

**“MAA” OMWATI COLLEGE OF EDUCATION  
HASSANPUR (PALWAL)**

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NOTES PAPER- I

CHILHOOD & GROWING UP



MAA OMWATI EDUCATION TRUST

DELHI

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# **CHILDHOOD & GROWING UP**

## **UNIT -I EDUCATIONAL PSYCHOLOGY - GROWTH AND DEVELOPMENT**

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## **1.1 INTRODUCTION**

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As a teacher trainee, when you are engaged in the teaching -learning activity if you understand the student's interests and needs you can make your teaching according to their needs, they will be interested in learning and consider you as a good teacher. How do you understand the attitudes, interests and needs and aptitudes of the students? Psychology helps you to understand the mental activities, experiences and behavior of human beings. Psychology deals with not only the behavior of the conscious level, it also deals with the experiences of sub-conscious and unconscious levels of human mind.

Behavior in Psychology includes the physical activities and mental activities such as thinking, imagining that could be indirectly observed and emotions such as anger, joy. Behavior in Psychology is explained in terms of stimulus and response. The Psychologists feel that the changes in the development are not uniform at all ages. The Growth and development is studied in biological, psychoanalytical and cognitive implications.

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## **1.2 OBJECTIVES**

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After learning this unit, you will be able to

- Understand the meaning of Psychology
- Identify the importance of educational psychology
- Explain the human development process
- Discuss the cognitive development factors

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## **1.3 MEANING OF PSYCHOLOGY**

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The word Psychology is derived from two Greek words Psyche and Logus. 'Psyche' means soul, 'logus' means science. So psychology in the beginning was meant to be the science of soul. Later people began to question the existence of soul.

So Psychology was defined as the science of mind. The activity of mind cannot be externally observable; so Psychology was defined later as the science of human behavior.

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## BRANCHES OF PSYCHOLOGY

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As knowledge expands different disciplines branch from basic disciplines and from the interface between basic disciplines. Psychology also different disciplines developed. We now have child Psychology, abnormal Psychology, social Psychology, educational Psychology, counseling Psychology, industrial Psychology and many other Psychologies developed from the basic Psychology. As a teacher trainee you may be interested more in educational Psychology and a few other allied branches namely social Psychology, developmental Psychology and counseling Psychology.

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## EDUCATIONAL PSYCHOLOGY

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Educational psychology will help the teacher to get answers for the following questions.

- (i) Who are to be educated?
- (ii) Why should one be educated?
- (iii) Where should education be given?
- (iv) When it should be given?
- (v) How should it be given?

and many other questions relating to teaching learning process.

Educational psychology has different dimensions. It deals with the characteristics of students, teaching – learning context, methods of teaching- learning strategies, mentality of the students, mental hygiene and other aspects of education. Teacher is responsible for the development of student in all three dimensions of human behavior namely cognitive, affective and psychomotor. Psychology explains the interdependent of these three domains and the need for the importance of the development of all the domains in the students. Thus the knowledge of psychology will help the teacher in self-understanding, developing professional skills and fulfilling social demands.

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## PURPOSE AND PRINCIPLES OF TEACHING & LEARNING

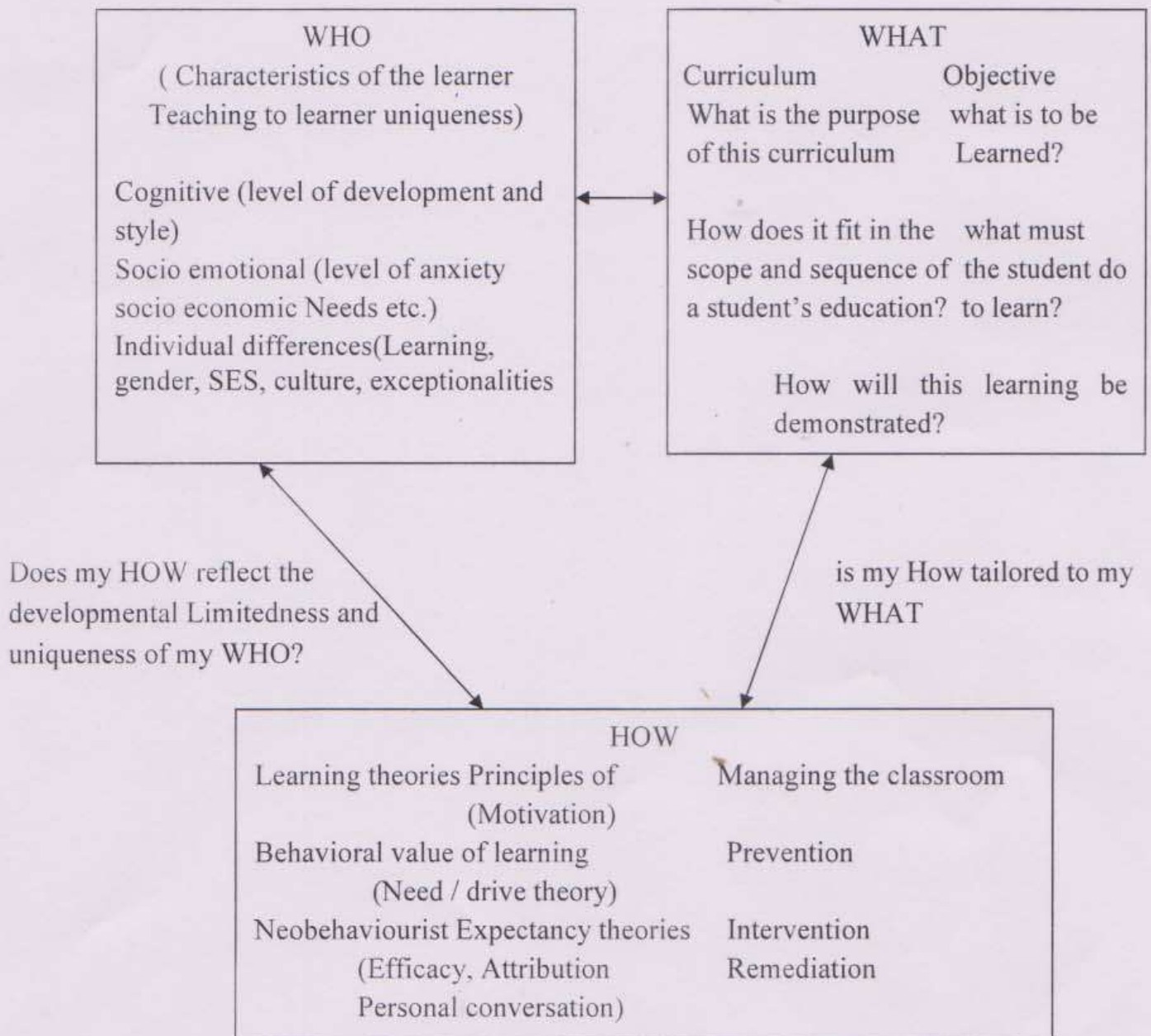
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A teacher's most typical role is that of instructional expert. In that role, the teacher is responsible for planning activities to facilitate learning. The teacher is responsible for guiding students in learning activities and evaluating them. Beyond these instructional responsibilities, a teacher also takes on the role of manager. A teacher needs to bring order and structure to the environment to facilitate the learning process.

Teaching is what one does in an attempt to induce or facilitate learning. Effective teachers demonstrate the ability to (i) Organize class room (2) Manage by setting and

maintaining clear rules, and (3) Employ didactic teaching, which is an elaborate system of knowledge for understanding problems in teaching and knowing how to transform content into curriculum.

**The Teaching –Learning Process: An integration of “who” “what” and “how”**



Teaching has its artistry, but it is an art that can be studied, analyzed and understood. Once the science of teaching has been understood, effective actions can be taught, incorporated, practiced and perhaps become so automatic for the effective teacher that it once again appears as an art.

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## MEANING OF GROWTH AND DEVELOPMENT

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Change is the law of nature. Animate or inanimate objects are all subject to change. Animate objects are distinguished from inanimate objects chiefly by their potentiality to maintain the flow and cycle of life. Seeds, after germinating in the soil grow as saplings and then as specific plants or trees which in turn flower and produce seeds or fruits for further germination. Similar is the case with birds, animals and human beings who can reproduce their own kind by the transmission of specific characteristics of the species through sexual union between the male and the female.

As far as the human being is concerned, life starts with the conception in the mother's womb as a result of the process of fertilization of the ovum(egg cell) of the mother by the sperm cell of the father. The mother's womb then becomes the site and the meaning for the growth and development of the new life and it is only after nine months that the baby is able to come into the world as a new born. The period spent in the mother's womb is termed as pre-natal period and is usually not included in the computation of one's chronological age.

In all animals, including human beings, the pre-natal period resembles the time taken by a germinating seed to come out of the soil, which then grows and develops into a full fledged plant or tree. The processes by which a germinating seed or conceived

organism is turned into the mature plant or full fledged being are collectively termed growth and development.

