3.5 Needs of Talented and Creative Learners

Contrary to a common impression, students who are gifted or talented are not necessarily hard to deal with socially, less healthy, or narrow in their interests, in fact, quite the contrary

(Steiner & Carr, 2003). They also come from all different economic and socio-cultural groups. Unfortunately, despite their obvious strengths as a learner, such students often feel boring in school curriculum unless teachers can provide them with more than the challenges of the usual curriculum. Such children have some special needs apart from the general needs of care, protection, and love like the need for extra knowledge, creativity, ingenuity, support for the development of special abilities and the need for self-expression. A school child at the junior level of schooling may have a very high level of skill with reading but if the teacher doesn't recognize it and support his/her talent then soon the child may lose this talent and his/her peers may quickly catch up with his/her initial level of ability. Without accommodation to their unusual level of skill or knowledge, students who are gifted or talented can become bored by school, and eventually, the boredom can even turn into behaviour problems.

Generally, talented and creative children are very curious in nature so they keep asking unusual questions or explanations from their teachers and parents. If the teachers or parents don't understand their nature and instead of meeting their curiosity scold them or insult them then they may feel rejected and become a nuisance. Talented and gifted children look for appreciation of their ingenuity and creativity in their field of interest if they don't get it and teacher, as well as peers, give them undue attention and less appreciation, they may become too conscious of his/her superiority and develops a boastful attitude. They may start considering their peer as fools and inferior, the peers in turn consider such children undesirable and due to jealousy reject them socially. As a result, talented children become withdrawn or aggressive towards others and themselves.

By definition, students with gifts or talents are capable to be creative, committed to work at levels that often approach talented adults. Other students including students with disabilities may reach these levels, but not as soon and not as frequently. Therefore, such children face difficulties in a normal school set-up where every activity are designed similar for all students with the average level of abilities. For talented children these activities do not possess any challenge either, they do it very quickly or quit it due to lack of interest and motivation. As a result, they spend the rest of the time carelessly, inattentively, and idle. Thus, lack of proper understanding of the need of such gifted, talented, and creative children resulted due to the failure of arranging proper supportive environment for them and it ultimately leads to wastage of human potentials and development of behavioural problems among the young generation of learners.

3.3.6 Education of Talented and Creative Children

It is very common to have few exceptional children in a classroom who are talented in various dimensions and have high creative potentials but the rest of the children are average or below average. It is thus difficult to adapt a common curriculum for everyone as it will not meet their individual needs. Many educationists and philosophers advocated for well thought out special educational program for such children. Some of the plans forwarded by them are—(a) separate schools for exceptional children, (b) ability grouping or separate classes, (c) Acceleration or double promotion for talented children, and (d) enrichment program.

Establishing a special school is one of the many suggestions given by the thinkers, where children with exceptional talents and creative abilities will be admitted and an entirely separate curriculum will be implemented. The environment for them will be supportive and special teachers will supervise them through their entire development. Though critics refer to such school as undemocratic and too selective in nature because education should be inclusive in nature not for some elite and special classes only.

A much feasible idea is to create a separate classrooms with the same school, such grouping of students with gifted abilities will help to nurture their abilities within the normal school setup. It will require extra time and specially trained teachers to conduct such class, for nations with huge learning population this idea may not be very practical to adapt.

Another concept in the education of gifted children is acceleration or double promotion. According to this scheme, the gifted and creative children are allowed to promote to the next higher class in mid-terms or promote to two classes higher after completing the session as it will give them the chance to fulfil their extra need of knowledge. The plan, though quite feasible, suffers from a serious defect in it as it creates a gap between educational ability and experience. The children who get early promotion to the advanced grade usually find it hard to adjust among children who are senior to them in age. Though intellectually at par with them, they lag behind in emotional, social, and physical spheres and thus become victim to adjustment problems.

Another proposal for the education of gifted children is what is technically known as 'enrichment'. Enrichment is the process of selecting and organizing different learning experiences and activities appropriate to the children's adequate development. Such enrichment is the need of every child but in the case of talented and creative children, it will give them a greater variety of experience or tasks at a more advanced level. In

comparison to other schemes, the enrichment method is the best way of educating the talented and creative learner as it will not require a special school or class and will not be a burden on limited resources. This method does not segregate other pupils from the quality educational system so is ethically most democratic to be accepted by every social system.

3.4 Addressing Socio-culturally Marginalized and Specially Challenged Learners in the Classroom

3.4.1 Concept of Marginalization

The concept of 'marginalization' first explained by Park (1928) in his seminal essay, "Human migration and the marginal man" where he suggested that migration of people from one land to another distant land finds it very difficult to live in some very different social environment, lack of proper adjustment resulted into abnormal personality among such people. He termed them as 'marginal man'. Later, Billson (1996) explained the concept more elaborately and explained its significance in the social realm. He distinguished three different forms of marginalization, cultural marginalization, social marginalization, and structural marginalization. Cultural marginalization refers to the situation when an individual due to some reasons choose or forced to live in two different cultures but failed to connect himself or herself with any of the two cultures. The culturally marginalized person often feel inferior in such non-connecting cultures, it results into non-transmission of marginalized culture and many cultures has been lost in history due to acculturation. People who are socially marginalized are largely deprived of social opportunities. This marginalization is either inborn or acquired. People born with physical disabilities or in socially rejected communities are socially marginalized by birth. Whereas some are marginalized later due to various events that occur in like accidents, criminal causes, illness, mental state etc. They may become stigmatized and are often at the receiving end of negative public attitudes. Their opportunities to make social contributions may be limited, and they may develop low self-confidence and self-esteem. Social policies and practices may mean that they have relatively limited access to valued social resources such as education, health services, housing, income, leisure activities, and work.

The unified definitions of marginalization can be stated as the condition where an individual or community stays separated from the rest of the society, forced to occupy the fringes and edges and they are never at the centre of any social, cultural, economic, and political things. Marginalized people are not considered to be a part of society. Deprivation of resources essential for the prosperous and satisfactory living of a human is the most

common result of marginalization. Along with such deprivation of resources, marginalized individuals are also excluded from services, programs, and policies. Marginalization needs to be understood in terms of exclusion, both individual and group. Exclusion is sometimes implicit and those that commit it are often unaware that they are doing so.

3.4.2 Socio-culturally Marginalized Learners in a Classroom

For a marginalized child means he/she has been forced to be at the edge or corner of the system such that he/she is not at the centre of anything. Such things can be observed and even experienced by many of us in any school, playground, or any classroom. The children who are not like others in a classroom means those who don't talk like everyone else, those who don't have a similar taste for art or music, those who don't belong to the same culture, those who speak a different language, those who look differently, and those who dress differently are not considered to be a part of the peer group. Such children are often seen to be left alone in a school environment, sometimes even neglected by the teachers, they are the victims of socio-cultural marginalization. Children belonging to the group of people or communities who are subjected to exclusion face the same treatment in school also. They may also feel marginalized because they are poor, considered to be of 'low' social status and viewed as being less human than others. Sometimes, marginalized children are viewed with hostility and fear by their peers. This sense of difference and exclusion among the marginalized child leads to the condition of deprivation where they are not having access to resources and opportunities, lose their ability to assert their rights. They experience a sense of disadvantage and powerlessness against the more powerful and dominant sections of society who own land, are wealthy, better educated and politically powerful. Thus, marginalization is seldom experienced in one sphere. Economic, social, cultural and political factors work together to make certain groups in a society feel marginalized including the children belonging to that group.

3.4.3 Strategies for the Education of Marginalized Learners

Changes are necessary from the elementary level of education, the steps taken for universalization of elementary education in a country like India is the right step towards it. As a result, there is an increase in enrollment suggesting an increased willingness of the parents to support their children's education that can help them to come out of poverty, social isolation, and exploitative situation. The massive increase in the demand for elementary education resulted in the restructuring of the educational policies that advocates for the development of the creation of institutional mechanisms for providing education that can meet the diverse needs and expectations of all children and their parents. Though some

major steps have been taken which is visible in the form of improvements in a school environment the process of discrimination against the deprived, disadvantaged, and marginalized children are still continuing. It is mainly because, education in India is historically governed by the interests of elites and the upper class resulting in the exclusion of a large section of children out of its purview and making universalization of education an elusive goal. This process of exclusion can be considered as a denial of distributive justice that reinforces relational injustice, which is characteristic of India's hierarchic society.

Most of the people of marginalized group or community are poor and less educated so they fail to negotiate and put forward their demands to the elite class of educators and policymakers. Any progressive society needs to put the poor and marginalized at the centre of the educational process and policymaking units so that such people can be aware of their rights to education. According to Subrahmaian (2003), "Strengthening the voice of the poor and marginalized in education is crucial, not just for effective policy formulation, but is essential to close the gap between intention and practice". So one of the best strategies to secure the education of marginalized learners is to avoid any such educational policies that result in inequalities in educational attainment and outcome. Policymakers must realize the fact that quality related problems in teaching-learning arise more frequently when the equality related issues are not taken care of effectively. Most of the backward areas don't have an adequate number of elementary school, even if they have some it is run by a single teacher and such schools are ill-equipped to address the learning needs of marginalized learners. Under various initiatives like 'Sarva Siksha Mission' large number of schools are being made in remote corners of the country, non-formal schools are upgraded to formal schools for mainstreaming the deprived children.

Because of resource constraints, it is essential to correct the policy of inadequate investment and low expenditure to facilitate the holistic development of elementary education. It is also possible to decentralize the educational management, making schools and local authority together responsible for the education of deprived marginalized groups.

3.4.4 Specially Challenged Learners in the Classroom

3.4.4.1 Meaning of specially challenged children: Not every child is born with similar abilities. In our society, many children are physically disabled like missing limbs, eyesight, hearing, speech, improper mental functioning, and may be other deformations. Over time the stigma and social narrowness associated with such children has reduced and due to social as well as educational reforms, such children are now considered as born with special abilities which are not found in others. Such children face challenges that are very

special in a sense as it makes them capable of overcoming situations that a general child cannot even think of. The criticism behind the use of the word 'disable' lies in the notion that it is not the child who is disabled in doing something but the disability lies in the society or environment to support the special need child. Let's take an example, a child using a wheelchair is disabled by the steps or stairs present in the school campus not because the child cannot walk. Here it's the disability of the society to fail to understand the need of the child and act accordingly to give the child a similar experience like all the other children. So, it can be said specially challenged children in a school are those children who have some special needs and requirements to behave and live like any other children, to fulfil these needs and requirements come under the responsibility of the school and society. Some of the major categories of conditions which comes under the terminology of 'specially challenged' children or learner are:

- Children with locomotor disability.
- Mildly and moderately hearing impaired.
- Partially sighted children.
- Blind.
- Mentally retarded educable group.
- Children with multiple handicaps (blind and orthopaedic, hearing impaired and orthopaedic, educable mentally retarded and orthopaedic, visual impaired and mild hearing impaired)

3.4.4.2 Education of specially challenged learners: In the year 1974, the Ministry of Welfare, Government of India under the mission of 'education for all' launched a special educational drive for the specially challenged learners called Integrated Education for Disabled Children (IEDC). The prime aim of the program is to enable such children to face life and society courageously and develop a level of self-confidence so that they can be brought to the mainstream of society with all dignity and equality. This scheme aimed to provide proper educational opportunities and environment to the specially challenged learners in the regular school along with all the other children, it also ensures their achievement and retention throughout the schooling period. Under this scheme, many special schools were made to function in close connection with normal schools. The IEDC scheme provides for a wide range of incentives and interventions for the education of specially challenged children. These include preschool training, counselling for parents, allowances for books and stationery, uniforms, transportation, readers and escorts, hostel facilities, and other assistive tools.

The scheme provides one special teacher for every eight children with special abilities, community involvement, and a resource room in a cluster of eight to ten schools. Several voluntary organizations are implementing the scheme in various states. As a result of these, there has been a sharp decline in the dropout rate of such children, the average achievement has improved, the enrollment ratio increased, and participation of specially challenged people in jobs has increased. Though many special schools are also present for such children their enrollment in such schools is not significantly higher than in regular schools. In fact, special schools create some sort of social segregation of specially challenged people so the emphasis is on 'inclusive education'. Inclusive education has the potential to lay the foundation of a more inclusive society where being 'different or special' is accepted, respected and valued. The best way is thus to increase the access of education to specially challenged learners and then bringing the society to get connected with them through inclusive education. As inclusive education brings education to a wide variety of students from all different background to grow side by side under the same classroom. The most essential feature of such inclusive schooling required for the specially challenged learners are given below:

Inclusive curriculum: A curriculum common for all, which meets the need of all different kind of learners are called an inclusive curriculum. Such curriculum is based on the principles of equality, equity and social justice, and thus does not involve any element of discrimination based on gender, ethnicity, indigenous group, socio-economic status, and ability or disability. Such a curriculum ensures that every specially challenged learner will have an organized school where there will be enough flexibility and scope to grow and develop. For such a curriculum, it is essential to have a clear and forceful policy on inclusion together with adequate financial assistance, an effective public information effort to combat prejudice and create informed and positive attitudes, an extensive program of orientation and staff training, and the provision of necessary support services.

Teaching practices: Inclusive education does not demand any new teaching methods for the specially challenged learners but it expects some modification in the existing practices by the teachers so that learning can take place conveniently among such learners. Some of the popular techniques that are used in inclusive education are group learning, peer mentoring, speaking slowly and clearly so that hearing-impaired children can do lip-reading, using models and charts, and using audio stories. Many suggest cultural contextual learning strategies like folk songs, dance, craft etc. are also very effective in teaching-learning.

Language acquisition: The goals of education are the same for all children provided

that these goals are balanced and brought in harmony with the individual needs of each child. There are some issues associated with the current curricula like the repetition of topics, excessive exercise, less emphasis on co-curricular activities etc. such areas of content need improvements. In Inclusive curriculum subjects like language is given the highest priority as it is the basis of rest on the pedagogy. It has been seen that children with hearing problem generally need more time to comprehend, for this reason computer-aided learning and visual aided learning are important for language acquisition as an important element of inclusive education. Some curriculum also includes braille as the third language where there is a three language learning policy.

Contextual mathematics and science: Subjects like mathematics are more contextual than simple the bookish or textual forms. Problems are more related to the life and society of the children so that especially challenged children with learning difficulties can learn with ease by connecting with the subject. Here also use of information and communication technology is promoted to connect the children with all other children so that they can learn in groups and share experiences. Learning is done in these subjects mostly through activity-based learning.

Art, craft, and music: Art, craft, and music are very effective medium of self-expression and communication, so they are given an important place in the curriculum for specially challenged learners. It also includes many other forms like dance, drama, sculpture, carving, puppetry, etc. for self-expression and communication with the world. It also helps in developing self-confidence and self-worth in learners. Art classes use collaborative methods to encourage many students to take up this creative mode of self-expression as their profession in future life. For specially challenged students, art education also acts as a healthy leisure activity.

Physical education: This component of the curriculum is essential for those children who have problems with their physical growth, movement, motor skills, mental health, social adjustment. It is well known that most children with physical challenges can play different games or perform physical activities (Dash, 1997) with little to no assistance at all. Such inclusion of physical activities like yoga, sports, swimming, health and hygiene classes help the learners to develop properly with improved attention and concentration. It also has many therapeutic effects on specially challenged learners.

Specially challenged children are not different from other children they are an integral part of our society with similar needs and the same potential, it is therefore important to develop a 'school for all' having an inclusive curriculum. The curriculum needs to be balanced in such a way that it is common for all, and yet takes account of the individual

needs of all learners. It is also important to take into consideration pedagogical issues. The curriculum should be accessible to all and care should be taken to ensure that specially challenged learners are not segregated from the mainstream by providing them with the equal right and opportunity of an education process.

3.5 Gender as a Social Construct: Gender Roles, Gender Bias, and Educational Practice

3.5.1 Understanding the Concept of Sex and Gender

Genetic characteristic and social environment are the two most powerful factors that decide the behaviour of an individual, the same is true for the perception of sex of a person. Though the word 'sex' and 'gender' are often used interchangeably but there is a conceptual difference between the two. Sex is related to one's born characteristic, it is a biological term used for male or female depending upon their sex organs like their genital and hormones. The physiological characteristics which are recommended by medical science like chromosomes, external genitalia, internal genitalia, gonads, hormonal states, and secondary sex characteristics are the criteria based on which we refer someone to be of male or female sex. It cannot be changed completely, male and female are the two extreme ends of sexes but there are some deviants where people may have features of both the sexes and they are referred to as 'transgender'.

Human is a social being, sometimes social forces are dominant over the genetic traits and they play an important role to determine one's socio-cultural role. 'Gender' refers to the socially constructed roles, behaviours, attributes, and activities that a given society considers appropriate for men and women. The word 'Gender' originated from the Latin word 'genus', which means 'kind or race'. Gender is a psychological and cultural term referring to one's subjective feelings of maleness and femaleness, it is the reflection of society's evaluation of behaviour as masculine or feminine. For example, it is the society that defines boys are stronger so must get involve in education and occupation to support the family whereas girls are soft and polite so must look after the family at home. Thus to conclude, sex refers to all those aspects, which are biological and is inherent in a person whereas gender is made up by society and culture, and hence, is left to human perception.

3.5.2 Gender Role

In a classroom most of the learners, both boys and girls have different beliefs, practices, and behaviour. On exploring closely we will see that they actually represent the beliefs and

practices of their family, community, society, and religion. This effect of society is so deep that even their perception about the various roles of both genders are influenced by social beliefs. This process of acquiring gender related behaviours and attitudes through the intervention of society is called gender socialization. It is the gender socialization which decides or in other word imposes the role to be played by the boys and girls in a society. For example, we see that in our society most of the activities are gender-specific like nursing is considered to be a female-only profession, though anyone can do it still hearing of word 'nurse' just create the perception of a female in our mind. It is the perception of the society and people around us that certain activities should be completed only by a particular gender for the reasons that they consider are best. These behaviours and attitudes that are generally considered acceptable, suitable, or desirable for people by society based on their actual or perceived sex are called gender roles.

According to Block (1973) "*Gender role is a constellation of qualities an individual understands to characterize males and females in his or her culture. These qualities include activities, role relations, social position, personality characteristics and a host of abilities and behaviours*".

Society expects us to behave according to our assigned sex, like it wants the girls to be polite, caring, nurturing and homely whereas wanting the boys to be strong, risk-taking, hardworking, and vocational in nature. When a person takes or shows any such behaviour and attitude accepted by society it represents the gender role perceived by the person. Generally, most popular cultures and societies accept two basic gender roles - Masculine that means to have the qualities attributed to males and feminine which mean to have qualities attributed to females. There are many different characteristics of gender role which distinguish it from sex: (a) gender roles are not inherited they are learned and perceived behaviour. (b) Gender roles are culture specific it varies from country to country, state to state or society to society. (c) Gender roles are affected by several factors such as age, class, race, ethnicity, religion and ideologies, in addition to the geographical, economic, and political environment. (d) Roles may be complementary or conflicting in nature.

3.5.3 Factors Determining Gender Roles

We have already read that heredity does not influence the gender role but other factors like society, culture, and personal choice do affect the gender roles. Now we will discuss some of the major factors that determine one's gender roles.

Personal choices: The most important factor that determines one's gender role is

their personal choice. Most of the time these personal choices are recognized by society but there are some contradictions too. Sometimes the personal choices are so strong that it supersedes the inherited sex and a person has the masculine attributes despite of being female and a male may prefer to have feminine attributes.

Personality traits: Every person has their own distinct personality. Personality traits are multi-dimensional which are developed as a result of the interaction of the person with the social and physical environment. Personality traits determine one's behaviour in the social world and it can decide the person's gender role. Due to their distinct personality, women are often expected to be accommodating and emotional, while men are expected to be self-confident and aggressive.

Domestic Behaviours: The family we live in and the community we are connected with gives us some distinct but specific behaviour as they expect it from us such as some people expect that a girl or women in a family will take care of the children, cook, and clean the home, while boys or men take care of finances, work on the car, and do the home repairs. Such family and domestic expectation of behaviours also determine the person's gender role in that particular society.

Occupations: Sadly even in most modern societies and cultures still many of the occupations are gender specific. We often assume that teachers and nurses are women and that pilots, police, and firefighters are men. It is due to the social perception of occupation as the determining factor of gender role.

Physical Appearance: Gender roles are also determined by one's appearance. Social contact develops the human child with a mental visualization of the appearance of typical men and women. Women are expected to be fair, slim, and graceful with long hair, while men are expected to be dark, tall, and muscular. Men and women are also expected to dress and groom in ways that are stereotypical to their gender like men should wear pants, shirt, and having short hairstyles whereas women should wear sari, salwar, and skirts with make-up.

3.5.4 Gender Bias or Discrimination

We learnt that cultures and societies determine the role of various genders but not every gender in their role are treated equally by the society and the people. In a family, we have seen that sons are given priority in everything over the daughters as they are considered to be the future earning member of the family. Such discrimination or bias is seen in education also where boys are sent to the schools and girls are forced to work at

home and look after the others. It is not only seen in developing nations only but throughout the world, even in developed nations. Women are considered weak and inferior to men in their education, career, economic advancement, and political influence. So gender bias or discrimination can be defined as an act or action that specifically denies opportunities, job, education, health, security, financial benefits, privileges, and rewards to an individual because of gender.

3.5.5 Major Areas of Gender Bias

Birth preferences: In countries like India, bias against gender starts from the womb itself. Societies over-favouring the masculine gender are causing illegal abortions of female babies. Even in modern days when such practice is considered criminal offence people are still doing such discrimination against girl children.

Fundamental rights: The right to grow, develop, speak, freedom of expression, to live, are considered to be the fundamental rights of anyone but many societies and nation don't consider both genders equally eligible for these rights. Girls often face bias when they claim their fundamental rights, such denials of rights are seen in the form of practices as a preference for sons, early marriage, female genital mutilation, domestic abuse, sexual exploitation, discrimination of skin colour, less food, and less access to education.

Education: Education is one such area where gender bias is much greater than other fields. Girls are often denied an education by their family as they are considered to be the temporary members of the family. Boys are preferred over girls for education as such society consider men as the suitable gender for vocations and capable of earning for the family. So investing in a girl child's education is considered to be a wastage of money.

Employment: Gender inequality can also be seen in the case of employment. Women in India are primarily responsible for childcare and household. A majority of women are found in the vast rural and urban unorganized sector. According to an estimate by the National Commission on Self-Employed women, 94% of the total female workforce operates within this highly exploited sector. Employment in this sector is characterized by low pay and long hours of work. Due to various prevailing social conditions, women lack the opportunity to acquire skills and training, which could facilitate occupational shifts. Since women have to bear the major burden of domestic chores, which is a poor household is time-consuming and labour-intensive, they do not have the time and opportunity to acquire skills and training for better jobs. The organized sector accounts for approximately 10% of the female labour force.

Wage: Wage disparity is seen not only in poor nations but also in developed nations. Women are underpaid in most of the professions in comparison to men. From daily workers, construction workers, skilled technician etc. men are always preferred and thus paid significantly higher than women with similar competency. It can be seen in art and talent industries also where men actors are earning much more for the same project in comparison to actresses.

3.5.6 Causes of Gender Bias

Gender bias is not new it has been in our culture from the beginning of the human race but the question is what are the factors responsible for this discrimination? In India, women are treated unequally to their men counterpart in every field whether it is religious, economic, or social affairs. Now we will discuss some of the major causes of gender bias or discrimination in our society and culture.

Poverty: Poverty is the prime cause of gender disparity, it is much visible in poor nations around the world. In a developing nation like India, more than 30% of the population lives below the poverty line and among them, 70% are women. The greater number of women living below the poverty line is due to the absence of freedom, independence, and economic opportunity for women. Women in some groups or societies don't even have the rights of ownership of land, ancestral properties, and credits. They are discriminated in society as they don't have the financial strength to put their demands and rights.

Illiteracy: Literacy is the backbone of any society, it strengthens the values, culture, economy and equality of the society. People who are educationally backwards are exploited everywhere and not given equal status. Thus, illiteracy is also another reason for gender bias because in most nations it has been found that girls' literacy is far behind that of the boys and so the women are not aware of their rights and are subjected to discrimination and injustice.

Lack of job opportunities: On an average still women are less educated than men in most of the region as a result of it their job opportunities are very narrow. Apart from it women have the added responsibilities of taking care of family and children so they don't have the full freedom, abundant time and mobility like the men do so they are less preferred for any kind of jobs. Some jobs still consider women totally unsuitable for it and thus don't even allow women to apply for it, in such way jobs too are the sources of gender bias.

Customs and traditions: In India women are the centres of many social beliefs, customs, and traditions but unfortunately, the majority of them just discriminate against them as a gender. Traditional families give women lower importance and status in their all

customs and practices. Women have to stay inside the home, should do all domestic works, have no financial power and are not involved in any decision making process of the family these are some of the oldest traditions in families which are the origin of gender discrimination.

Social attitudes: Many social activists and reformers attempted to restore honour and dignity to women, but stereotypical social attitudes still persist in our population. Despite substantial social development and technological advancement, women in our society still continue to be the victims of exploitation, superstition, illiteracy, and social atrocities. The social attitudes that women are housekeepers and should be confined to the four walls of the house is perhaps an important cause of gender disparity. They are not allowed to raise their voice regarding their own rights for the honour of the family.

Lack of awareness: People become a victim and subjected to inequality when they are not aware of their capacities, powers, laws, and rights. Especially girls and women are not aware of the social and economic laws protecting them for empowerment. So they accept all form of discrimination that persist in society and families simply due to their ignorance.

3.5.7 Gender and Educational Practices

School is a part of society and bear all its characteristics so the unfortunate reality of gender discrimination is also present in the school. Such bias is not going to help in achieving the educational goals. Educational practices and managements like teaching-learning activities, student's interaction, co-curricular activities, school management, and planning are the areas where such gender bias is present. Teaching-learning materials like textbooks sometimes present our societies stereotypes of presenting girls doing homely working and helping mother whereas boys are helping father in occupational works. Similarly, activities like promoting girls in dance and music and involving boys in sports also reflect the gender bias in educational institutes. The teachers need to understand that boys and girls have different needs and gender-specific requirements, teacher must work to fulfil these needs without discriminating between them. Issues do exist with school management system especially which are in remote areas and socio-economically backward regions, they also fail to provide proper separate toilets for different genders and not properly equipped to address the problems of sexual harassments. Most of the schools do not provide a gender responsive environment for effective teaching and learning to take place. In order to have a gender sensitive and neutral school, a holistic approach involving various interventions is required. Some of the intervention packages can include the following elements :

- (a) Undertaking gender sensitization of parents, community leaders and members, teachers, girls and boys in order to raise their awareness and understanding of the need to support girls' education. A society where women are not literate and empowered will never become progressive and harmonious.
- (b) Teachers are the important pillar of educational structure and it is essential to give them proper professional training to understand the complexities of dealing with human behaviour and individual differences which includes gender differences also.
- (c) Since in most society and culture, women are the prime victim of gender inequality so empowering girls with skills for self-confidence, assertiveness, speaking out, decision-making and negotiation will help them to overcome gender-based constraints to their education.
- (d) Empowering boys with skills to detach from gender oppressive attitudes and practices such as aggression, bullying, and sexual oppression, and to develop the self-confidence needed to accept gender equality positively.
- (e) Training the school community to manage sexual maturation issues of both girls and boys with particular emphasis on menstruation management, sex education, and birth control.
- (f) Training teachers in guidance and counselling skills related to gender and social issues. Such guidance will help the students to understand their gender and its role in the society, it will also help the students to overcome any prevailing gender conflicts.
- (g) Establishing a counselling centre in school with a psychologist in order to provide services for the social and psychological development of girls and boys. Schooling age is the age of maximum social, emotional, and physical development, at this period children develop the perception about their role and identity so it is necessary to help them to develop the proper personality and gender identity.

3.6 Summary

Intelligence is the mental energy available to the individual that helps the individual to cope with the environment. Spearman's two-factor theory suggested that there are two factors, one general intelligence 'g' and another special intelligence 's'. He postulated that each particular intellectual ability is a result of one common or general intellectual ability and one or more specific intelligence. Which was later explained in the group factor theory by Thurston. In

another theory by Guilford, he lays down a model of structure of intellect involving three interrelated and interacted basic parameters - operations, contents and products for explaining the structure of human intelligence. Later, Gardner rejected the idea of 'factors' and he defines intelligence as a set of multiple abilities, talent, and mental skills. These sets of different skills help the individual to solve problems or create things that are acclaimed by society. He defined seven such sets of intellectual abilities. Intelligence is needed in every aspect of our life, in education, it has special significance as it forms the basis for learning any new skills or behaviour. Intelligent learners are found easy to teach, guide, and motivate.

Among the different kinds of children, there are may also be some exceptional children in a classroom who are physically, mentally, and emotionally much ahead of others. Some of such kinds are known as creative and talented learners who are divergent thinkers and always shows novelty in their works. Such children always need extra efforts in their regular curriculum to meet their urge for extra knowledge and challenges. Another kind of learner we have learned about in this unit is the socio-culturally marginalized learners. Children from such groups who are for some reason living in a society that does not affiliate them as a mainstream of their culture belongs to the socio-culturally marginalized learners. They need robust policies and their implementation to overcome the hurdles and discrimination in education. Another type of learners we come across are the specially challenged learners, they are the children with some form of disability. They are not obstructed from education because of their disability but by the disability of the society in failing to bring education to them. Inclusive education with a special focus on contextual curriculum, arts, music, crafts, and physical education can help to make education more meaningful and accessible to them. Lastly, we learned about gender and related issues in connection to education in this unit. Unlike sex which is determined by birth, gender is perceived by the individual from society. Discrimination between the genders is an unfortunate but common practice in everyday life, same is seen in education also where boys are always preferred for education over the girls by their families and societies. For a progressive and harmonious society it is very essential to remove any form of such gender bias or discrimination which has already been started.

3.7 Self-Assessment Questions

1. Define intelligence. Explain Spearman's two-factor theory of intelligence.
2. How Guilford's Model of Intellect is different from Spearman's two-factor theory of intelligence?

3. What is the importance of intelligence in education? What are the different types of intelligence according to Gardner's theory of multiple intelligence?
4. Who are the exceptional children? What are the important characteristics of talented and creative learners?
5. What are the problems associated with talented and creative learners?
6. What are the educational practices that can be adapted to meet the needs of talented and creative learners?
7. What is marginalization and explain its various forms?
8. How the classrooms can be made suitable for marginalized learners?
9. Who are 'specially challenged' learners? What can be done for the education of specially challenged learners?
10. What is inclusive education and how is it beneficial for specially challenged learners?
11. Differentiate between sex and gender.
12. What are the factors that determine the gender role?
13. What is gender bias and what are its main causes?
14. How gender bias can be overcome through education?

3.8 References

- Alur, M. (2002). "Special Needs Policy in India", in S. Hegarty and M. Alue (eds), *Education and Children with Special Needs: From Segregation to Inclusion*. New Delhi: Sage.
- Baquer, A. and A. Sharma (1997). *Disability: Challenges vs. Responses*. New Delhi: CAN.
- Billson, J.M. (1996). No owner of soil: The concept of marginality revisited on its sixtieth birthday. In Rutledge Dennis (Ed.), *Marginality: Theoretical perspectives* Thousand Oaks, CA: SAGE
- Block, J.H. (1973). Conception of sex role: Some cross-cultural and longitudinal perspectives. *American Psychologist*, 28(6), 512-526.
- Dash, A. (1997). Impact of Adapted Physical Education on the Physical Fitness of Mentally Retarded Children. *Disabilities and Disabilities*, 11(1): 9-15.

- Davis, G. & Rimm, S. (2004). *Education of the gifted and talented*, 5th edition. Boston: Allyn & Bacon.
- Guilford, J.H. (1967). *The Nature of Human Intelligence*. New York: McGraw-Hill
- Park, R. (1928). Human Migration and the Marginal Man. *American Journal Of Sociology*, 33(6), 881-893. <https://doi.org/10.1086/214592>
- Piaget, J. (1952). *The origins of intelligence in children*. International Universities Press.
- Spearman, C.E. (1923). *The Nature of Intelligence and Principles of Cognition*, London: Macmillian.
- Stern, W. (1914). *Psychological Methods of Testing Intelligence* (p. 3). Warwick and York: Inc.
- Steiner, H. & Carr, M. (2003). Cognitive development in gifted children: Toward a more precise understanding of emerging differences in intelligence. *Educational Psychology Review*, 15, 215-246.
- Subramanian, R. (2003). 'Exploring Processes of Marginalisation and Inclusion.' *IDS Bulletin*, 34(1). 1-8.
- Telford, C., & Sawrey, J. (1981). *The exceptional individual*. Prentice-Hall.
- UNESCO (2000). *Inclusion in Education: The Participation of Disabled Learners*. World Education Forum: Education For All 2000 Assessment. Paris: UNESCO.
- Wagnon, M.J. (1937). *Readings in Educational Psychology* (p. 401). Houghton Mifflin.

Module -II
PEDAGOGY

Unit-4 □ Language, Learning and Critical Thinking

Structure

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4.3 Language, Thought Process, Learning and Critical thinking

4.3.1 Language

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4.4 Learning Process through Children's Strategies, Social Context and Social Activities

4.4.1 Steps in child's learning process

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4.4.3 Influence of social and contextual factors on the learning process

4.5 Alternative conception of Learning: Child as a Problem Investigator

4.5.1 Problem solving and scientific investigating

4.5.2 Teacher's role in a problem-solving and scientific investigation

4.6 Summary

4.7 Self-Assessment Questions

4.8 References

4.1 Objectives

After completing this unit you will be able to—

- Explain the concept and nature of language;
- Describe the thought process of learners and critical thinking;
- Explain the children's strategies of learning in social context and activities;
- Explain the concept of a child's learning through problem-solving;

- Explain the concept of a child's learning through scientific investigation.

4.2 Introduction

The growth and development of children is a continuous process and during this journey, they keep gaining experiences through continuous interaction with their environment. We call this process of acquiring knowledge and experience as the process of learning. In this unit, we shall try to understand the role of language in the learning process of children and how children develop the skills of cognition and thinking. The ability to think is the basis of learning and it is not a single-layered step, it happens at different levels. Thinking has many different styles or kinds. In this unit, we shall especially focus on the critical thinking ability of the children. Critical thinking gives the ability to see the problem or obstacle from multiple directions and helps in logically solving it with the most efficiency. The complete learning process of the children is very much contextual, it depends on their culture and society to a great extent. This unit will help us to understand how the nature and social environment help in fostering the problem-solving nature of the children. Teachers, parents, peers, and friends also play an important role in the learning process of children. So learning is a complex process that is multi-dimensional but could be transferred from one person to another, if the physical, emotional, and social environment is conducive for it.