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## DIFFERENCES BETWEEN GROWTH AND DEVELOPMENT

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The term growth may be limited to the changes in the quantitative aspect i.e increase in size, length, height and weight and expansion of vocabulary etc., The term development implies the overall changes occurring in both the quantitative as well as qualitative aspects. Therefore, development as a term carries a wider and more comprehensive meaning than the term growth.

The term “growth” carries a limited and narrower meaning. It is a sub-system of the development as it is concerned merely with the quantitative changes in comparison to the overall changes described and explained by the process of development. This does not continue throughout one’s life. It stops when maturity has been attained, while development is a continuous process. Starting right from conception it does not end with the attainment of maturity but continuous throughout the entire life span of an individual.

Development is said to be a complex process in comparison to the process of growth. The results of growth in terms of quantitative changes are very specific, fairly easy to observe and measure. The results of development, in comparison are quite complex and difficult as far as their actual assessment & measurement is concerned.

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## IMPORTANCE OF GROWTH AND DEVELOPMENT

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The chief aim of education is to help the students to have desirable changes and new way of thinking. To bring about this kind of changes it is necessary to know about the growth and development of the children to their age. Development is a continuous and non- stop process at all periods and stages of human life. Therefore, we should never give up our efforts to achieve perfection in terms of development in the different dimensions of our personality.

The Principles related to growth and development suggests a pattern or trend for the advancement of children on the developmental path. Principles like proceeding from general to specific responses and the principle of integration helps us to plan the learning processes and arrange suitable learning experiences so as to achieve maximum gain in terms of growth and development.

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## HUMAN DEVELOPMENT PROCESS

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Development scientists are interested in two kinds of developmental change: quantitative and qualitative. Quantitative change is a change in number or amount such as growth in height, weight, vocabulary, aggressive behavior or frequency of communication. Qualitative change is a change in kind, structure or organization. It is marked by the emergence of new phenomena that cannot easily be anticipated on the basis of earlier functioning, such as the change from an embryo to a baby or from a non verbal child to one who understands words and can communicate verbally.

Developmental scientists also are interested in the underlying stability or constancy of personality and behavior. For example about 10 to 15 percent of children are consistently shy and another 10 to 15 percent are very bold. Although various influences can modify these traits some what they seem to persist to a moderate degree, especially in children at one extreme or the other.

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## CONCEPT OF INDIVIDUAL DIFFERENCES

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Every child grows and develops in different environment. According to the environment and experience they differ. The Interaction of students has with teachers and friends provide experiences .These experiences bring, about a change in thinking and feelings. The changes that take place indicate learning has occurred the adolescents with physical growth and development are given training they become good sportsmen. So learning is very necessary for the development to take place.

### Biological

An important determinant of our behavior is the biological structures that we have inherited from our ancestors in the form of developed body and brain. The importance of such a biological bases becomes obvious when we observe cases in which brain cells have been destroyed by any disease, use of drug or an accident. Such cases develop various kinds of physical and behavioral disabilities. Many children develop mental retardation and other abnormal symptoms due to transmission of a faulty gene from the parents.

### Psycho- Analytical

The Psychoanalytical perspective views development as shaped by unconscious forces that motivate human behavior. Sigmund Freud (1856 - 1939) a Viennese physician

developed psychoanalysis, a therapeutic approach aimed at giving patients insight into unconscious emotional conflicts.

## Cognitive Implications

According to Bronfenbrenner, the child experiences cognitive development in the context of a complex system of relationships including parent-child interaction (the “microsystem”), the extended family, School and neighborhood (“ the meso system”) and the general society and culture (“ the exosystem”) changes at any of these levels have the potential to influence cognitive development. An immediate implications of such a system theory is the need to provide programs that impact these various relationships in order to maximize their positive influence on a child’s cognitive development.

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## COGNITIVE DEVELOPMENT

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Cognition means knowing through which activity knowledge is received. Cognitive development means changes in mental activities like attention, learning, thinking and recognizing.

Cognitive development takes place with the help of experiences through sensory organs, observation and memory, arranging thoughts and by finding solutions to problems. Some educationalists feel that cognitive development takes place in different stages from the time of birth. According to them the development of one stage is based on the development of the previous stages. These stages of growth may occur at different age for different children. But the order of the stages will be the same.

We can identify the stage of a person’s cognitive development by observing the persons activities and the infer from that the stage of the cognitive development.

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## ATTENTION FACTORS

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When we are in the conscious state-not sleeping, we are paying attention to stimulus of any kind. But the conscious level and attention are not same. Several stimuli that don’t fall within our attention may be present in our conscious level of these stimuli. We select or isolate a few and pay attention to them. The effort to select and experience called attention.

The factors that determine attention from inside us are internal or subjective factors. Sometimes there may be certain factors from outside too. These are present in the stimulus or the objects that attract us. These are called external factors.

## **SPAN OF ATTENTION**

We can notice a few things within a short period of time. The number of things we can observe in a very brief period is the span of attention. The span of attention denotes how many things can exist within the focus of our conscious mind at a time.

When you ask children to see many things for a short period of time, they can see all the things with equal attention. Because the number of things we see at a time is limited. We can find out the span of attention of a person using Tachistoscope in the psychology laboratory. Cards with varying number of dots will be flashed one by one. Each card will be shown for a second. We have to say how many dots there are in each card. The maximum number of dots you can notice is your span of attention.

## **INATTENTION & DISTRACTION**

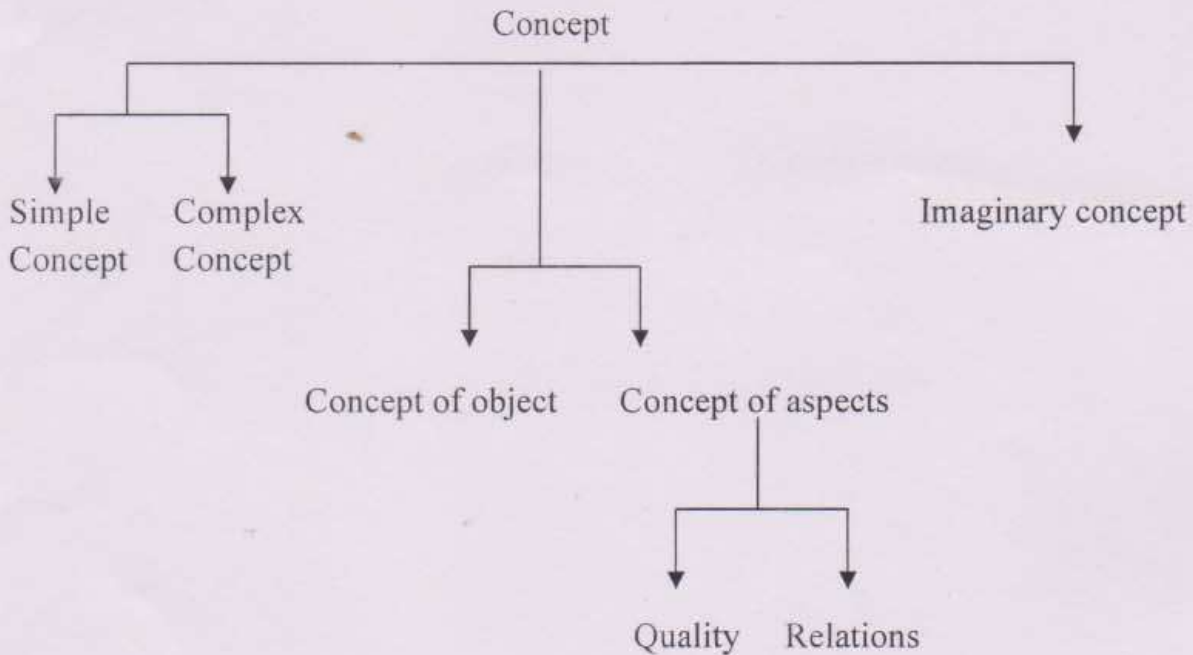
Inattention means, not paying attention to a particular stimulus or to any stimulus. We do not pay attention to a particular stimulus because we are not interested in it. Inattention is caused by the absence of objective and subjective factors that determine one's attention. For example, lack of interest, motivation or need on the part of the individual cause inattention.

Distraction, on the other hand, refers to attending to irrelevant stimuli that are not part of the main assigned task. A student would like to attend to the lecture in the class room but he may be distracted because of the noise coming from outside. Distraction results in poor productivity and wastage of energy resulting in fatigue.

## Concept Formation Types

Concept refers to generalized image or idea which stands for a group of objects that have some common characteristics. In other words it is the generalized idea which stands for all our experiences with regard to particular object, person or event.

### CONCEPTS ARE CLASSIFIED AS UNDER



#### (i) Simple concept

The presence of single quality or attribute is the simplest form of a concept eg: green, tall, moving, square, triangle etc.