4.3 Language, Thought Process, Learning and Critical thinking

4.3.1 Language

Language and its nature: All living organisms can develop a mechanism to communicate with each other, it may be in the form of sound, sign, color, light, and gesture. The most structured form of such communication is seen among humans and it is known as 'language'. Human languages are unique among the other animals as it is not dependent on a single mode of transmission like sound or sight. Most of the human languages have a written script and these languages are highly subjected to culture, locality, and era. Human languages are learned right from the birth of the child, which may be as simple as the cry and movements of hand by the child that becomes way more sophisticated in the form of complex verbal and non-verbal modes with the growth and development of the child.

The nature and importance of learning a language is a complex process of investigation, collaboration, sharing, and discovery facilitated by language. Languages are composed of interrelated and rule-governed symbol systems making them a unique but social means of representation, exploration, and communication. Language is also an identity of an individual

and gives a distinguishing feature to their culture. It is important for forming interpersonal relationships, understanding social situations, transmitting knowledge and experience. Language forms the base of a formidable democratic society by directing the thought and action of its participants towards harmonious living.

Language acquisition and development: Children initially learn the language at their home and later other social agents play an important role in it. Language learning is a continuous process and it goes in conjunction with the overall development of a child. Children come to school with many different languages as their mother tongue. It is important to respect their languages. Educational institutes must reinforce upon their first language as the skills learned during it will help them to acquire the second language very easily. In their early years, children develop language informally. Long before they understand explicit language rules and conventions, they reproduce and use language to construct and convey new meaning in unique ways. Later, language learning occurs in specific contexts for specific purposes, such as learning about a particular topic, participating in the community, and pursuing works and leisure activities.

Language learning is a shared responsibility: Learning of language never happens in isolation, it is multi-dimensional in nature which needs the participation of many people and social institutions. Every child and student can learn languages but the responsibility must be shared among the family, teachers, peers, and even community. It is a common observation that children face difficulty in learning a second language more than their first language (mother tongue), the reason is the lack of sharing of the responsibility. The less participation of family and community sometimes makes it difficult for the learners to acquire the second language easily. Though there may be an exception in some cases where the family of the learner is well versed in the second language and participates in the process of learning through communicating with the learner. Students require ongoing opportunities to use language in its many forms. Opportunities to learn a language occur first at home and are extended as children move into the larger community. Schools provide environments where students continue to develop language knowledge, skills, and strategies to achieve personal, social, and academic goals. Teachers are the most crucial link in this chain of shared responsibility where they help in polishing their language skills through providing the proper grammatical base of the language and by making them known to its proper form and function. They help students develop and apply strategies for comprehending, composing, and responding in a variety of situations.

Important parts of language learning: Language learning not only helps the learners to communicate correctly and effectively but also helps in improving the arts of language.

The art of all languages has five different parts: (i) listening and speaking, (ii) reading and writing, and (iii) representating. Development of the art of language helps the learners to participate most effectively in social responsibilities, communication, and personal satisfaction.

- (a) **Listening & Speaking :** An oral form of language is the fundamental form of language of the human being. It is the easiest way of sharing thoughts, feelings, opinions, support, protest, information, etc. Listening and speaking enable the learners to share concepts, ideas, and understanding about the other topics too. The knowledge domain gets enriched due to the contribution of the learners through the oral form of language as it carries the community's values, traditions, beliefs, and culture. Listening helps the learners to compile all the information from different resources and speaking helps them to solve problems and achieve the goals. To become discerning, lifelong learners, students at all grades need to develop fluency and confidence in their oral language abilities. They are benefited from many opportunities to listen and speak both informally and formally for a variety of purposes.
- (b) **Reading and writing :** Reading and writing are the more formal and permanent parts of the language. It not only helps in communicating and learning but also helps in preserving the learning. Reading and writing help learners to extend their knowledge, improve their understanding, and personal satisfaction. Reading is one of the essential steps of learning, it is a habit that needs proper support and should sustain lifelong only then the real goal of learning and development can be achieved. By developing proper reading skills and strategies learners can construct a meaningful interpretation of the written text and understand the problems so that they can direct the action toward its solution. Writing enables students to explore, shape, and clarify their thoughts, and to communicate with others. By using effective writing strategies, students construct and refine ideas, compose and revise with increasing confidence and skill.
- (c) **Viewing and representing :** This part of the language learning helps the learners to understand how the information, ideas, values, or experiences are being conveyed in visual forms. Visual media like television, computer, mobile, e-tablets, films, diagrams, maps, symbols, photographs, videos, paintings, etc. are the source of presenting and viewing the language. It is the approach that helps the learner to widen their knowledge and skills to the masses. Many of the comprehension processes involved in reading are viewing, which may not be just from the books or prints but also from all other resources too.

4.3.2 Thought process of the learners

Thinking is a higher cognitive ability generally seen in higher level vertebrates, especially in humans thinking is mostly covert. All the daydreams, imagination, creative thoughts, problem understanding, problem-solving, wishes, reading, writing, and decision-making involve the process of thinking. Learning and developing thinking skills help an individual to comprehend the information and organize it, to connect the links and lots of ideas, make plans, investigate, and ask questions. Thinking makes us very unique beings who have morality and values. Ross defined thinking as, "Thinking is a cognitive aspect of mental activity with regard to psychological aspects".

Thinking is of different forms - creative thinking, reflective thinking, critical thinking, concrete thinking, abstract thinking, or divergent thinking. Creative thinking is the ability to generate novel ideas and thoughts by breaking through the old theories, principles, and ideas. Reflective thinking is the ability to solve complex problems, thus it requires reorganization of all the relevant experiences to a situation or removing obstacles instead of relating with those experiences or ideas. Critical thinking refers to the ability of careful evaluation of the situation to determine the authenticity, value, accuracy, and validity. It helps in careful observation of the situation to conclude without strictly breaking down the information but rather taking them as a whole. Concrete thinking is the ability to consider concepts, make generalizations, and think philosophically. Concrete thinking is a necessary first step in understanding abstract ideas. First, we observe and consider what our experiences are telling us, and then we can generalize. Abstract thinking is opposite of concrete thinking; it is the ability to think in a generalized manner then relate it to other items, ideas, events, and experiences. Divergent thinking is the ability to generate multiple solutions for a given situation or problem then use logic, facts, and knowledge to find the most appropriate solution for it.

It is very essential in pedagogy to teach the learners about the process of thinking and to develop the appropriate thinking style. Teaching thinking means teaching creative thinking, reflective thinking, critical thinking, concrete thinking, abstract thinking, or divergent thinking skills to enhance teaching and learning activities. Waters (2006) explained that for language learning, the thinking process is very important. Learning occurs when an individual builds new knowledge and experiences on the older one by connecting them in their mind using the process of thinking. The thinking process of learners could be explained using the Bloom's taxonomy. It explains the learning objectives of the learners in three domains - cognitive, affective, and sensory. Thinking is the cognitive process, therefore the cognitive domain of Bloom's taxonomy explains the learning of the learners at different levels. Let us

now see the level at which the thinking process of the learner happens.

Knowledge: Knowledge involves recognizing or remembering facts, terms, basic concepts, or answers without necessarily understanding what they mean. This step provides the resources for the learner to start thinking, they get the direction to think and goals to achieve.

Comprehension: Comprehension is the step where the learner understands the facts and ideas by organizing, summarizing, translating, generalizing, giving descriptions, and stating the main ideas, these processes are the result of thinking.

Application: Utilization of the acquired knowledge and understanding results in proper application of it. It happens through solving problems in new situations by applying acquired knowledge, facts, techniques, and rules. For that, the learner should be able to think about how to use prior knowledge to solve problems, identify connections, and relate them through the mental process.

Analysis: At this level, the learner through the cognitive skill of thinking examines and breaks down the information into small chunks, investigates the parts separately then relates them to others, makes inferences, and tries to generalize through evidences.

Synthesis: This step includes the use of thought processes for the skillful organization of discrete information into a single piece of meaningful result.

Evaluation: At the last step of the thought process the learners make a judgment about the right and wrong, bad and good. It helps them to set criteria for their work based on its quality.

4.3.3 Learning and Critical thinking

The nature of learning is as extensive as the entire life of a human. Learning depends on the inborn responses of an individual and it is a lifelong process that starts from the cradle and ends in the grave. Often people associate learning with all those activities which an individual learns in professional institutions like school, graduate college, medical college, technical institution, or vocational centers. It is a very wrong conception of learning that, learning is merely the process of acquiring skills by the learner which is needed to cope with one's environment. Psychologists consider learning as a cognitive process thus it has a close association with cognition and its element like thinking. Some of the popular definitions of learning process are given below:

Woodbirth - *"the process of acquiring new knowledge and new responses is the process of learning."*

Skinner - *"Learning is the process of progressive behavior adaptation."*

Crown bank - *"Learning is shown by a change in the behavior as a result of experience."*

Crow & Crow - *"Learning is the acquisition of habits, knowledge, and attitudes."*

The process of adapting to the environment by a learner helps in gaining experiences, such experiences bring modification in the behavior. Learning is based on the collective interaction of all such experiences of the learner. Two factors are included in the process of learning - maturity, and the ability to take advantage of earlier experiences. For example, if a child is playing on the floor and sees an ant then out of curiosity the baby will try to touch it. If the child gets bitten by the ant then from next time due to the experience gained the child will learn to avoid coming in contact with such an ant or insect of a similar kind. Thus, Learning is the progressive change in behavior by the earlier experiences. Based on this, we can say that learning is education. Learning and Education, both indicate the same process. Both activities go on forever and everywhere in life. The child grows toward maturity, taking the advantage of his experiences. In this entire process of learning 'thinking' or thought process goes side by side. Both thinking and learning being the cognitive process complement to each other in the growth and development of a child.

Critical thinking is arguably the most essential part or kind of thinking which is always desired among the learners for truly achieving the goals of pedagogy. Critical thinking is the ability to think rationally using all cognitive skills or strategies which may increase the chances for a desirable outcome. Though in pieces of literature there is no single definition of critical thinking, it is often considered as the mystified concept in educational psychology. Some psychologists consider critical thinking uses a metacognitive ability of the learner where they use the self-awareness and understanding of their own thought process to solve problems, make inferences, taking decisions, and sharpen the skills to connect the dots of information.

Development of the thinking skills in the learners usually occurs at two levels - a higher level of critical thinking skills and a lower level of thinking skills. A higher level of thinking skills involve meaningful learning which require judgment, analysis, and synthesis. Moreover, higher-order thinking skills are reflective, sensitive to the context, and self-monitored. The thinking at the higher level is judgmental in nature and thus it becomes more complex but equally credible and multifaceted. It occurs in steps by combining many small pieces of information a big picture is created which means problems are solved by carefully observing and understanding each of its constituents. Lower level thinking skill is memorizing, rote

learning, and casual learning, which is unreflective and inapplicable. It does not help the learners to develop creative thinking skills. On the contrary, meaningful learning helps the learners to develop critical and creative thinking skills to solve any problems in their practical life.

As critical thinking is multi-dimensional in nature one cannot ignore the social and democratic aspects of creative thinking. How a person will think and learn depends largely on their cultural and social context. A learner living in rural areas may not have the level of thinking to understand and comprehend the knowledge related to modern urban architecture. Similarly, learners from rich and urban societies will lack the ability to realize the sophistication of rural art and craft as they are not linked to that grass-root level of cultural participation. This contextual linkage and cultural background define the type of problem faced by the learners, resource availability to find its solution and cognition skills.

Pedagogy aims to teach learners how to think critically and teachers should encourage it. The teaching of critical thinking can be of two types: (1) the teaching of critical thinking refers to teaching students trainable and assessable reasoning skills and processes, and (2) the teaching of critical thinking means teaching students those trainable and assessable reasoning skills as well as cultivating in them the dispositions and awareness associated with critical thinking.

Engaging students actively in critical thinking processes through the effective use of teacher questions, discussion, and reflection in a context that supports critical thinking and values inquiry, and teachers' practicing of critical thinking skills, attitudes, and explicit explanations of the significance of critical thinking could help students to develop both the critical thinking skills and associated critical attitudes.

Such skills could be developed in the learners through various activities and tasks like:

(a) *Debate and group discussions*: Debate and discussions within a group are the healthy way of exploring the solution of any problem. It helps in targeting a problem from multiple angles and finding the most effective as well as an efficient solution. Practicing discussion sessions among the learners in a classroom helps in sharing thoughts and ideas which leads to a collective thought process. In such a process, the gaps in the thinking of an individual are filled by the ideas of others and this improves the thinking skills of the entire group.

(b) *Project-based tasks*: Cognition should not be limited to individuals but should be shared among them so that learners can define the problem and find the solution with the cooperation of others. Project-based teaching-learning provides such an opportunity in the

classroom for every learner, especially it is beneficial for those who are at the lower level of critical thinking. It helps in the transition of those learners who have never gone above the memorization of the information to the level where they can learn the skill of analysis and synthesis in collaboration with those who are well skilled in a higher level of critical thinking.

(c) *Activity-based learning*: This is a method of teaching-learning that is quickly gaining popularity among the educational administrators, institutes, planners, teachers, and learners. The main reason behind it is the ability to indulge all the participants involved actively in the process of learning through discovery and self-guidance. A teacher just acts as the facilitator of the learning where the main part of the teacher is to provide the problem then allow the learners to get actively involved with it by exploring the problem, trying different possible solutions, using metacognition to assess the progress and drawbacks. All such activities develop the skill of reasoning, judgment, analysis, and synthesis.

4.4 Learning Process through Children's Strategies, Social Context and Social Activities

4.4.1 Steps in child's learning process

The process of learning is a life-long process as we have already discussed but at certain stages of life, it has greater importance than the other stages. During childhood and adolescence when the individual goes through a drastic cognitive and affective development the formal system of learning is needed. Such a formal system to guide the learning process is known as education. According to Peel, "Learning is a change in a person which, happens according to the changes in his environment."

Based on different literature one can enlist the following characteristics of the learning process - (a) By learning, permanent and temporary, both types of changes come in a person. (b) Learning is universal in nature, every individual wherever they keep on learning in every moment. Though the amount of learning and what they are learning may be different. (c) Learning is possible by social and biological adjustments or conscious purposes. (d) Learning can produce both types of behaviors - socially desirable or undesirable in a person. (e) Learning may be faulty and undesirable sometimes. What a person is learning may not be considered suitable for individual or society. (f) The development of the child occurs during the process of learning. The contribution of learning in the total development of the child is so important, hence, learning becomes the synonym of development. (g) Adjustment with the surroundings is another important characteristic of the learning

process. It helps us to survive, thus survival of human depends on their learning abilities. (h) Learning is purposive in nature. The goal of learning could be attained by purpose only. Purpose decides the aim of learning and provides the direction to the responses. (i) Learning leads to developing new skills, abilities, motivation, and ideas. This sometimes helps learners to use the resources for creating new products which makes the learning process a creative behavior in nature. (j) A person can use the same skills and solutions of the problem from other similar problems, which is learned in some other situations. Thus, learning is transferable in nature.

These entire characteristics make learning a process that was implemented in all educational institutes. The process of learning always happens in steps, not in any abrupt fashion. Learning needs proper strategic steps to make the process more efficient and effective otherwise it will never meet the goals of learning and complete development of the children. These steps are dependent on children and the environment of the learning.

Some of the important steps are discussed here. The first step is the motivation of the child. Motivation is the urge of the learner to achieve the goal for self-satisfaction. Motivation is originated in a person to fulfill his/her need, which has its purpose, being inspired with the purpose, he/she becomes active. Every action and behavior of a person has its own purpose, that means the action is purposeful, this makes purpose the second step of the learning process. The next strategic step is the complication that arises during the process of learning. On confronting the complication, the learner modifies the behavior and the process of modification comes with experience. Such experience leads to the development of new skills under the process of learning. The next step is the generation of multiple responses for the achievement of the purpose and goal. Learner repeats the successful response in the process of learning which brings the reinforcement. Reinforcement is an important step of learning which helps in the unification of all earlier knowledge of new successful responses connected to different activities. Such experiences built on older ones become part of the learner's knowledge. These are the strategic steps upon which the entire process of learning happens.

4.4.2 Strategies of child's learning process

Strategies of learning are suitable for facilitating effective and comprehensive learning. Let us know how to study and achieve the learning objectives. Some of the most effective and popular learning strategies are discussed here :

- (a) **Whole vs. part learning:** Two most popular strategies used for the child's learning are learning the entire content as a whole or learning it in parts. Though it depends

largely upon the mental age, growth, development of the child, and complexities of the content. Learning the content as a whole is effective when the content is short and not very difficult to comprehend, also the learner is motivated enough to learn it. In the case of complex and less organized content, the best strategy is to learn the content in part then generalize the findings by connecting them to draw the complete picture of it. Such a strategy is suitable for young learners and those who are slow in progress.

- (b) **Mediating learning strategy:** This is a modified strategy over learning the 'whole' content. 'Whole learning' is good to follow when the learning content is easy and short. In case the content has some complex parts or difficult words then for children it will be very difficult to learn the entire content as a 'whole'. In such a scenario mediating strategy comes as a savior where the learner learns the difficult words or parts first then reads the entire content as a whole. It makes learning much more effective and fruitful. Learners neither lose interest nor the meaning of learning the content, it makes learning much more intensive and inclusive than the whole learning strategy.
- (c) **Spaced learning vs. unspaced learning strategy:** Spaced learning strategy refers to the method where the entire learning task is divided into several parts each separated by a certain period of time. Whereas in unspaced learning the entire learning content or task is completed in a specified period of time. A shorter and spaced learning strategy is good for younger children as it keeps their attention and motivation level high which makes them understand the content well. For highly organized and involving content one can use the unspaced learning but it always needs children who are bright with a high level of motivation.
- (d) **Recitation strategy:** It is a very popular strategy but very primitive and often criticized for lacking novelty. In this method, the same behavior of learning content is repeated over and over till the child retains it permanently in memory. This is very basic in nature of learning; it does not develop a deep understanding of the content. Such methods are often used for very small kids to learn language content and basic day-to-day tasks.
- (e) **Memory system:** Memory is often considered as a method of storing information or knowledge and then recalling it at the time of need. It also involves the processing of the stored information or knowledge to use it according to the new situation. It involves three basic steps - recall, recognition, and re-learning. This process is very similar to computers but human memory systems are not very fast as computers and can do limited processing of information through human memory systems are

much more fascinating than the computers which lack affective aspects of the human system. The memory system can be trained to make the learning process very fast and resource saving. For example, while learning the colors by a child instead of just reciting the different colors it is much easier to train the child's memory by connecting the color of familiar fruits with the colors he is learning. This training of memory buys association, recalling, recognition and re-learning makes the entire learning process easy and efficient.

4.4.3 Influence of social and contextual factors on the learning process

In a broader sense, learning is also a part of child's growth and development, this process starts right from the womb of the mother. Environmental factors like the mother's mental state, emotional state, physical health, care of family and society greatly influence the growth, development, and process of learning of the child. Environmental factors like culture, society, religion, family, friends, teachers, etc. remain the major influencing element of the learning process of a child. These contextual factors may affect the child's behavior and learning process in a supportive way as well as adversely, it all depends on how favorable the factors are for the child. The interaction time and conditions with the environmental factors decide the degree of support to the child's learning process and at this point, it also allows the educators and parents to develop a favorable learning environment for the child. It is the environmental factors that bring maturity in the child with age through the process of learning, so learning and maturity go side by side.

Maturity has a great effect on the process of learning. Maturity means physical development. Mental ability also develops along with physical development. There are changes in the behavior of humans as a result of this development. The behavioral change happens due to maturity and learning. The process of learning goes throughout the life. In this way the development of the human being takes place. Maturity is also a continuous process of development. Maturity means that children become capable of doing something at a certain age which they were not able to do earlier. Maturity and the process of learning are closely related. As the body of the child grows towards maturity, he/she begins to use the powers within, and his/her behavior keeps on changing. For this change, physical, motor, and mental maturity are needed but it happens under the influence of various environmental factors. Maturity is needed for learning but the contextual factors of the individual always accompany it from womb to death. In order to learn the skill which requires physical and mental maturity, forcing someone to learn it early and out of context is not beneficial. Hence, it is harmful to force the child to learn, read, and get knowledge

of any subject. Learning under immaturity harms the child. It affects the physical health of the child as well.

Coming back to the social factors, surrounding of the child - home, school, locality, family conditions like the number of members, available space at home, lighting conditions, cleanliness, noise level, availability of resources and comforts all are very crucial in affecting the learning process. At home, the family members, especially the parents, must support the learning. Parents care, freedom, support in academics, rewards always promote the learning process as it gives the learner the motivation in learning. In contrast, punishments and isolations in the home by the parents may make the learning process of the child very slow. Sometimes the adverse home environment may lead to the learning of socially undesirable behavior. Consider a society where the majority of the people live in poverty. In such an environment expecting a child to get a chance to learn or complete his learning is nothing less than a dream. In such a society, children are forced by the circumstances to start working from a very tender age to earn for their family. They hardly get time or opportunity to enroll in any formal educational institution. In a family, there is no one to support the extra expenses of their learning, nor do they get guidance from illiterate parents. Conservative societies also don't allow the girls to go to schools so they never get a chance to learn through the modern formal learning process, though very few of them at least learn some of the vocational works at home as a traditional occupation.

Cultural background and social expectations also regulate the learning process. The spirit of the culture is reflected in the various social and educational institutions. The culture of the child has some demands and it determines the learning process. A society that has industry in its culture always motivates the children to learn the various tool making, technical aspects, industrial skills, and management at every early stage of the learning process. Similarly, agricultural societies focus on developing those skills in the children which will be beneficial for promoting agricultural practices. The philosophical elements of culture also influence the process of child learning. A child in a democratic culture tends to acquire democratic values and attitudes. An aristocratic or dictatorial culture promotes learning of autocratic modes of thought and behavior.

Peers, friends, and teachers are other important elements of the environment that directs the flow of the learning process. The teacher is an important constituent of the teaching-learning process; Learning is facilitated and guided under the skillful methods of the teacher. The way the teacher teaches and manages the students affects their learning. An authoritarian teacher will create aggression and hostility among students while a democratic teacher will create a participatory climate for learning. The democratic environment

leads students to be constructive, thoughtful, and cooperative in behavior. Generally, students learn better in a democratic setup because they like democratic procedures. In such methods teachers are not the masters or instructors, they simply make the learning process of the learner easier and joyful. The teacher does not dominate the process; they can get better results by decentralizing authority, increasing the independence of students. Such methods involve encouraging students to participate in learning activities in and outside the classroom. Teachers must promote active learning in such cases where active interaction with peers and friends in and outside the classroom is also required. The relationship of the learners with peers and friends in the classroom, school, society, etc., creates a particular type of emotional climate conducive to proper learning. Such climate solely depends upon their cooperative and friendly relationship. A sound relationship provides a tension-free environment for the student to learn and to compete in the class. Peer learning should be included in the learning process as it is much more interesting for the learner. Free discussion and group tasks with friends encourage the learners to analyze the problem from a different angle and find out the solution. Free interaction of learners, peers, and teachers should also be practiced regularly. If any misunderstanding is created or arises it should be immediately clarified to maintain the healthy climate and cordial relationship among the peers and productive nature of the classroom.

4.5 Alternative Conception of Learning: Child as a Problem Investigator

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

4.5.1 Problem-solving and scientific investigation

Problem-solving is the fundamental way of a child's learning. It is a part of everyday life and used to get the answer to everyday issues. It must be valued, promoted, and involved in everyday classroom practices. The child gets the opportunity to solve the problem in his or her daily life on different contextual grounds. Some problems are easy and take little time whereas some take much more time to solve as they are complex. Children look for alternative solutions if they do not get the right kind of resources to solve the problem at hand. In the case of solving any type of problem, the child's thinking becomes directed and focused. They try to use all their sources, both internal (like self-efficacy, grit, intrinsic motivation) and external like support and help of others to arrive at the right and appropriate decision. By observing the child closely, teachers can use the

child's social, cognitive, and emotional experiences to facilitate problem-solving and promote strategies useful in the life-long process of learning.

Problem-solving is the thinking that is goal-directed. Our everyday activity is goal-directed. Problem-solving does not always mean solving some complex numerical or some very difficult hurdle or some obstacle that a person faces but it could be any simple activity that children do to reach their goals. Thus, there are two ends between which the learning happens in case of problem-solving, one is the problem itself another end is the goal and there are several steps and mental operations with which these two are connected or reached. The learning actually happens through the experience gained in connecting these two ends. Let's now see the steps (mental operation) through which the connection of these two ends happens. The first step is the *(a) Identification of the problem*: In this step, the learner confronts the problem and develops an initial understanding of the problem. It is essential to estimate the gravity of the problem at this stage. Then it is the *(b) Representation of the problem*: Where the learner should break the problem into parts to understand different approaches required to find the possible solution of it. Next comes the *(c) Planning*: Here the learner looks for all the resources necessary to attack the problem from a different angle. *(d) Evaluation of solutions*: At this stage, the learner takes suggestions and views from others, uses his or her past experiences, and looks for similar situations to decide about the most efficient method for solving the problem. Then follows the *(e) Execution of the most suitable and effective solution*: Which will meet all the criteria of achieving the goal. The learner then *(g) Evaluates the outcome*: Where the learner analyzes the goal achieved. If there still remain many untouched areas or the goal is only partially reached then at the final stage of problem-solving the learner *(h) Rethink and redefine the problem*: As well as the entire steps which have been followed. This helps them to find out the loopholes and corrections needed so that in the subsequent attempts the problem could be solved completely to achieve the goal hundred percent.

The steps followed in problem-solving are scientific in nature. These steps are very similar to steps followed during a scientific investigation. Scientific investigation is a part of problem solving and children learn by investigating the world around them. Children learn by using their senses to investigate the world around them. Through investigation, children learn how things work, what things do, and why things happen. Children also learn how to keep themselves safe through investigation. For example, a child burning a piece of paper through observation may draw the inference that fire could burn them too and will cause a painful blister if they stand too close to a fire. Through investigation, children learn about living things, such as how fish swim in water, how a frog jumps, or how plants and

flowers grow. The natural curiosity of the children, problem-solving tendency, and investigating nature should be used by the teacher to improve their learning process.

4.5.2 Teacher's role in problem-solving and scientific investigation

The range of teaching-learning activities in the classroom runs from memorization and repetition all the way to solving problems and thinking creatively. The role of the teacher in a classroom is to look for all such possible methods to model the problem and facilitate the classroom environment conducive to problem-solving. When teachers articulate the problem or situations they (the learners) have faced and discuss the different steps to solve it the children become more aware of the process and significance of problem-solving. The teacher can use blocks, models, and other objects to teach different subjects, which taps into children's fine motor skills and their visual understanding. The teacher should invite children to talk about (or write about) ideas and processes in the concerned subjects, which links their verbal thinking to an understanding of the different concepts. The teacher's role is two-fold in nature. The teacher should value the process of problem-solving and must encourage the students with trust. Secondly, the teacher must promote an environment in the classroom that is conducive to the problem-solving practices by the children. The teacher must include the development of communicative skills, cooperative learning, and ideational behavior in the problem-solving learning process. Such a curriculum of teaching-learning must have clearly defined goals and deeply rooted values in it. For the classroom to be fully inclusive, the teacher needs to make sure that the curriculum is accessible to and relevant for all children in terms of what is being taught (content), how it is taught, how the children learn best (process), and how it relates to the environment in which the children are living and learning.

Children need lots of opportunities to learn through investigation. They often rely on the adults around them to provide these opportunities. The teacher plays the most important role to provide all such opportunities which not only motivate the children but also protect them from any possible danger or adversaries. There are many learning opportunities for children when investigating and exploring the natural world. There are many places which a teacher can take children to learn about the natural environment and to develop the children's curiosity. Children are naturally curious, so it is very important to think about keeping them safe and out of danger when teachers take them out on visits. Thus, the teacher is not just their guide but also their guardian. Some children have lots of opportunities to explore the local environment, but children who live in crowded cities may not have open space near to where they live. In such a case, the teacher should take them on an excursion where every child can get the opportunity to learn from nature through investigation. This

role in the process of learning is not only applicable for learning nature and natural science but also in learning literature, history, art, and music. Investigating and handling objects is a very good way to learn about different subjects. This can be a great opportunity for children to examine objects using all of their senses. Problem-solving and the use of scientific investigation methods let the children choose the pace and design their own learning process where they can explore all possibilities and get the most appropriate solution. Such an approach of learning among the children is effective and makes the learning as well as teaching a very satisfying and interesting activity in a classroom.

4.6 Summary

Language is essential not only for communication but also required for the proper development of a child. Language acquisition is a very important step of learning and it helps in the process of learning all other behaviors. Learning of language happens due to the active participation of different agencies of societies. Teachers, parents, family members, school, culture, and religion facilitate the learning process of the children. Language helps in developing cognition and 'thinking' is one of the primes of these. Development of thinking skills and abilities occurs in many different steps and children must be properly guided through all these steps to achieve the goals of learning. Children may have different thinking styles like creative thinking, reflective thinking, critical thinking, concrete thinking, abstract thinking, and divergent thinking. Critical thinking is very crucial among the others, it has two levels - higher level and lower level of critical thinking. Both the levels have different requirements in the process of learning of the child.

Society and culture are two important environmental factors that affect the critical thinking and thus the learning process of the children. Children use the thinking skill in close association to the environment for solving the problems with which they are confronted in daily life. Children are natural investigators, they observe nature, identify the problem, plan the solution, execute the plans, find the solution, re-analyze it, and modify the process. Thus, the learning process is complex with multiple dimensions and it is essential to understand each of the dimensions carefully to utilize the available resources for efficiently meeting the goals of pedagogy.

4.7 Self-Assessment Questions

1. What is the nature of language? Why is learning a language important?
2. Describe the different important parts of language?
3. What is thinking? What are the different forms of thinking?

4. What are the steps involved in the thought process of the learners?
5. Why is critical thinking important in learning?
6. How critical thinking could be fostered among the learners?
7. What is the nature of learning? What are its characteristics?
8. Describe the steps of the learning process. Explain some of the important strategies of learning.
9. How context and society could influence the learning process of a child?
10. What is the importance of family in the learning process of a child?
11. How can a teacher help in promoting a problem-solving environment in the classroom?

4.8 References

- Atkinson, D. (1997). A critical approach to critical thinking in TESOL. *TESOL Quarterly*, 31(1), 71-94.
- Bloom, B. (1984). *Taxonomy of educational objectives*. Longman.
- Dewey, J. (1933). *How we think*. Boston: D.C. Heath and Company.
- Ellis, R. (2003). *Task-based language learning and teaching*. Oxford: Oxford University Press.
- Ellis, R. (2006). The methodology of task-based teaching. *Asian EFL Journal*, 8 (3), 19-45.
- Gilhooly, K. (1998). Working strategies and reasoning tasks. In Robert H., & Kenneth. J. Gilhooly (Eds.). *Working memory and thinking*. London: Psychology Press Ltd. A member of the Taylor & Francis group.
- Halpern, D. F. (2007). The Nature and Nurture of Critical Thinking: In Robert J. Sternberg, Henry L. Roediger III, & Diane F. Halpern (Eds.). *Critical Thinking in Psychology* (pp. 1-14). Cambridge: Cambridge University Press.
- Nagaraju, M. T. V. (2008). *Psychology of Learning and Instruction*. Delhi: Manglam Publications.
- Roggiero, R. V. (1988). *Teaching Thinking across the Curriculum*. New York: Harper & Row, Publisher, Inc.
- Stroupe, R. R. (2006). Integrating Critical Thinking Throughout ESL curricula. *TESL Reporter*, 39 (2), 42-61.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher order psychological process* (Eds.), Michael Cole, Versa John-Steiner, Sylvia Scribner & Ellen Souberman. Cambridge: Harvard University Press.
- Waters, A. (2006). Thinking and language learning. *ELT Journal*, 60 (4), 319-327.

Unit-5 □ Learning and Teaching

Structure

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5.1 Objectives

After completing this unit you will be able to—

- Explain the concept of teaching;
 - Describe the nature of teaching;
 - Describe the function of teaching;
 - Explain the types and significance of teaching;
 - Describe the factors contributing to teaching and learning;
 - Describe the concept of teaching-learning materials;
 - Describe concepts and different types of teaching-learning materials.
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5.2 Introduction

Teaching-learning is the interlinked or mutually connected event and considered as the heart of all educational events. Through teaching knowledge, skills, experiences, and culture are being transferred from one generation to the another. This unit will explore all the aspects of teaching including its concept, dual nature as 'arts' and 'science', three-factor functioning, its types, and significance. Teaching-learning is aimed at the development of the learners into a complete personality. For the complete development of the individual, the role of personal factors and environment are vital as they affect the teaching and learning process. We will explore a few of such factors like intelligence, motivation, emotions, and environment (social environment) in this unit. It is very essential for the teacher to meet the objectives of the teaching-learning at the end of the present session, it is very difficult for them to achieve it even if they know the entire curriculum and have a long experience unless their practice in the classroom is supported by the aiding materials called the teaching-learning materials (TLM). TLM is discussed in detail in this unit to explain how various different types of TLM help in making the process of learning interesting, joyful, effective, meaningful, and satisfactory for the learners as well as for the teachers.

5.3 Teaching

5.3.1 Concept of Teaching

Learning is the ability that makes humans distinct from all other living beings. Learning

exists in other living beings too but in the humans, learning process and the abilities to acquire knowledge are extreme. The main reason behind it is our highly developed intellect and well-structured society. People from society impart or transmit the skills, knowledge, understanding, information, tradition, history, and culture to the other younger people, this act of transmission is popularly known as teaching. Teaching may also mean sharing present and ancestral experiences or communicating information for example lectures. According to educational psychologists, teaching is the process of modification of behaviour of individuals. In education, teaching is tandem to learning, teaching generates experiences that result in learning, and learning in return opens up new opportunities to explore the unknown that teaches more new experiences. Dewey (1934) once described education comparatively as "education is learning just as selling is buying". Different educationists have different ideas about teaching, some of them are mentioned below:

Morrison (1934): *"Teaching is intimate contact between a more mature personality and a less mature one which is designed to further the education of the latter"*.

John Brubacher (1969): *"Teaching is arrangement and manipulation of a situation in which there are gaps or obstructions which an individual will seek to overcome and from which he will learn in the course of doing so"*.

Gage (1963): *"Teaching is a form of interpersonal influence aimed at changing the behaviour potential of another person"*.

Edmund Amidon (1967): *"An interactive process, primarily involving classroom talk which takes place between teacher and pupil and occurs during certain definable activities"*.

From all the above ideas it can be asserted that teaching is sophisticated, goal-oriented, and multi-dimensional in nature. Educationists and psychologists found mainly two different concepts in the process of teaching. Some view teaching as simply the process of conditioning of behaviour and thus consider it as what a teacher does in the form of stimuli to bring the environment conducive to proper conditioning. Whereas those who view teaching as an individual effort of 'knowing' consider it as a process of following a set of steps designed for learners to define their own purpose and problems and preparing the plans to solve those problems to achieve the purpose of 'knowing'.