#### (ii) Complex Concept

When more than one property, attribute or characteristics distinguish a concept, it is known as complex concept. Car is a complex concept as it points to properties such as a mode of transportation, using petrol or diesel as fuel, running on four wheels, a status symbol etc. (similarly democracy, marriage, football team "blue square block are all complex concept)

(iii) Concept of object eg. book, house, car etc.,

(iv) Concept of aspects

(a) relaxed to properties or qualities(eg) Honesty , simplicity, smooth, coarse, cold etc.

(b) relational concepts: eg bigger than, taller than, faster than, close by farther etc.

Even concept of imaginary things could also be formed.

(eg) Heaven , hell, atom, milky way, photons, golden mountain etc

## **UNDERSTANDING ADOLESCENT LEARNER**

Understanding adolescent learner: Growth and development. physical, cognitive, social, emotional and moral development pattern. Adolescent period: Nature and peer factor influencing development; Behavioral pattern in terms of motivation, attitude and development of self-concept: method of studying learner's behavior at the adolescent stage: observation, interview, experimentation and case study.

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## INTRODUCTION

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The word 'adolescence' comes from the Latin Verb "adolescere" which means 'to grow'. So the essence of the word adolescence is growth and it is in the sense that adolescence represents a period of intensive growth and change, in nearly all aspects of child's physical, mental, social and emotional life. Adolescence begins with the onset of puberty and lasts till the beginning of adulthood. Several Physiological and psychological changes occur during this period. According to Cole, adolescence is a period of growth in all systems of the body. In the course of a few years the individual undergoes both in size and in his internal body chemistry. The rapidity, variety and force of these developments are amazing. The changes are so extensive that some people call this as second birth. Stanely Hall called this period as "Period of storm and stress" a time when the individual is erratic , unstable and unpredictable.

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## OBJECTIVES

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After learning this unit, you will be able to

- Identify the characteristics of adolescent learner
- Understand the significance of adolescence.
- Discuss the methods of studying adolescent behavior
- Explain the peer factor & behavior pattern of adolescent.

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## ADOLESCENT LEARNER

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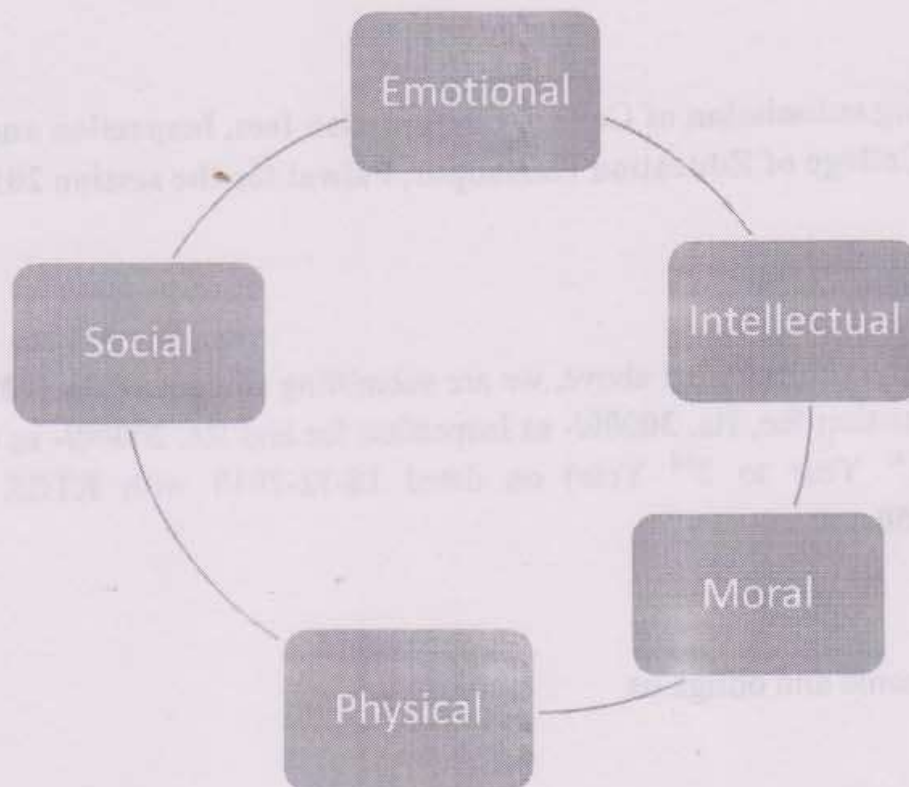
Adolescents are generally perceived as a homogenous group, yet they can be stratified on the basis of gender, caste, class, geographical location (urban/ rural) and religion. Adolescents also include a whole gamut of categories. School and Non-School going, drop outs, sexually exploited children, working adolescents both paid and unpaid, unmarried adolescents as also married male and females with experience of fatherhood and motherhood. Adolescents are on account of the influence of electronic media, Indian adolescents cannot remain unaffected by globalization. Nevertheless, following interests, aspirations and attitudes of Indian adolescents are discernible although it is very difficult to generalize as there are several sub groups on account of the vastness of the county and its plural culture.

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## GROWTH AND DEVELOPMENT

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Figure 2.1. The interrelatedness of the various aspects of the development of the personality of the adolescent may be illustrated as under:



WHO defines adolescence both in term of age (spanning the ages between 10 and 19 years) and in term of a phase of life marked by special attributes. These attributes includes:

- Rapid physical growth and development
- Physical, social and psychological maturity, but not all at the same time.
- Sexual maturity and the onset of social activity
- Experimentation
- Development of adult mental process and adult identity
- Transmission from total socio-economic dependence to relative independence

## **Physical Development**

At the adolescent stage, marked changes take place in the following domain:

- (i) Height and Weight
- (ii) Bodily Proportion
- (iii) Change in Voice
- (iv) Increase in motor performance
- (v) Sexual changes

## **Educational implications of physical growth and development**

A program of physical growth and development is not confined to the playground but should pervade the classroom and in fact the entire school programme. Physical development in the class room may take the following forms:

- (i) Direct instruction emphasizing the necessity of having a good physique may be given.
- (ii) Suggestions regarding the maintenance of good health are very helpful.
- (iii) Emphasis on right posture should be laid
- (iv) Provision of good seating and lighting arrangements in the classroom, thereby impressing upon them the importance of studying under healthy surroundings should be made.
- (v) Providing ample opportunities to the children for physical activity should be given its due importance.
- (vi) Physical exercise for any child should be compulsory in the school.
- (vii) Various activities promoting physical development should be well planned and children should be encouraged to take part in these activities.
- (viii) At this stage, students also have sexual development. It is necessary for us to impart them sex education.
- (ix) Teachers should be conversant with norms of motor development of the child.

## **Cognitive Development**

Mental or intellectual development implies the growth and development of those abilities and capacities of the adolescent that enable them to accomplish a task that need complex cognitive abilities and enable them to adjust their behavior to the ever changing environmental conditioning.

Cognitive abilities include abilities like sensation, perception, imagination, memory, reasoning, understanding, generalization, interpretation, problem solving and decision making etc. In fact most parts of the school programmes relax to mental development.

The adolescent learns to reason and seek answer to how and why of everything rationally and scientifically. Power of critical thinking and observation is much developed. They are more creative and inquisitive. They are almost critical of everything. They develop a lot of imagination. This becomes the beginning of the artist, inventor, philosopher, poet and writer etc. in the adolescent.

### **2.6.3 Social Development**

Educators have defined social development in a number of ways. E.B. Hurlock thinks “Social development means the attaining of maturity in social relationships”

H.E. Garret states “Socialization or social development is the process whereby the biological individual is converted into a human person”

Thus social development refers to the process of development by which a child acquires the necessary attitudes, skills and values that makes him an acceptable member of the group to which he belongs.

#### **i) Characteristics of social development during adolescence**

- (i) Adolescence is marked with too much sex consciousness resulting in sexual social relationships.
- (ii) During adolescence loyalty becomes very much pronounced and adolescence are in a mood to sacrifice their selfish interests for the greater cause of the group, society and nation.
- (iii) Adolescence stage is often marked with increased friendly relationships.
- (iv) Emotional behavior of the adolescence dominates his social characteristics and qualities.
- (v) There is too much diversity in the adolescents regarding their social interests.

#### **ii). Role of the school in the social development and satisfaction of the social needs of the adolescence**

The function of the school has considerably changed in the rapidly changing civilization. The traditional function of imparting the basic skills of the three R's is now

no longer considered to be adequate to meet the present challenge. The present day school has also to perform some of the functions of the family. It may develop certain desirable social habits.

It is through co-curricular and extra-curricular activities that the task of social development can be achieved more successfully. It is only the sympathetic understanding and sincere desire of the teacher to act positively in an unprejudicial manner that can help.

### **iii) Class in the process of socialization**

Class provides innumerable opportunities to the adolescents to move and mix with other groups. The teachers are expected to be vigilant to ensure that the students do not think in term of untouchability, caste distinction and other prejudices.

### **iv) Role of the teacher in social development of the Adolescent**

A teacher can play a vital role in the social development of adolescent under his charge. He exerts a great influence upon the development of the personality of the adolescent. Following are the important suggestions for the social development of the adolescent.

- (i) Adolescent may be taken from time to time to public places like museums, courts and places of historical importance etc to observe social interaction.
- (ii) People engaged in different economic activities or vocations may be invited to school for giving a description of what they do and how useful their work is to the nation. This will enable the adolescent to be acquainted with those around them in the society.
- (iii) Adolescent should be acquainted with the social events like the celebration of the birthdays of leaders.
- (iv) The school programme should be full of numerous co-curriculum and curricular activities in which adolescent meet, co-operate and learn from each other's personality.
- (v) Stories depicting self-sacrifices made by great men for the cause of general good may be told to adolescents so that they are motivated to rise above petty gains and work for the betterment of the humanity.

## **2.4.1 Emotional Development**

Emotional development is one of the major aspects of adolescent's growth and development. Not only adolescent physical growth and development is linked with his emotional make-up but his aesthetic, intellectual, moral and social development is also controlled by his emotional development. To keep one's emotions under control and be able to conceal them is considered a mark of strong and balanced personality. Therefore, adolescents must be trained to control their emotions and achieve a mental balance and stability which will lead to individual happiness and social efficiency.

### **i) Role of the school and the teacher in satisfying the needs of the emotional development of the adolescent.**

Following are the ways for meeting the needs of the adolescent.

- (i) Providing equal treatment irrespective of consideration of wealth, status or gender of the adolescents.
- (ii) Using dynamic and progressive methods of teaching-learning
- (iii) Love and affection as the part of teacher to be made the basic of work
- (iv) Balanced emotional behavior of the teacher himself
- (v) Creative and democratic classroom and school discipline
- (vi) Healthy physical conditions in the school
- (vii) Due regard to individual differences of the adolescent
- (viii) Due regard to the individuality of the adolescents
- (ix) Adequate provision for a variety of co-curricular activities
- (x) Provision of sex education
- (xi) Rich and varied curricular

## **2.4.2 Moral Development**

By morality we mean conformity to the moral code of the social group. The term comes from the Latin word "mores" meaning manners, customs or folkways. To act in a moral way means to act in conformity to group standards of conduct. Morality also includes a sense of right or wrong behavior which has to do with the conscience of the individual. Moral behavior is learnt. Moral standards vary from group to group depending upon what has been accepted by the group as a socially approved behavior. True morality comes from within the individual. It is internal in nature and not imposed by external authority.

Bowley and others are of the view that a person of moral character has the following qualities (i) self control (ii) reliability (iii) persistence in action (iv) industrious (v) feeling of responsibility (vi) consciousness

#### **i) Role of the school environment**

Behaviour and norms adopted in the immediate environment influence the adolescent in shaping his moral behavior. It is very unfortunate that generally elders observe double standards of morality. We hardly practice what we preach. These double standards are observed by adolescents. It is therefore, very essential that elders set high standards of morality.

#### **ii) Role of the Teacher**

It has been stressed again and again that nothing can be more helpful in moulding the adolescent's moral behavior than the teacher's own conduct. A teacher has to set a high standard of moral behavior before the adolescent.

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## 21 ADOLESCENT PERIOD

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Adolescence is commonly defined as the stage of life that begins at the onset of puberty, when sexual maturity or the ability to reproduce is attained. It has been regarded as a period of rapid change, both biologically and psychologically. Though the physical changes that take place during the stage are universal, the social and psychological dimensions of the adolescent's experiences depend on the cultural context. For example, in cultures where the adolescent years are viewed as problematic or confusing, the adolescent will have very different experiences from someone who is in a culture, where adolescent years are viewed as beginning of adult behavior and therefore, undertaking

responsible task. Although most societies have at least a brief period of adolescence, it is not a universal across cultures.

### **Nature and Peer Factor Influencing Development**

As adults when we reflect on our adolescent years and recall the conflicts, uncertainties, occasional loneliness, group pressures, we feel it was definitely a vulnerable period. During adolescence peer influence new gained freedom, unresolved problem may create difficulties for many of you. Conforming to peer pressure can be both positive and negative. Adolescents are often confronted with decisions regarding smoking, drugs, alcohol and breaking parental rules etc.

These decisions are taken without much regard to the effect they can have. Adolescents may face period of uncertainty, loneliness, self doubt, anxiety, and concern about themselves and their future, they are also likely to experience excitement, joy and feelings of competence as they overcome the developmental challenges.

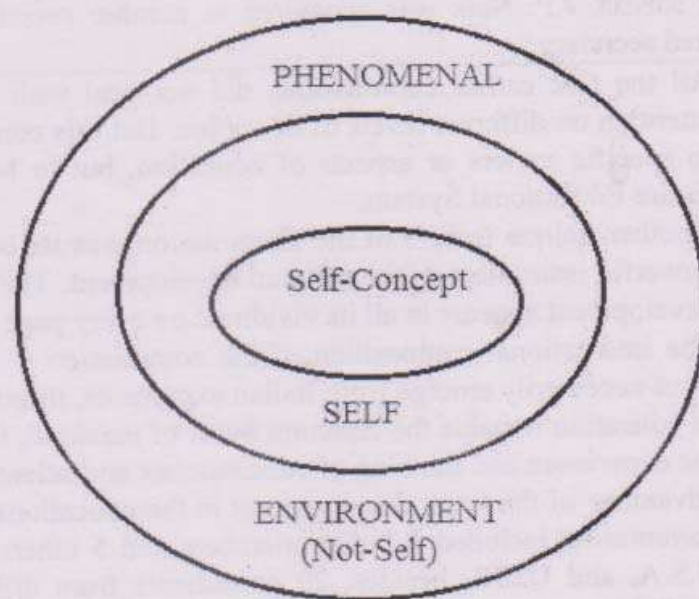
### **Behavioral Pattern in Terms of Motivation**

The formation of identity during adolescence is influenced by several factors. The Cultural background, family and societal values, ethnic background and socio-economic status all prevail upon the adolescents search for a place in society family relationships become less important as the adolescent spends more time outside the home and develops a strong need for peer support and acceptance. Increased interaction with peers provide them with opportunities for refining their social skills and trying out different social behaviors. Peers and parents are dual forces having major influence on adolescents.

At this conflicting situations with parents lead to increased identification with peers. But generally parents and peers serve complementary functions and fulfill different needs of the adolescents.

### **Attitude and Development of Self-Concept**

Self –concept implies a person’s perception or view of himself. Self-concept is what the individual thinks of his actual self. Self-concept plays an important role in the development of personality of an individual. The positive self concept is likely to enable an individual to lead a happy, contented and well-managed life.



## 2.2 Diagrammatic representation of the concept of Self-concept

The idea of self starts growing from the period of infancy and grows during childhood, adolescence and maturity. As the child grown up, he starts feeling that he is separate from others. He slowly begins to learn that certain things belong to him. The part of the environment in which he lives is known as his phenomenal self and the rest of the environment of which he is aware or to which he responds is called phenomenal environment or perceived environment and not self.

## LEARNING

Learning by Trial and Error( Thorndike) – Learning by stimulus- Response conditioning ( Pavlov & Skinner –Classical – Operator Conditioning)- Educational Implications- Gestalt theory-Theories of Development: Cognitive Theory of Development(Piaget's)- Psycho- social theory of development (Erikson) Theory of Moral Development (Kohlberg) – Theory of Psycho- sexual development (Freud) Theory of Emotional Intelligence (Gold Stein)- Factors affecting learning and learning problems – Ways to enhance learning skills and minimizing learning problems- Transfer of learning- Remembering and forgetting- Curve of forgetting- Individual differences in learning.

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## 3.1 INTRODUCTION

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Learning is a key process in human behavior. It refers to a spectrum of changes that takes place as a result of one's experience. Learning may be defined as "any relatively permanent change in behavior or behavioral potential produced by experience." Changes due to practice and experience, which are relatively permanent and illustrative of learning. Learning involves a sequence of psychological events. The process of learning has certain distinctive characteristics. The first feature is that learning always involves some kind of experience. We experience an event occurring in a certain sequence on a number of occasions. For example, one learns that if the bell rings in the hostel after sunset, then dinner is ready to be served. Repeated experience of satisfaction after doing something in a specified manner leads to the formation of habit. Sometimes a single experience can lead to learning.

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## 3.2 OBJECTIVES

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- Explain different types of learning and educational implications.
- Discuss the different theories of development
- Understand various psychological processes that occur during learning.
- Describe transfer of learning and individual differences in learning.
- Familiarize yourself with some applications of learning principles.

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## 3.3 LEARNING

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Learning takes place in many ways. There are some methods that are used in the acquisition of simple responses while other methods are used in the acquisition of complex responses. The simplest kind of learning is conditioning. Two types of conditioning have been identified. The first one is called classical conditioning and the second instrumental/operant conditioning. In addition, we have (Trial and Error learning and insight learning) observational learning, cognitive learning, verbal learning, concept learning and skill learning.