Teaching and learning are the two sides of the same coin, they represent a well-designed continuous set of events that are aimed to bring desired changes in behaviour. Teaching is an intentional activity that means that teaching may not logically imply learning,

but it can be anticipated that teaching will result in learning. Teaching supports the internal processes of learning of an individual that result the change of behaviour. Thus teaching is the outer side of the internal process of learning. In its most common form, the process of teaching takes place in a classroom situation where through the formal process of interaction with the learners the teacher fulfills the learning needs of the learners. Teaching is goal-oriented and systematic, teaching helps to motivate the learners by providing them the facts, knowledge and skills to solve problems. Teaching helps the learners to develop life skills necessary to adapt to the environment or bring changes in the environment according to their needs, it imparts understanding about the world around us.

5.3.2 Nature of Teaching

Teaching is the process of initiating learning, it is the teacher who acts as the facilitator of learning by satisfying the educational needs of the learners and playing an important role in bringing prosperity to the society and uplifting it. The role of the teacher in a classroom is very diverse, they are the learner's ideal, mentor, supervisor, role model, and many more. In a classroom, not every teacher teaches in an identical way, some teachers are more interesting to listen to and their classes are much more interactive and joyful to participate. Teaching has an aesthetic value as it can be different for different learners, not everyone learns or understands in the same way so teaching should be flexible and must have different forms. This shows the nature of 'art' in teaching but at the same time teaching is systematic, its effects can be seen and assessed, it has objectives that are planned before the practice initiates, this makes teaching 'science' too. The teacher continuously studies the situation in a classroom chooses a path in between incorporating both the natures of teaching to make it most effective for the learners. Let us now explore this dual nature of the teaching elaborately.

Teaching as Arts: Art is the expression of human creativity and imagination in the form of appreciable products that have both emotional and aesthetic values. This concept of arts helps us to understand the artistic nature of teaching. A teacher with his/her skill and grace tries to present the learning experience in the most beautiful and meaningful way possible. The kinesthetics of teachers can be effective in teaching too. The voice, gestures, facial expression, body language, and appealing personality of the teacher adds beauty to the teaching process. The activities of the teacher are dynamic that are influenced by many qualities and contingencies. Teaching as art is flexible and not bound by any strict time and rules. The aesthetic qualities and sense of teachers are reflected in their way of teaching irrespective of the subjects and levels they are teaching. Teaching does not stop abruptly;

it often gets generated during the course of learning. Artists who excel in their art, similarly, a teacher always projects the strength within him in his/her teaching instead of simply following the stringent traditional ways. The teacher uses the skills, emotions, positivity, and affection to teach and motivates the learners successfully. Teaching as an art is a more humanistic approach of learning.

Teaching as Science: In the late second half of the 20th century, the influence of the writings of Johann Friedrich Herbart contributed to the origin of the thought of teaching as a science. Many educationists then practiced teaching following the framework and mechanism of science (Lutzker, 2007). Based on scientific considerations, teaching is given a scientific approach and teacher training and classroom are designed accordingly. Science seeks truth and is based on experimentation and verification, so as a science, teaching is based on scientific inquiry, rational organization of content, and systematic presentation of it to the learners. Learning has a pre-defined objective to be achieved, and the teacher prepares a systematic lesson or teaching plan to achieve the pre-set goals. Traditional methods of teaching are more toward the scientific nature of teaching where teaching activities are logically arranged and taught in rigidly structured ways. Teaching depends on the teacher and they control the classroom and also the output of the process, teachers are fully accountable for the end product so they never deviate from the pre-defined paths. As per this thought of practice, the teacher never gives an excessive personal touch to the teaching, he does what he has been trained for by the teacher education institutions. We can say that teaching is science as it is systematic, logically planned, executed in the class, and before teaching begins, the objectives are fixed to bring about desired behavioural changes in the learner.

5.3.3 Functions of Teaching

The process of teaching-learning involves three variables - teacher, learner, and mediating variables that influence or facilitate the learning. The learner is the dependent variable that undergoes the process of teaching to develop the desired changes by the teacher who acts as the independent variable. The achievement of the goals of teaching depends on the proper interaction of the dependent and independent variables and the success of this interaction is mediated by all essential mediating variables. These three variables of teaching perform the functional or active part in the process of teaching. The three major functions of teaching performed by them are:

- (a) **Diagnostic function:** The teacher performs the function of a doctor in education. As the doctor first looks for the symptoms of illness in the patient through proper diagnosis

then only prescribes the treatment. Similarly, a teacher does the following diagnostic functions to meet the objectives of teaching-learning and overcome the learning problems:

- i) With the help of various diagnostic tests, the teacher finds out the initial behaviour of the learner and the initial cognitive and affective potentials of the learners.
- ii) Teachers diagnose and then determine the objectives of the teaching based on the desired behavioural changes that they wished to bring in the learners taking into consideration the initial behaviour and environmental conditions.
- iii) His diagnosis also involves the analysis of teaching content, teaching aids, tools, and environment essential for carrying out the job.
- iv) Finally, the teacher needs to diagnose his/her own potentials, limitations, and preparedness to teach so that he/she can achieve the objectives of bringing behavioural changes in the learner.

(b) Prescriptive function: After the proper initial diagnosis of the learner, self, and environment, the teacher makes the necessary prescription for achieving the pre-decided objectives and goals. Achievement of the goals of teaching needs proper interaction between the teacher and the learner which needs proper controlling and management of mediating variables. The teacher performs this function of prescription in the following ways :

- i) Selection of teaching-learning content and systematic sequencing of all the contents.
- ii) Designing and planning all the teaching plans, arranging all the teaching aids, teaching tools, and strategies as per the learning needs of the learners.
- iii) Arranging a proper environment of learning conducive to effective teacher-student interactions.

The teacher remains very active in prescriptive functioning in comparison to the dependent variable, the learners. The prescriptions are made to bring the change in initial behaviour of the learner, arrangement of content, tools, strategies are made to achieve the goals of teaching.

(c) Evaluative function: Evaluative function is concerned with the evaluation of all the tasks or steps and their progress performed during the prescriptive functions. The evaluative function is associated with the realization of the achievement of the teaching objectives. The failure in the realization of the objectives during evaluation is either due to the improper diagnosis of the initial behaviour and situation or may

be due to some serious mistakes in providing the prescription for the proper behavioural change and lack of correct interactions of the three variables of teaching.

5.3.4 Types of Teaching Methods

Teaching has different types based on the approaches adopted by the teachers and the methods used. Methods of teaching play an important role in the delivery of learning content to the learners in the classroom. The approach adapted by the teachers in a classroom is the comprehensive way of dealing with a particular learning and classroom problem, it includes the plan of actions on the basis of which the various methods or combinations of methods of teaching are developed. However, a method is an orderly and logical arrangement of ideas based on a particular approach. Which method a teacher is going to use in the classroom depends on the grade of the students, their learning needs, interests, level of motivation, and availability of resources. Some of the most popular methods of teaching used in the classroom by the teachers are discussed below.

- i) **Lecture method:** The lecture method is the teacher-centric approach of teaching where the major role is played by the teacher in a classroom whereas the learners have a very small role. It is the most common method of teaching under the traditional way of teaching, where the teacher tries to present the learning content to the students through verbal communication with the use of few teaching aids to make teaching more meaningful and interesting. It is popularly known as the 'chalk and talk' method of teaching.
- ii) **Demonstrative method:** This method of teaching is very popular among the science, mathematics, and computer teachers to present the teaching-learning content in the form of a live demonstration to the learners. This method uses the sense of hearing and seeing of the learners to accomplish the goals of teaching-learning. This method is more effective than the lecture method because visualising the subject matter live is much more effective and easy to retain as well as comprehend than just hearing the content through the teacher's lecture. This method suffers the drawback of not allowing the learners to take part in the demonstration actively; that means it restricts the learner from in-hand experiences.
- iii) **Lecture-cum-demonstration method:** This method combines the strengths and features of both the above-mentioned methods of teaching. The teacher uses the combination of lecture method and demonstration to present the content in the most interesting and effective way to the learners so that the objectives of teaching

can be met easily. The teacher here can first present the content in the form of demonstration and then explain the process and inferences through a class lecture or he/she can give the lecture to explain the demonstration simultaneously.

- iv) Heuristic method:** This method also known as the 'learning through discovery', is a very popular method of learning in sciences where the learners explore the facts and principles themselves, to discover the phenomenon and then understand it. To get experience one has to strive for exploration. By this method, the learner reaches the solution and learns from it. This method helps the learners to think abstractly and rationally too, learning becomes explorative in this method and they become confident about their learning behaviour. This method alone cannot be very beneficial. Generally, it has to be combined with some other suitable ones, and then teaching should proceed so that learners get the proper supervision and guidance.
- v) Problem-solving method:** In this method, the content of teaching-learning is presented in front of the learner in the form of a problem and the teacher acts as the guide who helps the learners with the tools and guidance necessary to solve the problem by themselves. The learner first tries to understand the nature of the problem, once it's known he/she gets motivated intrinsically to solve the problem. The steps to be followed in this problem-solving learning method must be outlined by the teacher. The main steps are— (i) *Identifying the problem*: Why it is taken up; (ii) *Hypothesis framing*; (iii) *Data collection*; (iv) *Analysis of data*; (v) *Interpretation*; and (vi) *Conclusion*. The drawback of this method includes the slowing down of the teaching process as each of the steps are time-consuming.
- vi) Project method:** This method is also called as experimental method, in this methods sometimes a working model is made by the learner to represent the phenomenon, and sometimes research is done as a project to investigate a phenomenon to draw out the causes and inferences. This method is helpful in bringing out the creative and investigating aspect of the child. It requires a lot of logical thinking and the co-operation of peers and teachers too.
- vii) Analytic and synthetic method:** Analysis means to break the whole into components and then study it. In an analytical method of teaching the big content or a complex problem is first broken down into small units then it becomes easier for the learner to comprehend and find out the solution. Here, the teacher makes the learner to move from unknown to known and he/she encourages sequential

learning and logical thinking among them. Whereas, synthetic method is simply the opposite of analytic method here one moves from known to unknown. The small units from the content are explained and combined to give the complete picture of the content. This method focuses on memory training.

viii) Inductive and deductive method of teaching: Inductive method is moving from specific to general and the deductive method is from general to specific. Specific facts or examples are given and the learner reaches generalization. It is mostly focused on the students and their capacities and abilities, rather than on the teacher. There are many advantages of inductive teaching and learning; knowledge is acquired naturally by exposure, and students are encouraged to utilize their reasoning skills, prior knowledge, intelligence, and mental focus.

In deductive reasoning, the role of the teacher is bigger than the learners. The teacher is one who gives and disseminates all information. The flow of the information here is from general to specific. The usual flow of information begins with the concept's introduction and presentation followed by activities. Information is based on facts, statements, and predetermined logic. The method is easy to apply, leaves little room for mistakes, and the information being taught is valid. There is also a clear and defined scope; the method requires little preparation on the part of the teacher.

5.3.5 Significance of Teaching

We live in a society where we are connected through our culture, language, religion, knowledge, science, and technology. For a culture to survive and thrive it is very essential that all the skills, language, culture, tradition, knowledge, understanding, and experiences should be transmitted to the new generation. It is also essential that every society must work for the enrichment and upliftment of the existing skill, knowledge, and understanding of its members so that this society may prosper. One of the ways of achieving all this is by the method of preparing the future members of the society who will have all the behavioural abilities to carry on the essential knowledge and experiences. This is done by the means of teaching, which is important to bring desired changes in the behaviour of the individuals so that they can become worthy responsible members of society. This helps every society in its preservation and transmission. The behavioural change in an individual through teaching also helps them to develop into a complete personality.

In a society not everyone is equal, some of the families are poor, both economically and academically. It is not possible for them to provide a proper learning environment to

their children, so teaching provided through an institution or organization gives them a chance to get their future generation educated just like the other advantageous groups of the society. Thus, teaching also plays a significant role in removing disparity from society. Through teaching, we are improving the health and living standard of mankind by making achievements in the field of medicine, science, and technology. Teaching is an inseparable part of learning so if there is learning one cannot avoid the contribution of teaching in it and in the true sense, teaching is self-generated during the process of learning.

5.4 Factors Contributing to Teaching-Learning: Personal (Intelligence, Emotion, and Motivation) and Environmental

We discussed that teaching and learning both are connected, one causes the other. Teaching-learning depends on various factors which basically belongs to two major categories, personal and environmental. Let us consider a case where Sudip, a class 10 student is very good at cricket, he enjoys the game more than academics and he is supported by his school coach who considers him a good learner. Sadly, he belongs to a very poor family unable to help him financially. Also, they want him to take academics more seriously than cricket. We could clearly see that here learning depends on many factors like intelligence, motivation, likes and dislikes, family support, peer support, financial support, and many more. So depending on the nature of the factors they are classified as personal and environmental. These factors mediate the learning behaviour of the learners.

Personal factors are also known as psychological factors, factors like intelligence (cognition), motivation, emotions, interest, aptitude, etc. belong to this category. These are present within the individual and interact with the environmental factors (which are external to the individual) like socio-emotional, societal, cultural, and other school-related factors. The environmental factors are the external factors that highlight the role of surroundings and environment in learning. We can understand the learning completely only in the light of this complex interaction of both personal and environmental factors. In this section, we will discuss the role of three very important personal factors: (i) cognition or intelligence, (ii) emotion, and (iii) motivation.

5.4.1 Intelligence

Intelligence in humans has been studied over the last many decades and still going on. It is an interesting field of study among psychologists and educationists. Many studies suggested that learning is strongly correlated to learning. It is a common observation by the teachers that in a class students with high intelligence learn the content much more easily

than the others. The understanding and definition of intelligence is the subject of debate as there is no single definition of it, intelligence is subjective and depends on culture and environmental condition. It can become clear with one example, say in a class there are four students, one is a skilled football player, another one is very good in story writing, the third one is great with mathematics and the fourth one is an amazing painter. Now it is difficult for us to decide who is the best intelligent, possibly everyone, or no one? This is indicative of the fact that we cannot define 'intelligence' with a single context. Many people define it in different ways but broadly we can define intelligence as the ability to learn about, learn from, understand, and interact with one's environment. This general ability consists of a number of specific abilities, which include:

- Ability to adapt to the environment or change the environment accordingly.
- The ability to acquire knowledge.
- The ability of rational thinking, critical reasoning, and comprehending relationships.
- Ability to evaluate and judge.
- Ability to generate original and divergent thinking.

Reuven Feuerstein (1990), defines intelligence as the "unique propensity of human beings to change or modify the structure of their cognitive functioning to adapt to the changing demands of a life situation." Intelligence is studied in close connection to the scholastic performance of the children and for that various intelligence tests have been developed and used. Such tests to measure intelligence are widely used and popular in educational institutions, jobs, and the military recruitment also. High scores on such tests are often found to be associated with high scores in academics, individuals involved in high profile jobs, and well established in life.

Sternberg proposed triarchic theory of intelligence to give the most comprehensive picture of intelligence that doesn't reject the previously popular factor theory but includes it within his theory. The triarchic theory describes three fundamental aspects of intelligence: (i) Analytic intelligence, (ii) Creative Intelligence, and (iii) Practical intelligence. Analytic intelligence comprises the mental processes through which intelligence is expressed. Creative intelligence consists of abilities to overcome a situation or problem which is completely new or nearly novel. Practical intelligence is needed by an individual in the socio-cultural setting for adapting to the environment or changing the environment according to his/her requirement. Triarchic theory suggested that general ability is a part of analytic intelligence and to understand the intellectual behaviour of an individual like learning skills, it is important that

all the three aspects of intelligence work in confluence. The three aspects of intelligence help the individual to understand the problem or the confronting situation by analyzing it through different dimensions then try to look for any possible unique solution of it, during the course of learning this he/she also takes into consideration the context of the situation. It is very well understood now that intelligence forms a strong background for learning new experiences and utilization of the learned knowledge.

Gardener's theory of multiple intelligence found special importance in pedagogy. Gardener proposed that there are different kinds of intelligence, each has different functioning but they may work together to produce a new intellectual behaviour. Based on this theory, educationists asserted that the intelligence which is high on manifestation in fact determines the factors that affect what one learns and how well he learns. Intelligence also influences how well a learner will be engaged in the learning process. Gardener's theory operationally defines intelligence as the potential of an individual to solve problems, do reasoning, dealing emotions, developing interests, moral sense, and living successfully with the environment. To conclude, it is certain that intelligence is significantly and positively correlated to the learning ability of the learners, and those who are having high intelligence are supposed to learn better, quicker, and more as compared to others with average or low intelligence.

5.4.2 Emotion

It is a common observation that when we are happy we do all our work including academic tasks very attentively, efficiently, and with joy. Whereas when we are sad or angry, we frequently make mistakes and feel demotivated towards doing any work. It is, therefore, well established that emotions play a significant role in building and directing our behaviour. Sometimes emotions are so strong that we feel completely under their control. Emotions make us humane, they color our lives and guide our behaviour in a particular direction to shape our personality. According to Crow and Crow (1973), "Emotion is an affective experience that accompanies generalized linear adjustment to mental and physiological stirred-up states in the individual that shows itself in his/her overt behaviour."

Emotions are feelings or affective experiences that are responsible for bringing such psychological changes in humans influence to alter the behaviour of the individual. Emotional changes and development are influenced largely by the process of maturation and learning. Primarily, it has been shown that emotions originate in the brain, specifically in the limbic system. The limbic system is a small structure located in the middle of the brain between the lower center or brainstem and the higher center or cortex. The brainstem controls alertness and arousal and sends sensory messages to the cortex via the limbic system.

Much of our thinking and learning takes place in the cortex and our limbic system interprets and directs emotions and behaviour. Thus, it can be said that both emotions and learning occur in the brain. Learning helps us to acquire new knowledge and also makes us think. Thinking affects the emotions of the human and emotion makes us think so to conclude, we can say that there is a complex connection between emotion and our learning.