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## 3.4 TYPES OF LEARNING

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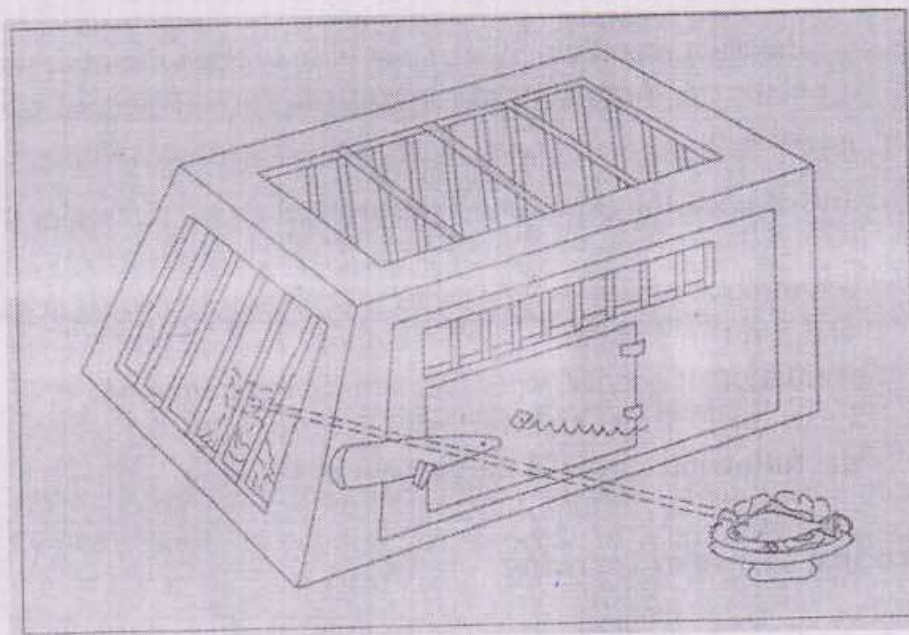
Psychologists have identified different types of learning. We have different types of learning. We learn different skills adopting different types of learning. How does learning take place at different levels?

Learning is explained in terms of stimulus and response by a group of psychologists. They are known as behaviorists. The stimulus is an impulse that we receive from the external environment or from within. Response is our reaction to the stimulus that we receive. Two types of learning based on stimulus-response bonds are described by Pavlov and Skinner. Pavlov called this classical conditioning and Skinner operant conditioning.

### **Trial and Error Learning (Edward Lee Thorndike)**

The famous psychologist Edward Lee Thorndike (1834 – 1949) was the initiator of the theory of trial and error learning based on the findings of his experiment on a cat.

In one of his experiments, for instance, he put a hungry cat in a puzzle box. There was only one door which could be opened by correctly manipulating a lever. A fish was placed outside the box.



**An illustration showing Thorndike's cat trying to come out**

The smell of the fish acted as a strong motive for the hungry cat to come out of the box.

In another trial, the process was repeated. The cat was kept hungry and placed in the same place in the same puzzle box. The fish and its smell again worked as a motive for it to get out of the box, it again made random movements and frantic efforts. But this time, it took less time to come out. In subsequent trials, such incorrect responses, biting, clawing and dashing were gradually reduced and the cat took less time on each succeeding trial. In due course, it was in a position to manipulate the latch as soon as it

was put in the box. In this way, gradually the cat learnt the art of opening the door. The experiment sums up the following stages in the process of the learning.

1. Drive : In the present experiment it was hungry and was intensified by the sight of the food.
2. Goal : To get at the food by getting out of the box.
3. Block : The cat was confined in the box with a closed door.
4. Random Movements : The cat persistently tried to come out of the box without knowing how.
5. Selection : Gradually, the cat recognized the correct way to manipulate the latch. It selected the proper way of manipulating the latch out of its random movements.
6. Fixation : At last, the cat learned the proper way to open the door by eliminating all the incorrect responses and fixing only the right response. Now it was able to open the door without any error or in other words, learnt the correct way of opening the door.

Based upon the experiment mentioned above the major theoretical principles which form the basis of Thorndike's theory of learning and summarized in the discussion as follows. Learning involved trial and error or selection and correction. Learning is the result of the formation of connectionism. Learning is incremental, not insightful; Learning is direct, not mediated by ideas. The experiment sums up the following stages in the process of learning.

## **THORNDIKE'S LAWS OF LEARNING**

Thorndike's propounded the following laws of learning on the basis of his theoretical notion about the learning process.

### **1. The Law of readiness**

Readiness according to the Thorndike's is preparation for action. It is essential for learning. If the child is ready to learn, he learn more quickly, effectively and with greater satisfaction. This shows us not to force the child to learn if he is not ready but also not miss any opportunity of providing learning experiences if the child is prepared to learn. The right movements concerning the learning situation and the learner's state of mind should be recognized and maximum use should be made of this knowledge by the teacher. He should also make an attempt to motivate the students by stimulating their attention, interest and curiosity.

## **2. The Law of Exercise**

This law has two sub-parts. The law of use and the law of disuse which may be stated as the Law of use:

The law of use states that the more accompanied by or frequently modifiable connection between stimulus- response (S-R) is made stronger

(a) The Law of disuse:

When a modifiable connection is not made between a situation and response, during a length of time, that connection's strength is decreased.

## **3. The Law of Effect**

In other words, learning can be said to have taken place properly when it results in satisfaction and the learner derives pleasure from it. In the situation when the child meets failure or is dissatisfied, the progress of learning is blocked. All pleasant experiences have lasting influences and are remembered for a long time, while the unpleasant ones are soon forgotten. Therefore, the satisfaction and dissatisfaction, pleasure or displeasure resulting from a learning experience decides the degree of its effectiveness. This law emphasizes the role of rewards and punishment in the process of learning.

## **THORNDIKE'S CONTRIBUTION IN THE FIELD OF LEARNING**

Thorndike's theory of trial and error is of great significance in the field of education. It explains the process of learning among animals and human beings on the basis of actual experiments. Not only human learning but animal learning also follows the path of trial and error. A child when confronted with a mathematical problem tries several possibilities before he arrives at the correct solution. Even discoveries and inventions in the various fields of knowledge are the result of the trial and error process.

Thorndike's theory of trial and error learning and his laws of learning have been a significant contribution to the field of learning. It has made learning purposeful and goal directed and has emphasized the importance of motivation. It has also given an impetus to drill and practice and highlighted the psychological importance of rewards and praise in the field of learning.

### 3.2 Classical Conditioning (Ivan Pavlov)

This type of learning was first investigated by Ivan P. Pavlov. He was primarily interested in the physiology of digestion. During his studies he noticed that dogs, on whom he was doing his experiments, started secreting saliva as soon as they saw the empty plate in which food was served. As you must be aware, saliva secretion is a reflexive response to food or something in the mouth. Pavlov designed an experiment to understand this process in detail in which dogs were used once again.

In the first phase, a dog was placed in a box and harnessed. The dog was left in the box for some time. This was repeated a number of times on different days. In the meantime, a simple surgery was conducted, and one end of a tube was inserted in the dogs jaw and the other end of the tube was put in a measuring glass.

The experimental set up is illustrated in figure 3.2. In the second phase of the experiment, the dog was kept hungry and placed in harness with one end of the tube ending in the jaw and the other end in the glass jar. A bell was sounded and immediately thereafter food (meat powder) was served to the dog. The dog was allowed to eat it. For

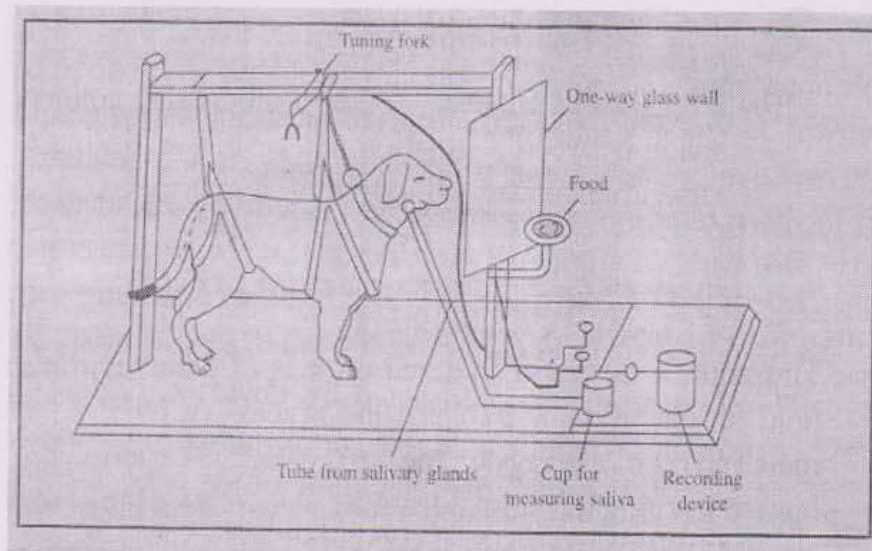


Figure 3.2 : A Dog in Pavlovian Harness for Conditioning

the next few days every time the meat powder was presented, it was preceded by the sound of a bell. After a number of such trials, a test trial was introduced in which everything was the same as the previous trials except that no food followed the sounding of the bell. The dog still salivated to the sound of the bell, expecting presentation of the meat powder as the sound of bell had come to be connected with it. This association

between the bell and food resulted in acquisition of a new response by the dog, i.e. salivation of the sound of the bell. This has been termed as conditioning.

You might have noticed that all dogs salivate when they are presented with food. Food is thus an unconditional stimulus (US) and salivation which follows it, an unconditional response (UR). After conditioning, salivation started to occur in the presence of the sound of the bell. The bell becomes a conditioned stimulus (CS) and saliva secretion a conditional response (CR). This kind of conditioning is called classical conditioning. The procedure is illustrated in fig 3.2.

## **PRINCIPLES OF CLASSICAL CONDITIONING**

### **1. Extinction**

It was noted by Pavlov that if the conditioned stimulus (ringing of the bell) is presented alone a number of times without the food, the magnitude of the conditioned response of salivation begins to decrease, and so does the probability of its appearing at all. This process of gradual disappearance of the conditioned response or disconnection of the S. R association is called extinction.

### **2. Spontaneous Recovery**

It was also discovered by Pavlov that after extinction, then a controlled response is no longer evident. The behavior after reappears spontaneously but at a reduced intensity. This phenomenon of the reappearance of an apparently extinguished conditioned response (CR) after an interval in which the pairing of conditional stimulus (CS) and unconditional stimulus (US) has not been repeated is called spontaneous recovery.

### **3. Stimulus Generalisation**

Responding to the stimulus in such a generalized way was termed as stimulus generalization with reference to a particular stage of learning behavior in which an individual once conditioned to respond to a specific stimulus is made to respond in the same way in respond to other stimuli of similar nature.

### **4. Stimulus Discrimination**

Stimulus discrimination is the opposite of stimulus generalization. Here, sharp contrast to responding in a usual fashion the subject learns to react differently in different situation.

## Implication of Classical Conditioning

Our behavior in the shape of interests, attitudes, habits, some of application or criticism moods and temperament is fashioned through conditioning. The process of conditioning, not only helps in learning what is desirable but also helps in eliminating, avoiding or unlearning of undesirable habits, unhealthy attitudes, superstition, fear and phobia through de-conditioning. An individual who hates a particular person or object may be made to seek pleasure in their company. Another individual who thinks it is a bad sign if a car crosses his path may be made to give up his superstitious belief.

## Operant Conditioning (Skinner)

This type of conditioning was first investigated by B.F. Skinner. Skinner studied occurrence of voluntary responses when an organism operates on the environment. He called the Operants. Operant's are those behavior or responses, which are emitted by animals and human beings voluntary and are under their control. The term operant is used because the organism operates on the environment; Conditioning of operant behavior is called operant conditioning.

Skinner experimented with white rats. He kept the rats inside the cage without giving any food for some time. The rat was hungry and was searching for food.

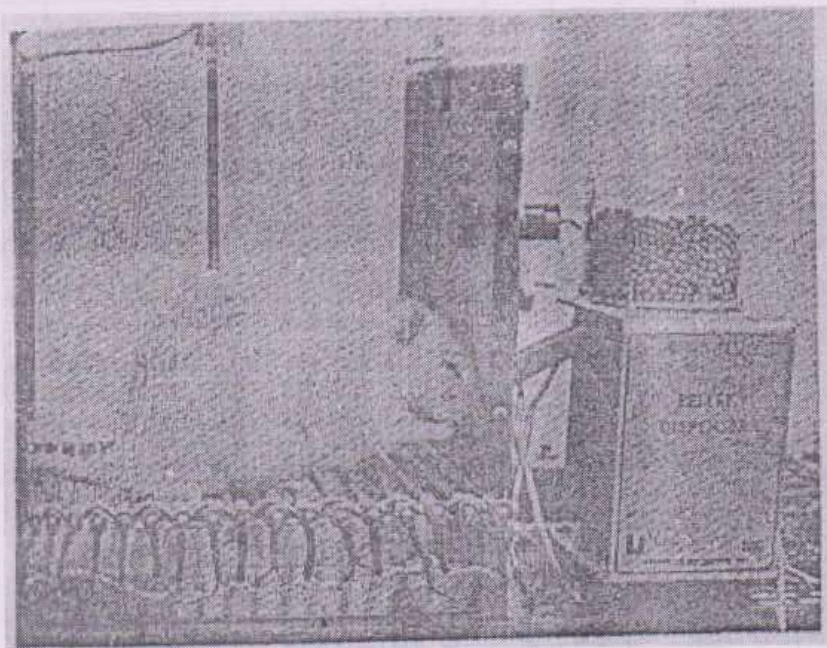


Fig 3.2 Skinner box

In its random movements running here and there within the cage the rat struck a lever. When the lever was struck food was given to the rat. For the random striking of the lever, food was given as reinforcement. Gradually the rat learnt to strike the lever whenever it became hungry. Now in this process the emitted response namely striking of the lever at random casually is re-inforced by food and striking of the lever becomes a usual behavior i.e whenever food is required the rat strikes the lever and gets food. The rat operates on the environment casually and this casual operation becomes an usual operation by getting re-inforcement for a casual operation in the beginning.

Operant conditioning is also known as instrumental conditioning as the reinforcement becomes instrument for the casual behavior becoming usual behavior. Usual behavior is the learned behavior.

### **Application of operant conditioning in classroom instruction**

Reinforcement is effective only when it is something that satisfies the present need of the organism. The rat was hungry; the need for rat was forced and food has acted as an effective reinforcement because it satisfied the need hunger.

In the classroom also to modify the undesirable behavior of students or to make them learn new behavior, reinforcement is an effective means. In the classrooms the need of the student may not be satisfaction of hunger, but very often some recognition, praise, reward and such other pleasing things to the students. Encouraging the students by pleasing facial expressions such as smiling or nice words such as good, well said etc. When a student given a correct answer to a question or when he himself attempts to get the correct answer will act as positive reinforcements and such reinforcement will make student come forward to participate in the classroom activate willingly and frequently. Such reinforcements should be given immediately after the desirable behavior has been exhibited by the students. Then only the students will associate the response with the reinforcement and learning of desirable behavior becomes effective.

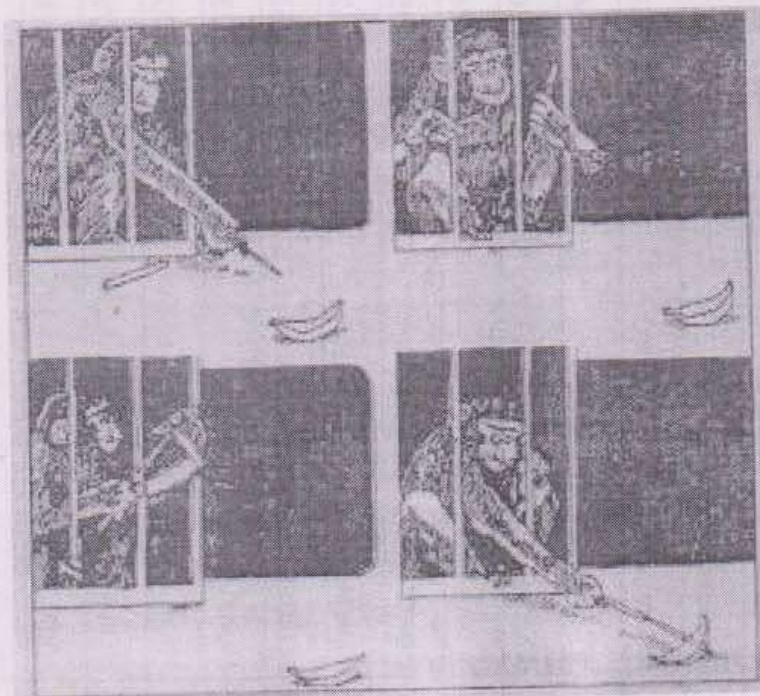
### **13.4 Gestalt Theory**

The Cognitive psychologists tried to see learning as a more deliberate and conscious effect of the individual rather than a product of mere habit formation or a stimulus response machine like mechanism. According to them, in a learning process, the learner does not merely receive or make responses to the stimuli. But definitely processes i.e interacts with and does something about what he receives and his response is determined by that processing.

Thinking above these lines, a group of German Psychologists called gestaltists and primarily wolfgang kohler originated a learning theory named insightful learning. Gestalt is a German noun for which there is no English Equivalent. The nearest English translation of Gestalt is Configuration or more simply an "organized whole". The basic idea of the theory is that a thing cannot be understood by the study of its constituent parts but only by the study of it as a totality or whole.