Happy incidences improve our positive mood whereas bad incidences make us angry and sad, now being happy makes us think of happy thoughts that automatically help us to learn and acquire knowledge in a psychologically supportive state of emotion and mind. To conclude, it can be said that when a learner experiences positive emotions, the learning process can be enhanced, and oppositely, when a learner experiences negative emotions, the learning process can be disabled.

5.4.3 Motivation

Mangal (2008) defined motivation as something that prompts, compels, and energises an individual to act or behave in a particular manner at a particular time for attaining some specific goal or purpose. It is the biological, emotional, and psycho-social needs that generate drives and generate an activating force known as motivation that moves an individual to act or behave in a particular way at a particular time. Motivation is an important factor in many contexts - home, school, work, and society at large. Pieces of literature support a strong interrelation of motivation with the achievement of the learners and performance in all curricular activities. Learners who are motivated in school tend to achieve higher, they spend more time in school, get involved in all the classroom activities, participate in group and co-curricular activities, learn more, and in general perform better in examinations.

No one can deny the prime role of motivation in learning and all academic practices of the learners. Motivation is the inner urge of the learners to know and understand, it activates, guides, and controls the whole learning. In a classroom, it is a common observation by the teacher that the same task is done differently by the learners. Among the various other factors, motivation is one of the factors which basically energises the learner to complete the learning task more efficiently and quickly as they find it more interesting and rewarding to do.

Interestingly, there may be a variation in 'what motivates', 'how much it motivates' and 'what impact it has on the learner'. This variation in motivation is due to the difference in the level and the drives behind the motivation. For some people it may be the need and drive, for some, it may be the rewards, and for some others, it may be just the inner satisfaction and self-reward or intrinsic motivation that determines the type and level of motivation. Motivation must be understood as a construct that encompasses the concepts of needs,

drives, and incentives. It seems to be a synthesis of all of them. Motivation is something that energizes, directs, and sustains behaviour; it gets students moving, leads them in a particular direction, and keeps them going. Practically, some level or form of motivation is present in every learner in a classroom.

Some learners in a classroom are motivated by the classroom teaching and interested in more challenging learning content, seek interesting projects and earn high grades in all exams. Whereas some students are more inclined toward classroom peer bonding and interactions, they are motivated towards extracurricular activities and student council or club. We also find poor-performing students in academics very high on athletics and other sports, the only reason behind it is their very high motivation and self-satisfaction in learning sports over academic practices. Sometimes the external rewards like recognition, prizes, respect etc. are the drives that generate the motivation in the learners to perform the learning such motivation is known as extrinsic motivation whereas motivation is the result of inner urge, joy, and satisfaction of doing the task and gaining knowledge is called intrinsic motivation. It is found that learners are very creative with their behaviour during learning when they are intrinsically motivated, though extrinsic motivation too is essential in making learning as well as teaching effective for the learners.

5.4.4 Environment

The environment is our surroundings, it consists of all the animate and inanimate things that may affect us directly or indirectly. Our society and community also represent the social environment in which we are living. Both the physical, psychological, and social environment plays an important role in the process of learning as well as teaching. A teacher needs physical resources to carry out the job of teaching and creating the content. He also needs enough mental support, peace of mind, job satisfaction, and interest to effectively get involved in the teaching-learning process. The social environment shapes the classroom environment as we know, school is simply a miniature society. The physical and socio-cultural environment in which a child grows significantly influences his/her learning. If we observe carefully we will know that learning is in fact the interaction with the environment and gaining experience through it for the acquisition of knowledge which helps the individual to adapt to its environment or modify it. The social constructivist's view of psychology holds that all learning is culturally oriented and guided.

The socio-cultural environment can be sub-divided into factors like - family, community, and diversities in a society like caste, race, class, religion, languages etc. Family is the first school of the child, he/she learns all the fundamental motor skills and cognitive abilities in the

family. The family has a major impact on the social skill, attitudes, morality, and development of values. The family plays a continuous role in the journey of the entire socialization process of the child. Family is the cradle of all learning, a healthy relationship between the child and the parents provides an environment conducive to overall personality development and learning all good. A distorted and unhealthy environment, on the other hand, adversely affects the learning of the student. The upward mobility brings resistance on the part of the student to learn. Students in such families find themselves unable to cope up.

The community in which a child lives also guides learning and behaviour, many attitudes, habits, beliefs, perceptions, stereotypes, and social roles, as well as responsibilities, are formed by the direct experience or interaction of the child with the community and people living in it. For example, we have seen that many of the habits and classroom behaviour of the child is learned by them from their peers and friends. Students' interpersonal relationships form a particular type of emotional climate in the classroom that acts as the foundational support for collaborative learning. A child who doesn't have a supportive peer environment does not learn as desired by society and family. The school thus must support the free and constructive interaction among the learners and peers to make the learning process effective and meaningful. Caste, race, social class, language, and religion too are the significant factors affecting learning in our country. Such factors shape the attitudes, values, achievement goals, and morals of the child. Often the children from the socially disadvantageous group and those from deprived caste and religion do not get proper social as well as economic supports to continue their education. So it is found that social class and status are directly linked to the level of education obtained. Learning is also found to vary across religious and ethnic groups, owing to the distinction in their beliefs, values, attitudes, and practices. It has been seen that an adequately enriching and stimulating environment provides the learner with more learning opportunities and greater control over the environment than an impoverished or needy environment.

5.5 Teaching-Learning Materials: Textbooks, Multimedia, Multilingual Resources for Classroom use, and Remedial Teaching

5.5.1 Concept of Teaching-Learning Materials (TLM)

Suppose you as a teacher, on your first day of the job for the first class you went empty-handed in the classroom and for the next class, you went with a textbook, chalk, and a duster. Now if I ask you which class was more convenient for you and the response

of the learners were good? Obviously, your answer will be the latter class. The reason is that in the latter class you were equipped with a textbook for referring in class, also you used chalk and blackboard to write the content and draw any necessary figure or diagram. Such practices will naturally make the learners more interested in the studies and make the teaching-learning process more efficient as well as effective. Here, the textbook, chalk, board, duster are the tools or materials that are used by the teacher to help the learner to develop the concept with ease and efficiency, such materials are known as teaching-learning materials (TLM). TLM is not something new; it has been in practice since ancient times (Lal, 2011). The function of TLM in the pedagogy is to make learning more attractive, practical, meaningful, and joyful for the students. The use of TLM in the classroom by the teachers helps to reinforce the content to be delivered, develop skill, and concrete understanding of the content. It makes the class lecture or demonstration novel and refreshing every time as it makes the learner anxiety-free and removes them from boredom. The most effective TLM are those that are based on direct experiences of the learners like field experiences and dramatic participation, whereas the poor TLM is based on indirect experiences like text or verbal speech.

The use of TLM in a classroom is purposeful, it makes the learners motivated to learn new things and they become curious to gain knowledge. As per the Edgar Dale's (1969) cone of experience, the more the TLM is based on giving direct experiences to the learner the more it helps in retaining the learning content by them for a longer time. The learning objectives from the domain of cognitive, affective, and psychomotor could easily be achieved through the use of TLM. The teacher could easily organize the teaching content and present them in a very attractive and meaningful way through the use of TLMs. It helps in the formation of concepts among the learners. Also, they develop the proper learning attitude which remains in them for a very long time.

There are various types of TLM, that can be broadly classified into three main categories - (i) Audio TLM, (ii) Video TLM, and (iii) Audio-video TLM. Audio TLM targets the auditory senses of the learner it includes - speech, audio tapes, recordings, telephonic conversations, etc. Video TLM involves the visual sense, it includes materials like - videotapes, charts, graphs, cartoons, models, mock-ups, pictures, textbooks, magazines, newspapers, encyclopedias, programmed learning materials or SLM, video CDs/DVDs etc. Audio-video TLM includes the projected aids, which use both auditory and visual senses to enhance learning. The greatest advantage of these is that they are the closest representation of reality. These include - Motion Picture Film, Television, Video CDs/DVDs/cassettes, Slide-tape presentations, Multimedia computer etc. We will now discuss some of the popular and common TLM materials.

5.5.2 Textbook

Textbooks are the most popular and omnipresent TLM, it is equally popular among both the teachers and the learners. Textbooks are so essential that a teacher, despite knowing the complete curriculum, can not proceed with the teaching-learning if he/she is not provided with a textbook. Students also use it as the main source of learning the content in a class, it also acts as the reference book for them to understand the contents being explained by the teacher. A textbook is developed by subject experts and experienced teachers strictly based on the prescribed syllabus of the subject for a particular class. The topics in a textbook and the concepts within a topic are arranged in a specific order as per the syllabus and decided by the expert group who developed the textbook. Therefore, the textbook is considered as the sum total experience of the school curriculum in respective subject areas by the students, teachers, parents, and all other stake-holders. The textbook is multifaceted, which aids both learning and teaching so using it is not as simple as we think about it. Some teachers without understanding the objectives of the content in the textbook and without going through the introduction, directly jump to the exercise and summary they often miss the sequences and learning organization. Such improper practice definitely decreases the potentiality of the TLM like textbooks. Textbooks are the most influential TLM and the only one based on which the entire examination and the evaluation systems are functioning. The exam papers are prepared based on the contents in the textbook and the evaluation is also based on it. It will not be wrong to say that all the curricular activities in the school are completely based on the topics of the prescribed textbooks. Textbooks are recognized as the basic material for teaching and learning which require some very important characteristics to be present in it like -

- Textbooks must possess all the authentic information and verified contents.
- Content must be organized according to the learning sequence and should be connected to the previously acquired knowledge of the learner.
- The textbooks must be written in simple language that is easy to understand and memorise. The printing should be clear and fonts should be easy to read.
- The presentation of contents needs to be conversational and must be based on educational-psychological theories and established principles of pedagogy.
- Wherever necessary the textbook must have pictures, diagrams, and examples to explain the concept clearly to the learner.

- The presence of the various activity tasks and self-assessment questions is always an essential feature of a good textbook.
- Presentation of contents needs to motivate the learners throughout the process of learning.

Even in today's digital world the importance and requirement of the textbook will never decrease. A good textbook will always remain the best friend of both teachers and the students.

5.5.3 Multimedia

Multimedia TLM in education consists of a combination of five basic items as an aid in teaching-learning: Text, Video, Audio, Graphics, and Animation. Here text does not just indicate printed items in the textbooks but all the printed or written items used for the purpose of teaching-learning. Contents written on the video clip or graphic picture are also considered as text but as a part of multimedia materials required for teaching-learning. Let's try to understand these media one at a time.

Audio materials may be as simple as the voice or speech of a teacher. Voice or sound can be a means of teaching in the classroom by conveying messages to the learners. The teachers used to give explanations about the learning content verbally. For that teachers have to modulate his/her voice, express the feeling; put emphasis and pause at the appropriate places, it is known as the lecture method of teaching, which is considered as one of the oldest methods. In the modern classroom along with the lecture teacher also uses other audio TLM like tape-record players, audio CDs/DVDs, radio, podcasts, etc. Tape-records and audio CDs/DVDs are used as TLM in lower classes to present stories, rhymes, dramas etc. in the most interesting ways which make learning very effective. Similarly, such TLM is also used in distance education and adult education to provide teaching-learning experiences right at their finger-tips.

Radio once was the most popular media for providing mass education, now FM is very popular among young people and it is slowly growing as the platform to broadcast educational content. In India, the first radio broadcast of educational content was made in 1937, and to date channels like 'Gyan Vani' are following its path. Radio is one of the reasons for the success of the distance education program in India. Unlike radio which is a mass broadcasting media podcast in a personalized broadcasting media. Teachers can make audio content and upload it to the cloud storage from where students can download it and listen to it at their time and place of convenience. It is used to teach specific and

target groups of learners. Next, media are the video equipment like projectors, monitors, video CDs/DVDs, TV, etc. The projector is used in the classroom to project the content of learning directly in front of the class. The content may be the lessons from a textbook or some animation or video or diagrams and pictures prepared by the teacher. Video CDs/DVDs along with the computer monitors are also popular media in a smart classroom to present the learning content to the children in the most interesting possible. TV is audio-visual media that uses both the senses of vision and hearing of the learners as a result it comes out to be a very effective TLM.

Multimedia TLM refers to the combination of two or more of the above-mentioned materials. For example, in a classroom, the teacher is teaching about 'effects of global warming', for that teacher is using the textbook as the reference and using the overhead projector along with PC and audio speaker in the classroom to show a small documentary about the melting of polar ice. He/She is also explaining the documentary in between the pauses. This is the scenario where a teacher is using multimedia materials as a TLM to meet the needs of teaching-learning and achieve the objectives of learning. New age classrooms are using many other all-in-one compact multimedia devices like K-YAN which is a combination computer, smartboard, projector, speaker, and ICT devices (Barai, 2018). The use of such all-in-one devices has revolutionized the concept of multimedia TLM and our classroom learning experiences. It can make learning interactive between the learners and the technology. Multimedia will gain more importance in our classroom with time.

5.5.4 Multilingual Resources of the Classroom

Multilingualism is the characteristic feature of our India, we have 22 major languages and more than 19500 narrative languages or mother tongues. A Typical Indian classroom has students with many different mother tongues, whereas schools are mostly bilingual, having such linguistically diverse students in the classroom is challenging for the teachers and educationists. It becomes difficult for the teachers to communicate with the students, especially at the elementary levels. Kids at home first learn their mother tongue or native language and when they come to the school for the first time it becomes very difficult for kids to communicate and understand the learning contents or instructional process. In this situation, it becomes essential for the classroom to have the facility of multilingual resources in the form of teachers with the ability to read, write, and speak in multiple languages. Secondly, the teaching and learning content should be in multiple languages which includes multilingual textbooks, charts, maps, and audio-video aids. The new education policy,

NEP-2020 has also advocated for the implementation of a multilingual approach to teaching and learning at all levels of education. The justification behind this recommendation is the ease of comprehension by the learners in their mother tongue but at the same time, one cannot neglect the importance of regional or national language.

Languages are representative of one's culture, wisdom, knowledge, skill, and expertise. Therefore, multilingualism is a big resource of our society. When one knows the national or regional language and perfectly speaks the native language then the person will be able to synthesize knowledge and express it accordingly. Thus, it is very essential to include indigenous languages, mother tongues, or native languages in education to realize the benefits of synthesizing and clearly expressing knowledge. Multilingualism practices and resources in a classroom enhance the intellectual flexibility and creativity of the learners. Studies have revealed that children who grow up in a supportive environment speaking more than one language from an early age are more perceptive and intellectually flexible than those who speak single language. Multilingual resources like teachers are the human capital so are the learners as they are produced or created at the cost of time, efforts of the experts, purchasing of study and training materials. Language skills are productive especially in the individual's role as a consumer and in the role as a producer. Those deficient in language skills find it very costly. It is therefore beneficial to have many languages entrenched in an education system in order to get a solid and all-around human capital. Multilingual resources not only preserve linguistic diversity through education but also help in national unity through making people know their mother tongue along with the regional or national language, in this process, the people naturally embrace the value of unity, harmony, and togetherness.

5.5.5 Remedial Teaching

In any classroom, not every learner is the same, depending upon their cognitive, emotional, interest, motivation, and learning curiosity their learning ability, performance, and achievement varies a lot. Some learners often perform poorly in evaluation or classroom interaction; there may be one or more reasons behind it. Such learners sometimes need to start from the point where they are facing problems and guidance requires to progress toward the success. This need of the learners may be fulfilled through remedial classes or teaching. The word remedial here conveys the meaning of teaching which is developmental in scope. The aim of remedial teaching is not to make any correction in their learning problems but to develop those first-time basic skills that are essential to learn or do any particular task most efficiently.

Remedial teaching is just effective teaching in which the learners and their needs are at the center of the teaching process. Remedial teaching is not something different from normal classroom teaching; it includes all the features of good classroom teaching with an emphasis on learning and understanding the difficulties of the learner. In remedial teaching, the teacher takes the learning to the level of the learners and through intrinsic motivation uplifts their standard of competence. It is developed on the basis of proper diagnosis of the problems of the learners to meet their needs and minimize the difficulties of the learners.

It must also be noted that most of the learning problems or difficulties of the learners diagnosed in the remedial class are not essentially present within the learners themselves, some of the problems may be relative to the context where the learning is taking place, such as the family background of the child, the physical and learning environment of the school, and also the friends group of the learners. Understanding such factors of learning issues with the students makes the remedial teacher competent to be flexible and try to accept their learning difficulties as a transient and soluble problem. Teachers engaged in remedial class must view the learners as children who can be taught and helped to overcome their learning difficulties. It is essential for a remedial teacher to understand thoroughly the strengths and weaknesses of his/her students so that appropriate teaching approaches can be adapted to meet their individual needs. It is important for the teacher to understand that though learners who need remedial classes are low on academic achievement, it does not signify that they are limited in their potential and their limitations are temporary. With proper remedial help, other TLM, the use of stimulating teaching strategies, closer guidance, and more individual attention, these student's interest in learning can be improved and they would make better progress. The ultimate aim of remedial teaching is to help learners who have fallen behind to learn to the best of their ability and to bring them back into the mainstream class as soon as possible.