In practical tem, Gestalt Psychology is primarily concerned with the nature of perception. According to it, an individual perceives a thing as a whole while the behavior and stimulus response theorists define perception so as to make it analogous with the taking of a photograph. They hold that sometime comes prior to meaning and consider these two acts as separate.

Gestalt psychologists tried to interpret learning as a purposive, exploratory and creative enterprise instead of trial and error or a simple stimulus response mechanisms. A learner, while learning, always perceives the situation as a whole and often seeing and evaluating the different relationships takes the proper decision intelligently.



#### **Sultan Chimpanzee learns to assemble a long stick from two shorter ones**

Kohler (1925) used the term insight first of all, to describe the learning of his apes. During the period 1913-1917, he conducted many experiment on chimpanzee in the canary islands and embodied his findings in his book (ibid). In one experiment, Kohler put the chimpanzee sultan, inside a cage and a banana was hung from the roof of the

cage. A box was placed inside the cage, The Chimpanzee tried to reach the banana by jumping but could not succeed. Suddenly he got an idea and used the box as a jumping platform by the placing it just below the hanging banana.

Though Kohler seemed to see insightful learning in turn of a sudden 'aha' or a bolt of lightning, it is found to depend upon factors such as

### **Experience**

Past experience helps in the insightful solution of problem. A child cannot solve the problem of modern mathematics unless he is well acquainted with its symbolic language.

### **Intelligence**

Insightful solutions depend upon the basic intelligence of the learner. The more intelligent the individual the greater will his insight be.

### **Learning Situation**

How insightfully an individual will react, depends upon the situation in which he has been placed. Some situations are more conducive to insightful solution from others.

### **Individual Efforts**

Insightful learning has to be pass through the process of trial and error but this stage does not last long, these initial efforts in the form of a simple trial and error mechanism, open the way for insightful learning.

### **Reception and Generalisation**

After obtaining an insightful solution of a particular type of problem, the individual tries to implement it in another situation, depending a similar type of solution. The solution found in one situation helps him to react insightfully in other identical situation.

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## 3.5 THEORIES OF DEVELOPMENT (PIAGET)

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Development refers to growth, adaptation, and change that occur over the course of a lifetime. Through the process of development we have all changed significantly in many different ways. While changes are one's physical make-up (physical development) may be the most apparent form of development. People also develop in their ability to form and use language (language development) interact with other (social development) and process information and make meaning from experiences (cognitive development). Different theories have been evolved by psychologists which will identify the significance of each development.

### 3.5.1 Cognitive Theory of Development

Swiss psychologist Jean Piaget is well known for his theory which describes how humans gather and organize information and how this process changes developmentally. Piaget used a clinical-description method to collect his research data. The method involved asking children carefully selected questions and recording their response along with meticulous observation of children's behavior. Although he frequently observed small numbers of children his observations were longitudinal in nature that is, following the development of these same children over a period of years. While much of his early work was based on systematic observation of his own three children, a large part of his later work was based on statistical friendship.

#### Basic Cognitive Concepts

Piaget identified four concepts, which he used to explain how and why cognitive development occurs. These include schema, assimilation, accommodation and equilibration.

- (i) **Schema:** Piaget used the term scheme to refer to the cognitive structures by which individuals intellectually adapt to and organize their environment. Based on his interests in biology, Piaget postulated that the mind has mental structures or schemata, just as the body has physical structures. Piaget suggested that when an organism encounters stimulation or a new experience, and relies on its structures to assist in that adaptation. Thus, just as the human body is "organized" into various structures such as the stomach, kidneys etc., which assist in ongoing adaptation, so too does the mind have structures or ways of organized experiences, which facilitate adaptation to the experiences.

- (ii) **Assimilation:** This process of integrating new perceptual, motor or conceptual material or experiences into existing schemata is termed assimilation. Teachers often facilitate the student's use of assimilation by connecting the new material to the student's existing knowledge. Thus, often watching a nature film, a child may discover new animals to add to existing groups of animals she has already stored in memory.
- (iii) **Accommodation:** When this process of assimilation is not possible because there are no schemata into which to fit new data or the characteristics of an available schema, a new schema will have to be developed in order to adopt to these new and unique experience. This process of creating a new schema Piaget termed accommodation.
- (iv) **Equilibration:** Piaget hypothesized that a self-regulatory process called equilibration operated in all children and adults. This equilibrium is a state of balance between assimilation and accommodation. Piaget believed that one of the most effective methods for motivating a child was to set up a state of cognitive disequilibrium in which the child is thrown into "cognitive conflict" when he expects something to happen a certain way and it does not.

### **Piaget's Stages to Cognitive Development**

According to Piaget, cognitive development unfolds as the child passes through four distinct and qualitatively different stages: the sensorimotor, pre-operational, concrete operation, concrete operation and formal operational stages:

**Table 3.5 the four periods of intellectual development**

- |   |
|---|
| <ol style="list-style-type: none"><li>1. The cognitive periods and appropriate stages</li><li>2. The Sensorimotor period (birth to 18-24 months)</li><li>3. The Pre-operational period (2 to 7 years)</li><li>4. The Concrete operational period (7 to 11 years)</li><li>5. The Formal operational period (over 11 years)</li></ol> |
|---|

### **(I) The Sensorimotor Period**

Piaget's first stage of intellectual development, in which the child moves from the reflective activities of reaching, grasping and sucking to more highly organized forms of activity. The infant begins to understand that there is a difference between him/herself and the rest of the world and that the sensory experiences received are in fact suggestive of the existence to some form of "objects" or "events" that exist outside of themselves.

This development of object permanence expands the infant's view of the world beyond that which is immediately and directly experienced. Thus, the infant may begin to search for objects that are out of sight. During the period, the infant develops object permanence, the realization that objects exist even if they are out of sight.

Another milestone of the sensory-motor period is the development of the beginnings of problem-solving ability. While at first this is based largely on trial and error, by the end of the period, approaches to problem solving are planned.

## **(II) The Pre-operational period**

The stage is Piaget's theory of cognitive development, in which the lack of logical operations forces children to make decisions based on their perceptions. The major development during the pre-operational period is the ability to represent object and events or to use symbolic functions. You will recall that towards the end of the sensorimotor period, children become capable of engaging in activities that involve mental representation such as pretending.

Between the ages of two and seven, the mental abilities come to unfold fully as advances in language development and imagination enable the child think and play in new ways. In addition to symbolic functions the pre-operational period is characterized by several unique features.

### **Egocentrism**

Piaget described the pre-operational children's thinking as egocentric. That is, pre-operational children cannot put themselves in other stages or someone else's perspective. Consider the four year old who can label own right hand and left hand, but cannot identify the right and left hands of a friend. Piaget emphasized that egocentrism has nothing to do with selfishness, but merely reflects the qualitative limitations in thinking apparent during the pre-operational stage. As the child gets older, egocentrism vanes. By age six, children exhibit, less egocentrism than at age three.

### **Centration**

Another characteristic of pre-operational thought is centration or concentration as only one aspect of an object or activity, usually the aspect that is perceptually dominant. For instance, a child of four or five is presented with two rows of objects in which one

row contains nine objects and a second but longer row, contain seven objects. The pre-operational child will typically select the longer row as having more objects even though the child knows that nine is more than seven.

### **Inability to reverse operation**

A third feature of pre-operational thought is inability to reverse one's thinking. Understanding subtraction is a prime example of this feature. Pre-schoolers may have learned that  $1+1=2$  but cannot comprehend that  $2-1=1$  or ponder the case of the pre-operational child who is presented with two identical glasses, both short and fat in shape. Then water from one of the glasses is poured into a tall thin glass. The child is then asked if the glasses contain the same amount of water. In order to answer correctly, the child would have to be mentally able to reverse the operation of pouring the water from the original short, fat glass into the tall thin one. But pre-operational children typically respond that the tall, thin glass contain more water.

The later illustration shown that pre-operational children are not yet ready to engage in conservation or to conceptualize that the quantity or amount of matter stays the same despite changes in an irrelevant dimension.

### **Animism**

A fourth feature of the pre-operational child is animism. An animistic thinker attributed human characteristics to inanimate objects. For instance, consider that pre-operational child who is asked the question where do boats go at night? and responds "to bed" or ponder the drawings of a pre-operational child, which feature a face drawn on a sun or a moon. Piaget believed that this tendency decreased by age six or seven as the child became more cognizant of his or her own personality.

### **Transductive reasoning**

Finally, the pre-operational child exhibits fifth characteristics known as transductive reasoning. That is, he or she reasons neither deductively nor inductively. Deduction is reasoning from general to specific. If we acknowledge that all men are mortal and Socrates was a man, then Socrates has to be mortal. Inductive reasoning in contrast involves establishing generalization from specific instances. However, according to Piaget, the thinking of pre-operational children is somewhere in between moving from particular without touching on the general.