5.6 Summary

In this unit, we have developed the concept of teaching as the practice of changing behaviour of the learners through proper stimuli or if teaching is the process of 'to know' then it is the set of steps that guide the individual to know from the experiences. Teaching is a tandem to learning or vice-versa. The aesthetic nature of teaching makes it an 'art' but the systematic and sequential nature of it gives it a 'scientific' nature too. There are three variables in teaching - independent variable (teacher), dependent variable (learners), and mediating variables classroom environment. These variables perform many functions like the diagnosis of the learners' needs, prescribing the solutions, and doing an evaluation of

the outcomes. Teaching-learning has many different methods and approaches, here we discussed some of the most popular methods like, lecture method, demonstrative method, heuristic method, a problem-solving method, project method, deductive-inductive method, and analytic-synthetic method.

We have also explored the various personal factors like intelligence, motivation, and emotion that affect teaching-learning. High intelligence, positive emotions, and intrinsic motivation along with rewards and appreciation are positively related to learning. Environmental factors, especially socio-cultural factors too affect significantly the process of teaching-learning. Lastly, we have studied about the TLM. TLMs are the supportive tool for the teachers which make learning effective and a pleasurable experience for the learners as they find learning interesting, motivating, and able to retain the knowledge for a longer period.

5.7 Self-Assessment Questions

1. Describe the concept of teaching. Why is teaching both Arts and Science?
2. What are the different functions of teaching?
3. What are the different methods of teaching?
4. Write a short note on the significance of teaching.
5. How does the intelligence level of children affect their respective learning?
6. What is the role of motivation in the teaching-learning process?
7. How is the family environment interrelated to the learning of the children?
8. What do you mean by teaching-learning materials and what are their different types?
9. What is the importance of textbooks as TLM?
10. How Audio-visual and interactive TLMs can improve the classroom experiences of the learners?
11. Why is remedial class important for learners with difficulties?

5.8 References

- Amidon, E., & Hunter, E. (1967). *Improving teaching*. Holt, Rinehart and Winston.
- Barai, B. (2018). K-YAN: Explored and Explained. *JETIR*, 5(11), 585-588. Retrieved 1 July 2021.
- Brubacher, J. (1969). *Modern philosophies of education*. McGraw-Hill.
- Crow, L. D. & Crow, A. (1973). *Educational Psychology*. New Delhi: Eurasia Publishing House.
- Eisner, E. (1985). *The Educational Imagination: On the Design and Evaluation of School Programs*. 2nd ed. New York: Macmillan.
- Gardner, H. (1993). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- Gage, N. (1963). *Handbook of research on teaching*. Rand McNally.
- Lutzker, P., (2007). *Teaching as an art*. www.htmag.co.uk
- Mangal, S. K. (2008). *Advanced Educational Psychology*. New Delhi: PHI.
- Morrison, H. (1934). *Basic principles in education*. Houghton Mifflin Company.
- Pathek, R., & Chaudhay, J. (2011). *Educational technology*. Pearson
- Feuerstein, R. (1990). The theory of structural modifiability. In B. Presseisen (Ed.), *Learning and thinking styles: Classroom interaction*. Washington, DC: National Education Associations.
- Sternberg R.J. and Salter, W. (1982). *Handbook of human intelligence*. Cambridge, UK: Cambridge University Press

Unit-6 □ Measurement and Evaluation

Structure

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6.1 Objectives

After completing this unit you will be able to—

- Explain the concept of measurement;
- Describe the importance of measurement in education;
- Describe the types of measurement;
- Explain the features of a good measurement tool;
- Explain the concept of assessment;
- Describe the importance and types of assessment;
- Describe the concept of evaluation;
- Describe the characteristics of the evaluation in education;
- Explain the concept of the continuous and comprehensive evaluation;
- Describe the reporting the learner's achievement.

6.2 Introduction

Progressive society demands quality in the educational system. One of the ways of improving and maintaining the quality of education is through continuously monitoring the pedagogy and the outcome. Evaluation of the feedback loop in pedagogy gives the ability to understand the areas of improvement and adapt to the changes for improvement. Evaluation of the learners helps in understanding their progress and areas that need improvement. Evaluations are done by various methods of assessment and measurement.

Educational measurement is nothing new in pedagogy. Educators have been testing students from the beginning of the educational system, it is widely used to assess what behavioral changes have taken place. A teacher wants to know the shortcomings of the method of teaching he/she uses, for which these tests are very important. The introduction of some of the modern ways of evaluation in the educational world is comparatively new. Such new tools were introduced in this field in order to get rid of the serious shortcomings of measurement. From the beginning of the twentieth century, three types of important progress were noted down in the field of educational measurement: testing, measurement, and evaluation. Nowadays, evaluation is considered to be an important contribution of psychology and education. In this chapter, we will explore the evaluation methods, process and discuss its type, need, importance, and requirements.

6.3 Assessment, Measurement, and Evaluation in Education

6.3.1 Concept of Measurement

Measurement is the process by which the attributes or dimensions of some physical objects are estimated or determined like measuring the weight, height, length etc. In education, measurement refers to the application of a standard scale or measuring tool by which the quantitative aspect of progress in the teaching-learning process is determined. Some of the popular definitions of measurement in education given by famous educationists are given below

J P Guilford: *"measurement means the description of data in terms of numbers and this, in turn, means taking advantage of many benefits that operate with numbers and mathematical thinking"*.

E L Thorndike: *"Anything that exists at all, exists in some quantity; and anything that exists in some quantity is capable of being measured."*

J. M. Bradfield: *"Measurement is the process of assigning symbols to the dimension of phenomenon in order to characterize the status of phenomenon as precisely as possible."*

Encyclopedia of educational research defines measurement in more precise terms as a means to observe or determine the magnitude of a variant. Measurement gives the teacher a quantitative estimate of how much the learner has acquired during the process of learning. In our daily life, we measure various items and objects in units like length, height, weight, etc. using a scale, tapes, and balance; but there is a wrong notion about measurement. The scoring and ranking of the participants in any drawing competition or musical performance is also a kind of measurement so whenever a teacher arranges the achievement of the students in a quantitative fashion then it represents the measurement in education. It is essential in measurement that the assignment of scoring or any other quantitative value must be given to the learners according to certain established rules that means measurement is always based on certain criteria.

6.3.2 Importance of Measurement

Measurement involves the process of quantification of behavior in a learner. This quantification indicates to what extent a particular set of skills or knowledge or understanding is present in a learner. It has been found that the measurement in any field involves three characteristics: (a) identification and definition of quantity, attribute, or variable that is to be

measured. (b) finding out the set of activities by which the attributes of a variable may be made perceivable. (c) establishing a set of methods or techniques for converting observation about the learner and teaching-learning process into a quantitative statement of degree, extent, or amount.

Measurement is important for identifying the individuals who are more capable in terms of their skill, knowledge, and understanding than the others in a class so that the individual need of the high performer as well as the low performer learners could be addressed. This makes measurement an important means through which the grading and promotion system in an educational setting could be operationalized. In education, measurement is largely required for the analysis of data from educational assessment of tests; this makes measurement an important element in all types of research work related to education, educational psychology, and pedagogy.

6.3.3 Types of Measurement

Based on the object or the subject which one is intended to measure, we can categorize the measurement into two different types - physical measurement and psychological measurement.

(i) Physical measurement: Physical measurement is the measurement of the object which has its absolute existence. The tools which are used to measure the object which has its physical presence are universal and always start with zero of the scales. All such tools are highly standardized and hence used over the world with the common system of measuring units. For example, we measure the length of an object which will remain to some extent fixed all over the world. Similarly, the measurement of the weight of an object is also constant around the world. Physical measurement is always accurate and quantitative.

(ii) Psychological measurement: Psychological measurement is also known as mental measurement or educational measurement. There is no absolute zero in the case of psychological measurement and also it is not universal around the world. Such measurements are context-centric and hence the result may vary depending upon the environment in which it is carried out. For example, measuring the creative potential of a person or testing the intelligence level through certain tools are subjective in nature; the result obtained from one socio-cultural group of a sample will not be similar to some other socio-cultural group of the sample. In the educational system, the measurement of performance of the learner is done through various quantitative measuring tests for which the principles of measurement are utilized and such measurement is known as educational measurement. Educational measurement provides a clear picture about the level of acquired skills and knowledge of

different groups of learners; it also helps in identifying the strengths and weaknesses of each individual learner. Educational measurement helps the teacher to design the proper instructional process which will guide the learner to achieve the goals of teaching and learning. Educational psychologists take the help of different valid and reliable psychological tests to know the level of different traits within an individual. It helps them to modify human behavior according to academic and social purposes. The different kinds of such educational measurements are - intelligence tests, achievement tests, attitude tests, aptitude tests, inventories, personality tests, creativity tests, emotional intelligence tests, etc. The methods used for these tests are discussion, interaction, interview, observation, rating scale, cumulative scores, etc.

6.3.4 Features of Good Measurement Tool

There is a difference between measuring an absolute object and the traits/behavior of an individual. It is very essential in the case of educational measuring tools to be very precise and accurate in measuring the behavior and personality of the individual. Such tools must be free from any kind of personal error, variable errors, interpretative errors, and environmental interference. Some of the important features of good measuring tools are given below:

(i) **Validity:** It is said to be valid if it successfully measures what is it actually intended to measure. Validity is one of the most important criteria for a tool to be good for measurement. For example, if someone wants to measure the divergent thinking ability of an individual then the tool used should measure only the divergent thinking ability not the other dimension of thinking styles.

(ii) **Reliability:** Reliability is the consistency of a measuring tool that means how accurately it measures the dimension which it is designed to measure. For example, if an intelligence test is administered on some individual and the individual has scored 65 in that test then when the test is re-administered on the same individual after some period the score obtained by the individual still remains 65, then one can say that the intelligence test is highly reliable as it has produced a consistent result.

(iii) **Objectivity:** Objectivity of a test refers to two aspects - first, item objectivity, and second, scoring objectivity. Item objectivity means the question of the test will have only one response so that different independent scorers should give a score for only one definite response of a particular question. Score objectivity refers to the condition when all the different examiners will score in a similar manner for a particular question that means their score will not vary significantly. To have high objectivity in a test requires that it should not have any kind of ambiguous questions, double-ended questions, with double negatives,

and long and essay-type open questions. Such questions should be avoided to have a clear objectivity in the test.

(g) *Practicability*: A good measurement test needs to be highly practical in nature. The test should be easy for the teacher to use for the purpose for which it is made.

(h) *Comprehensive and precise*: The direction of the test must be easy and clear so that both the administrator and the respondent can make a precise understanding about it and should be able to make responses without any ambiguity. The direction for administration and for scoring must be clearly stated so that in a classroom both the teacher and the learners can easily understand and follow it.

(i) *Ease of administration*: The test must be easy to administer by the teacher in a classroom. The test should not involve too much time and labor to administer. For example, if there is a test that requires more than two or three teachers for a single classroom then it is a resource-hungry test and does not have ease of use.

(j) *Economical*: A good measurement test should be inexpensive in its application and usage so that the educational institute and the teacher can afford it for the benefit of the masses. The test of measurement should not be developed using lots of financial resources only then it will be inexpensive for the users.

(k) *Readily available*: A good test of measurement must be available in an open domain so that it can be used by everyone for the benefit of the learners. Though there are many reliable and standardized tests of measurement available in the market, they are subject to copyright and hence cannot be used without the consent of the author.

(l) *Ease of scoring*: It is very essential for a good measurement test to have clear direction about the scoring system and procedure. The scoring-key must be provided with every good measurement tool.

6.3.5 Concept of Assessment

In its narrowest sense, the meaning of assessment is to give students some tests and then score the responses to provide them marks or grades. This concept of assessment is very limited in its scope and purpose. Assessment is one of the most important ways of understanding the strength and weaknesses of the teaching-learning process. In the most general sense assessment is the process of making a judgment of the worth of a person or learner in an educational context. In education, assessment is widely recognized as an ongoing process that is aimed at understanding and improving the students' learning. Assessment is concerned with converting the goals and aims of the learning into results. It

is a process by which various information is collected about the learner through different tools like the test, interview, oral examination, questionnaire, practical problem-solving tasks, etc. After which the data is carefully analyzed to know about the learner's state of preparedness and future prospects in pedagogy.

Assessment is a process by which information is obtained relative to some known objective or goal. In an educational context, assessment is often considered synonyms to a test but a test is a form of assessment, so all tests are considered as assessment tools but not vice versa. Test in the form of assessment is used to check how far the goals and objectives of pedagogy are achieved, it helps us to identify individual learners' weaknesses and strengths so that the teacher can provide specialized academic resources and support for the improvement of the learner. The tools of assessment are developed by many groups of people involved in academics like teachers, institutional administrators, district administrators, education officers, cooperative bodies, private companies, the government department of education, etc.

6.3.6 Importance of Assessment

Assessment is important because it affects our decision about the grade achievement, instructional need, curriculum, and overall development of the learner in academics as well as in co-curricular areas. Assessment helps us to know how reliable the teaching-learning process is through which the learners and the educator are going through. A teacher can explore alternatives of the regular teaching-learning modes through the proper assessment of their methods of teaching so that the most efficient method of pedagogy can be identified that fits the context of the classroom of any particular society. Basically, assessment is important because it drives students' learning and predicts their future performance. Assessment is important because it makes the learner aware of their drawbacks so that they can seek the way to reinforce their learning strategies to overcome them. The performance of the learners assessed through different tools also motivates them and directs their learning towards a more meaningful direction. Well, designed assessment strategies and tools play a crucial role in educational decision-making and curriculum design. Assessment in education is a vital component of quality management and improvement so that courses and curriculum at different levels of education could be made more learner-centric, goal-oriented, and efficient.

The assessment provides diagnostic feedback and tells us about the student's knowledge, performance, needs, and what are the things that need to be taught better. It helps the teacher to set the standards of the teaching-learning process like what are the things that

need more emphasis in the classroom. Assessment tells about the efficiency of the teacher in the classroom also helps in doing self-evaluation of the teacher. Based on the learner's assessment the teacher decides what else is needed in his/her teaching technique so that the learner could be guided towards the objectives and goals of learning.

6.3.7 Types of Assessment in Education

Assessment is an important part of the teaching-learning process and it is used at the various stages of teaching and learning. Some assessment is done at the beginning of the process of teaching and learning whereas some are carried out during the process of teaching-learning and some are done at the end of a particular teaching-learning session. Different assessments have different scopes and purposes based on which they can be classified into four major types. Let us discuss each of the four different types of assessment used in education.

- (i) **Placement assessment:** Placement assessment is the most basic type of assessment that is generally conducted at the beginning of the teaching-learning process. It attempts to understand the entry-level behavior or the knowledge of the learners. The purpose of placement assessment is to make the teacher aware of the learner's existing level of knowledge, skill and understanding so that the new learning experience which the learner is going to explore could be related to the previous one. This assessment helps in developing and practicing the most suitable type of teaching-learning activities needed for any particular type of learner.
- (ii) **Formative Assessment:** Formative assessment is a kind of assessment that is used during the ongoing process of teaching-learning. It is often administered more than once by the teacher or the school academic administrator to understand the effectiveness of the ongoing teaching-learning process. The general goal of formative assessment is to collect detailed information that can be used to improve the functioning of the teaching-learning process while it is happening. What makes an assessment formative is not the design of a test, but the technique of self-evaluation, but the way it is used to inform about the effectiveness of the teaching-learning process. Formative assessment helps teachers to identify the concept that the learners are facing difficulty to understand and the skills which they are having difficulty to develop or the learning standards which they have not achieved yet so that the adjustment can be made in the learning process and learning resources to meet the desired objectives. Examples of formative assessment are class tests, monthly examinations, quarterly examinations, and half-yearly examination. Apart

from these the questions given at the end of the units are also a form of formative assessment.

(iii) Diagnostic Assessment: Just like the formative assessment, diagnostic assessment is also conducted during the teaching-learning process. As the name suggests, diagnostic assessment is done to diagnose the learning difficulties faced by the learner during the process of teaching and learning. Diagnostic assessment is carried out based on the data obtained from the formative assessment. It uses multiple measures and reports to identify students' strengths and needs in specific areas of skill so that the teacher can provide remedies to address their learning needs. Diagnostic assessment directly guides academic curricular and instructional decisions because there is a better understanding of what a student does or does not know in relation to a specific learning goal. The types of assessment used for diagnostic purposes include universal screening, classroom observation, monitoring, and various other qualitative techniques like teacher-student interaction, group discussion, etc. that are helpful in knowing the learning gaps.

(iv) Summative Assessment: Summative assessment is used to evaluate the students' learning, understanding, skill acquisition, knowledge level, and academic achievement at the end of the defined period of teaching and learning. Such assessments are typically done at the end of a course, semester, program, or school year. Summative assessment is a kind of certification that is given to the learner after achieving a minimum level of accomplishment. Feedback provided in summative assessment is terminal in nature and cannot be used for modification of learner's behavior because it is conducted at the end of a term. There are different techniques and tools which are used in summative assessment; they may be verbal or nonverbal in nature, for example, teacher-made standardized tests, annual examinations, and semester and examinations.

6.3.8 Concept of Evaluation

Evaluation is a broader concept of understanding the progress in the process of teaching and learning. Evaluation includes both measurement and assessment procedures to draw a comprehensive picture of the attainment of the goals of pedagogy. Evaluation is done by assigning values to the measured score through its proper assessment and we add judgment to the final result. When we are evaluating we are making a judgment as to the suitability, desirability, or value of a thing. In pedagogy, evaluation is a continuous process and is concerned with more than just the formal academic achievement of students. Evaluation

of a learner cannot be done just by their performance in a classroom or through the year-end examination; evaluation needs careful understanding and exploration of the learner's cognitive, affective, and social domains. This exercise of the test depends upon the strategies and resources used by the teacher as well as the learners. The goal of teaching-learning can only be met if the entire dimensions of learners' needs could be understood and satisfied; which is possible only if the evaluation of the entire teaching-learning process is done with most accuracy. Evaluation is the crucial step in improving the quality of education.

J.M Brafield defined evaluation as, "the assignment of symbols to phenomena in order to characterize the worth or value of phenomena usually with reference to some social, cultural, and scientific standards." In the classroom, a teacher does the evaluation by considering the sum total of all the measurements done through various tests which are carried out on the learners and by considering all the non-measurement methods used during the process of teaching-learning like observation, interaction, discussion, interviews, etc. Finally, the teacher adds their own value judgment to the entire process to conclude the outcome of the teaching-learning process. Therefore, we can say that evaluation is equal to all quantitative measurements plus the qualitative assessment and the value judgments added by the teacher. It can be said that measurements and assessments are the means and evaluation is the end. In any evaluation process first comes the measurement which provides data for assessment and finally comes the evaluation. In the process of evaluation, assessment is done by comparing two or more sets of data collected through various tests on the learners reflecting the progress of the teaching-learning process and then the judgment about the attainment level is made, the learning outcomes then help in making the decisions. Such decisions help in the improvement of all the different dimensions of pedagogy. Diagrammatic representation of the relationship between evaluation, assessment, and measurement is presented in a figure given below:



Fig: 6.1 Relationship between evaluation, assessment, and measurement

6.3.9 Characteristics of Evaluation

- Evaluation is a continuous process that starts with the entry of a learner into the formal educational system and continues till the completion of the course. Evaluation is not confined to a particular stage of the teaching-learning process, as the child moves from one stage of education to another stage of education the process of evaluation continues. The progress of the child depends upon the process of evaluation.
- Evaluation requires careful interpretation of the data sets; it requires comparison of various data to arrive at a conclusion based upon which the decision for the improvement in the process of teaching-learning depends.
- Evaluation is comprehensive in nature. It does not depend only upon the academic status of the learner but includes the overall growth and development of the learner. It includes cognitive, affective, and psycho-motor domains of the learner also.
- It involves adding values and making judgments about the child's progress to make decisions about improvement and corrective measures in the learner's learning process.
- Evaluation is not objective in nature. It is subjective judgment depending upon the various dimensions involved in pedagogy.
- Evaluation is highly systematic in nature, it follows a definite pattern and steps to attend the goals of pedagogy.
- Evaluation is philosophical in nature.
- Evaluation involves both quantitative measurement and qualitative assessment alongwith value judgment.

6.4 Evaluating Learner Achievement: Entry Level, Continuous and Comprehensive, and Outcome-Based Evaluation

6.4.1 Understanding Continuous and Comprehensive Evaluation

Education aims at making children capable of becoming responsible, productive, creative, knowledgeable, and useful members of a society. All the educational system measures and assesses the achievement level of the learners from time to time. Continuous and comprehensive evaluation refers to one such method of assessing the achievement of the

learner which is based on the systems evaluation technique and it covers all the aspects of student's growth and development. It is a developmental process of assessment that emphasizes two major objectives - first, making the evaluation a continuous process, and second, assessing the comprehensive learning and behavior outcomes of the learners. The term continuous is used as a notion that the development of a child through the process of learning is continuous in nature and hence the evaluation should be continuous too, whereas comprehensive means that the evaluation scheme tries to cover both the curricular and the co-curricular aspects of students' growth and development.

School education is the necessary foundation for strengthening human resources which is the core element for the development of a nation. From the time of our independence, many educational commissions and policies emphasized upon free and compulsory education in our country. From the Universalization of Elementary Education to the Sarva Siksha Mission, the main goal was to provide quality education for everyone. The various national policy of education recommended improving the quality of education in schools and colleges. The major recommendations include the child-centered approach of teaching-learning through reforms in the context and the process of education, school facilities, professionally trained teachers, laying down the minimum level of learning, and emphasise upon continuous and comprehensive evaluation.

The concept of a continuous and comprehensive evaluation is a process of determining the extent to which the objectives of quality education and the overall development of the children are achieved. It is not only aimed towards assessing the achievement level of the learners but also to improve it continuously throughout the learning process. A continuous and comprehensive evaluation is also concerned with the identification of the best learning experience conducive to the overall personality and cognitive development of the learner so that desirable behavioral changes can be fostered in them. In connection to this, the national policy of education (1986) recommended that a minimum level of learning should be ensured at each stage of primary education. For it certain competencies are identified for each subject at every grade of schooling. Each competence constitutes and expects a performance standard that lends itself to criterion testing which is continuous and competency-based. It is very essential for the teachers especially at the school level to adapt a robust scheme of a continuous and comprehensive evaluation that may help in establishing the learner's attainment of a minimum level of competencies. A competency also becomes a criterion to organize the teaching-learning process, and at the same time to assess the student. It is a very well-known fact that evaluation is usually done to measure the knowledge and understanding outcomes. The evaluation of skill and higher mental abilities are neglected to a great extent. A good continuous and comprehensive evaluation ensures that the evaluation of non-cognitive aspects like attitude, appreciation, interest, motivation, personal and social

qualities of the student are also done properly. At this point, it is necessary to stress upon the fact that evaluation should be comprehensive in nature where all the learning experiences including scholastic, co-scholastic, and personal as well as the social qualities are assessed thoroughly.

6.4.2 Objectives of Continuous and Comprehensive Evaluation

A continuous and comprehensive evaluation is required because different specific areas of learners' growth need different types of evaluation through certain techniques. Continuous and comprehensive evaluation helps in decision-making regarding various aspects of the teaching-learning process promoting the students increasing equity, efficiency, and accountability. For the same the teacher has to select the most appropriate technique for the situation and develop the necessary tool for the same and decide upon the time and place of evaluation. Some of the important objectives behind the use of continuous and comprehensive evaluation are:

- A continuous and comprehensive evaluation is needed to develop the cognitive, emotional, and social skills of the learners.
- It focuses on shifting the learners from the rote learning practice toward learning based on experience and thought process.
- One of the important objectives of continuous and comprehensive evaluation is to integrate evaluation with each and every step of the teaching-learning process.
- Another important objective is to control and improve the quality of education and uplift the performance level and quality of achievement of the learners.
- To determine the social utility, desirability, or effectiveness of an educational program and to take necessary decisions about the learner, the process and context of learning.
- In modern pedagogy, a continuous and comprehensive evaluation is aimed to make the learning process a child-centered activity, where the children will learn to evolve into a complete person under the guidance of their teacher. Its objective is to make the teacher as facilitator of learning, not the controller of the process of teaching and learning.

6.4.3 Implementation of Continuous and Comprehensive Evaluation

As already discussed, a continuous and comprehensive evaluation is very important for improving learners' overall quality across all the domains of teaching-learning. In the context of school, implementing the continuous and comprehensive evaluation demands the

continuous updating of the teacher's judgment about the learners and their performance in academics as well as co-scholastic areas. Some important points to be considered for implementing the continuous and comprehensive evaluation are:

- Careful examination of the course and specification of competencies to be attended by the learners in terms of knowledge, understanding, application, and skill performance.
- Knowledge and ability to construct assessment tools that are criterion-based appropriate for assessing the competencies.
- It is essential to carefully plan the competency-based teaching procedures.
- There should be complete harmony between the teaching and assessment process without which assessment will be ineffective and distorted.
- Proper maintenance of record regarding the improvements and drawbacks of the learner should be kept, so that suitable modification pedagogy and evaluation can be done.
- Proper implementation of continuous and comprehensive evaluation requires knowledge and skill of evaluation, commitment, and assistance to provide remedial teaching on the part of the teacher.

6.4.4 Concept of Outcome-Based Evaluation

Outcome-based education is a learner-centric teaching-learning model that focuses on evaluating students' performance through outcomes. These outcomes include learners' knowledge, skill, understanding, attitude, metacognition, creativity, etc. Its focus remains on the evaluation of outcomes of the program by stating the change in the behavior. Outcome evaluation is the assessment done to measure the final results of a learning program. It is done by educational institutes for calculating the behavioral change and its impact as the product of the teaching-learning process. The outcome-based evaluation focuses on input from the participants and how the activity affected them or brought any change in them. It is concerned with what kind of difference the activity of learning made for them.

The importance of outcome-based evaluation lies in the fact that it helps us to know how well the objectives of a learning program were met. The analysis of this short can be useful for educational institutes with learners' learning at different levels. Such evaluation is effective in depicting the picture about the current program of learning and in predicting the direction in which it is heading. Some of the other advantages of outcome-based evaluation are:

- It helps in estimating the cost of the program and the result helps in designing the

other course of future educational programs of action.

- It helps in understanding the impact of the educational program and how fruitful will be the prospect of such a program of learning to replicate in other scenarios.
- It helps in gaining the confidence of society over the present quality of education.
- Keeping outcome-based evaluation an integral part of pedagogy ensures the reliability of educational programs in the future.

6.5 Preparing Results: Scoring, Grading, and other Components

The assessment and evaluation of various dimensions of the learner during and after the completion of the teaching-learning process come in the form of their performance or achievement results. Preparation of the result is an important task carried out by the teacher and the educational institute to reflect the level of accomplishment by the learner at the end of the academic session. In this regard, the national curriculum framework (2005) reported that "a good evaluation and examination system can become an integral part of the learning process and benefit both the learners themselves and the educational system by giving credible feedback. The purpose of assessment is necessary to improve the teaching-learning process and materials, and to be able to review the objectives that have been identified for different stages by gauging the extent to which the capabilities of the learners have been developed." This recommendation makes it mandatory for the educational institutes to record and report the results of the learner for communicating to the parents in a format (having both quantitative and qualitative information) which includes both their scholastic and non-scholastic abilities and performance.

We have already discussed that the purpose of assessment and evaluation is to help the teacher to understand the drawbacks and the strength in the process of teaching and learning, as well as it helps the student to enhance and construct their learning. For the same, the teacher must understand the level of performance of each student and the student must also get the necessary feedback on various aspects of their skills, knowledge, understanding, and other non-cognitive aspects. It is possible when the teacher will provide them feedback at the time of performing the activities and also mention in their report both the quantitative and the qualitative accomplishment. Therefore, preparing a result and reporting the performance of the learner is a challenging task performed by the teachers and the academic board of the educational institute. We will discuss here some of the important aspects of preparation for the result of the learners.

Use of indicators: While measuring the performance of the learner it can be recorded in terms of two indicators - quantitative and qualitative. The complete picture of the students' development and achievement can be viewed only when both the scholastic and the co-scholastic areas are taken into consideration. The descriptive indicators are qualitative in nature. Such indicators depict the efficiency and the skill of the students that they reflect in their behavior. In junior classes like the primary level of education, descriptive indicators are communicated to the parents and included in their annual and cumulative reports. This report includes the learner's ability to acquire first language and second language skills, ability to be involved in the conversation, and abilities to solve basic mathematical problems. It also includes their ability to cope up with social and environmental phenomena and participation in different co-curricular activities. It is impossible to involve all the qualitative indicators in a report card therefore only certain relevant indicators are generally presented in the learner's report card. The performance and achievement of the learners in academics are generally represented in terms of quantitative indicators like the marks and grade obtained in a class test, periodic test, half-yearly test, annual examination, oral test, and teacher-made test. They are presented in a report card to communicate the performance of the learners to their parents. It is also helpful in deciding a minimum level of achievement necessary to promote the learners to the next stage of education.

Scoring and recording: The scores from quantitative data obtained from the different examinations and qualitative data obtained from co-scholastic activities are recorded in the Report Card. It is very vital to follow certain procedures if the scoring is to be done with maximum accuracy and reliability. The necessity for extreme caution and care in scoring has been indicated by many pieces of literature. It has been found that errors can occur due to the failure to understand the proper scoring direction which can be heppened due to carelessness in marking, adding, subtracting, computing, and transcribing the scores. The best way to overcome such errors is by professional training to handle the scorers and by arranging a procedure to re-score the report cards, randomly few of them if not all. A sample report card of the secondary section is given below :

Student's Name:

Roll No.

Class and Section.

Mother's/ Father's/Guardian's Name:

Date of Birth:

Academic session:

Subject	Academic Year (Full marks 100)						
	Periodic test (10)	Half-yearly examination (10)	Notebook (5)	Project (5)	Annual examination (70)	Marks obtained (in 100)	Grade
First language							
Second language							
Subject 1							
Subject 2							
Subject 3							
Additional subject							

Co-curricular subjects:

Subjects	Grade
Work education	
Arts	
Music	
Physical education	

Result of the student:***Remarks of the class teacher:******Signature of the class teacher:******Signature of the principal:***

Grading scale for academic/ curricular areas:

Grades are awarded on an 8 point grading scale as presented in the table given below

Marks range	Grade
91-100	A1
81-90	A2
71-80	B1
61-70	B2
51-60	C1
41-50	C2
33-40	D
32 & below	F (Failed)

Note for the scorer: Reporting in the academic area is to be done both in the marking and grading systems. The assessment of the co-curricular area is to be done only in grading. In the remarks section for the class teacher, the qualitative description of the individual students can be made.

The systematic and proper preparation of the report card helps in preparing a profile of the student, this profile will help the student in excelling his career towards new highs and bigger achievements. Developing a student profile helps to provide a deeper understanding of students' unique interests, traits, and abilities. Thus, it is essential for the educational institutes and the teachers working in those institutes to maintain a scientific and systematic report of each learner so that it could improve the overall quality of the learner and education.

6.6 Summary

Education is not simply the acquiring of knowledge but it is the overall personality development of a child so that the child can adapt to the surroundings and thrive in the society by contributing meaningfully to its society and nation. In scholastic areas education includes the development of the mind and the ability to acquire knowledge, develop understanding, analyze and synthesize it, apply the knowledge in practical situations and also critically reflect on various issues. But for the complete development of body, mind,

and spirit it is essential to help the learner in co-scholastic (or co-curricular) areas by the development of sense, morality, work experience, art and culture, life skill, and value education. A quality education includes both scholastic and co-scholastic learning in its teaching-learning process. One of the important parts of education to ensure its quality is by making measurement, assessment, and evaluation an integral part of teaching-learning.

Measurement, assessment, and evaluation are the elements of the same process where a learner is judged with the value about his/her achievements based on certain quantitative and qualitative indicators. Learning is a continuous process and so is the evaluation. Such evaluation is termed as continuous and comprehensive evaluation which is now an integral part of our modern education system which confirms the quality output from the process of teaching-learning. Based on the output of the process of teaching-learning, evaluations are modified and so are the strategies of instruction thus evaluation based on output is gaining popularity among the teacher and educational administration. Proper evaluation is possible only when proper documentation of the student's achievement is done. Teachers prepare the Report Card of the learner as a mirror to show their achievements, strengths, and weaknesses. The report card should be based on both quantitative and qualitative indicators of the learner so that the parents can get the complete picture of their children.

6.7 Self-Assessment Questions

1. What do you mean by measurement? What is its importance in pedagogy?
2. What do you mean by assessment? Describe the different types of assessment?
3. What are the features of good measuring tools?
4. How evaluation, assessment, and measurement are related in education?
5. What are the characteristics of evaluation in education? Write about the importance of assessment in education.
6. Why is continuous and comprehensive evaluation important in education?
7. What are the objectives of continuous and comprehensive evaluation and how can it be implemented effectively?
8. What is outcome based evaluation?
9. What are the types of indicators based on which the results are prepared?
10. How are the achievements of the learners presented in the report card?

6.8 References

Beeby, C.E. (1977). The Meaning of Evaluation: Some Comments on the papers, in Current Issues in Educational No. 4 Evaluation, Wellington: Department of Education. pp. 68-78.

Black, P., Harrison, C., Lee, C., Marshall, B., and William, D. (2003). Assessment for Learning: Putting it into Practice. Berkshire, England: Open University Press.

CBSE (2010). Continuous and Comprehensive Evaluation Manual for Teachers Classes VI to VIII, New Delhi; Central Board of Secondary Education.

Ebel, L. (1996). Measuring Educational Achievement. New Delhi: Prentice Hall of India.

Gronlund, N.E. (1981). Measurement and Evaluation in Teaching. New York: Holt, Rinehart and Winston, Inc.

Gronlund, N.E. (1966). Measurement and Evaluation in Teaching. New York: The Macmillan Company.

J. Swarupa Rani (2004). Educational Measurement and Evaluation. New Delhi: Discovery Publishing House.

James, R., McInnis, C. and Devlin, M. (2002). Assessing Learning in Australian Universities. Center for the Study of Higher Education.

NCERT, (2012). Report of National Conference on Recent Trends in Assessment at School Stage. Organised by Department of Educational Measurement and Evaluation during 21-23 March 2012, New Delhi: NCERT.

NCERT (1988): National Curriculum for Elementary and Secondary Education - A Framework (Revised Version), Published at the Publication Department, Secretary, NCERT, New Delhi.

Rao Manjula P. (2001): Effectiveness of the Continuous and Comprehensive Evaluation Training Programme over the Evaluation Practices of Primary School Teachers - A DPEP Research Study in Tamil Nadu, RIE, Mysore.

Sadler, D. R. (1998). Formative Assessment: Revisiting the Territory. Assessment in Education, 5(1), 77-84.

Scriven Michael (1967). The Methodology of Evaluation, Quoted in N.E. Gronlund, (1981). Measurement and Evaluation in Teaching. New York: Holt, Rinehart and Winston, Inc.

Singh, A. K. (2010). *Test, Measurement and Research Methodology in Behavioural Sciences*. New Delhi: Jain Book Depot.

Thorndike, R. L. and Hagen, E. (1977). *Measurement and Evaluation in Psychology and Education*, 4th Edition, New York: John Wiley & Sons.

Joseph, L. S., (2013). *Evaluation in Distance Education*. Michigan State University, Michigan: East Lansing.

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