### (III) The Concrete operational Period

In contrast to pre-operation, the child in concrete operation now engages in logical thought to solve concrete problems. At this stage of development a child's logic is directed by cognitive activity rather than dominated by immediate experience, as was the case both pre-operational thought.

#### **(i) Decentering**

A child in the concrete operational stage is able not only to imagine things independent of their immediate experience, but now is capable of employing all of the perceptual features of an experience (decenter) in order to derive logical solutions to concrete problems.

#### **(ii) Reversibility**

Piaget proposed that the most important of these was reversibility. A concrete operational child understands that a model of an airplane, which had formerly been a ball of clay, can be changed back into a ball of clay.

#### **(iii) Conservation**

The fact that the child in the concrete operational stage of development is able to decenter and to reverse operational facilities the ability to develop conservation skills. A child is able to solve conservation of number problems around the age six, area and mass problem around seven or eight, and volume problem by eleven or twelve.

#### **(iv) Classification**

Other significant changes in problem-solving ability can be seen in the concrete operational child's ability to engage in classification. Before the age of seven children typically form classifications of objects along one dimension. That is, children can classify according to color or shape. Thus, presented with a group of white and black circles, squares and triangles, a child may classify them into two groups, all the white and all the black designs together.

### **(v) Seriation**

Seriation is the ability to mentally arrange a series of elements according to increasing or decreasing size, volume, weight or some other dimensions. A child in the concrete operational stage begin to employ strategies such as searching for the smallest stick, then the next etc to develop the solution or seriation problems.

### **(IV) The Formal operational stage**

With the onset of Piaget's fourth stage of cognitive development, formal operation, comes the ability to solve abstract problems. The development of formal operation proves the ability to reason and construct logic useful for all classes of problems. During this stage of development, thinking has a number of unique structural properties, those of being hypothetical, analogical and deductive.

#### **(i) Hypothetical reasoning**

Hypothetical reasoning transcends perception and memory and deals with things not in the realm of direct experience. For instance, if a logical argument is prefixed by the statement "suppose coal is white" a concrete operational child will invariably say that is not possible and therefore the question cannot be answered. However, a formal operational child will readily accept the assumptions of the argument and go on to reason about its logic.

#### **(ii) Analogical reasoning**

Analogical reasoning in which children can fully explain why an analogy works and how each pair of the analogy is connected to the other, also emerges in formal operations.

#### **(iii) Deductive reasoning**

Deductive reasoning is reasoning from generalities to specifics. The type of reasoning contained in a syllogism is deductive reasoning. Consider the child who correctly responds to the following complex if-then statement. If all animals have four legs and if this table has four legs then is this table an animal? The child who correctly responds reason that although both tables and animals have four legs, a table cannot be an animal because it is not a living creature.

#### (iv) Reflective abilities

In addition to the above described abilities, formal operational thinkers possess a sophisticated set of reflective abilities. For instance, they are able to systematically generate all possible solutions to a problem or engage in combinational reasoning.

### 3.5.2 Psycho- Social Theory of Development (Erikson)

Erik Erickson, the famous psychoanalyst is considered with developing the theory of psycho-social development which covers normal development over the entire life span of human beings. Erikson postulated that the development of an individual is the result of his interaction with his social environment. Right from his book, his social development puts him under specific pressures or conflicts by making specific demands at different ages or developmental stages of his life.

Erickson discovered eight such issues or crisis of life arising at different ages or periods of one's development and linked them with the eight stages of one's psycho-social development covering one's entire life span.

**Table 3.5 Age span for the stages of psycho-social development**

Stage of psycho-social development	Specific age or period
Trust Vs mistrust	Birth to One year
Autonomy Vs shame & Doubt	One to Three Years
Initiative Vs Guilt	Three to Five years
Industry Vs Inferiority	Five to Eleven years
Identity Vs Role Confusion	Eleven to Eighteen Years
Intimacy Vs Isolation	Eighteen to Thirty Five Years
Generativity Vs Stagnation	Thirty Five to Sixty Five Years
Integrity Vs Despair	Over Sixty Five Years

#### **Stage I: Period of Trust Vs Mistrust (Birth to 1 year)**

In the first one year of life, the infant is confronted with the crisis termed trust Vs mistrust. During the period the baby is completely dependent upon its mother or caretaker for the satisfaction of its needs. The sense of trust or mistrust with regard to the environment gained in this way at this stage of development may then be carried over to the stage of development to follow and consequently reflected in the developing personality.

### **Stage II: The Period of Autonomy Vs Shame and Doubt (1 to 3 years)**

Having gained a primary sense of trust and security with regard to his environment in the second and third years of his life, the child now passes through the second stage of psycho-social development. With the newly developed motor or physical skills and language ability, the child now engages in exploring his environment and experimenting with his strength and limitations for achieving a sense of autonomy and independence.

Children who are denied the opportunity to develop a sense of independence by over-protective, harsh or restricted parents begin to doubt their ability and ultimately begin to feel embarrassment or ashamed in the presence of others.

### **Stage III: The Period of Initiative Vs Guilt (3 to 5 years)**

The third stage of psycho-social development between three to five years of age is characterized by the crisis of initiative versus guilt. Equipped with the sense of trust and autonomy the child now begins to take initiative in interacting with his environment.

In the case the child is discouraged from taking the initiative by his parents and guardians not having faith in him or is pulled down by unhealthy criticism, punished or rebuke for minor failures, the child is sure to develop a sense of guilt leading to hesitation, indecision and lack of initiative in planning and carrying out life activities.

### **Stage IV: Period of Industry Vs Inferiority (5 years to 11 years)**

The teachers and school environment thus play a very significant role in helping the child out of the industry versus inferiority crisis, for the child. The school becomes the place where success and failure are defined. Therefore, it is the duty of the teachers and school authorities to structure their classroom and school environment in such a way as to help the students to maintain a positive attitude and view themselves as capable and valuable individuals.

### **Stage V: Period of Identity Vs Role Confusion (11 Years to 18 Years)**

This stage, beginning with the advent of puberty, is marked with the crisis of identity vs role confusion. Equipped with the sense of trust, autonomy, initiative and industry, adolescents begin to search for their own personal identity. The sudden changes

in the bodies and mental functioning and the altered demands of society compel them to ask questions of themselves like, who am I?.

Teachers and parents can play a very constructive role in helping adolescents through this identity versus confusion crisis. The adolescents craving for identity must be fully recognized and it should be clearly understood that adolescents want to be identified as adults and must, therefore be treated as such and not as children as many teachers and parents tend to do.

### **Stage VI: The Period of Intimacy Vs Isolation (18 years to 35 years)**

This is the sixth stage of psycho-social development the span of years of early adulthood. During this stage the individual tends to develop a sense of intimacy or commitment to a close relationship with another person. Thus, during this stage the individual seeks to form close personal attachments by merging his identity with that of another person. The relationships develop into such a close involvement that he tends to risk even the loss of his ego or image as is evidenced in the harmonious relationship between husband and wife and intimate friends, and is the ideal relationship between a teacher and his pupil.

The opposite of intimacy is isolation. When one fails to develop an adequate sense of intimacy by merging one's identity with that of another person or when relations deteriorate for one reason or another one tends to develop a sense of isolation.

### **Stage VII : The Period of Creativity Vs Stagnation (35 years to 65 years)**

An individual's life up to this stage is taken up with trying to establish himself in a professional career. Now, he needs to satisfy his need for generativity, a concern to establish and guide the new generation.

As opposed to the some of generativity, there is a tendency on the part of the individual to become egoistic and selfish. This leads to stagnation and personal impoverishment.

### **Stage VIII :The Period of Ego-Integrity Vs Despair (Over Sixty Five Years)**

This stage of psycho-social development is associated with later adulthood or old age. During this last stage of psycho-social development one is confronted with the final crisis of one's life span, termed ego-integrity Vs despair. Ego integrity refers to the

integration or culmination of the successful resolution of all the seven previous crisis provides a sense of fulfillment and satisfaction to one's ego.

When one reflects on one's past and feel satisfied over what could have been or for what should have been done differently. On the other hand, person who have not been to successfully resolve the previous crisis of the developmental stages are sure to feel differently. They look back on their lives both despair and feel dissatisfied with the way they have lived their lives.

### Theory of Moral Development (Kohlberg)

Lawrence Kohlberg a Psychologist belonging to the university of Harvard is known for putting forward a theory of the development of moral judgment in the individual right from the years of early childhood .He has based his theory of moral development on the findings of his studies conducted on hundreds of children from different cultures.

He differs from the popular view that children imbibe the sense and methods of moral judgment from their parents and elders by way of learning. According to him as soon as we talk with children about morality, we find that they have many ways of making judgments which are not internalized from the outside and which do not come in any direct and obvious way from parents teachers and even peers (Kohlberg, 1968). Going further he clarified that internal or cognitive processes like thinking and reasoning also play a major role in one's moral development i.e the way children make moral judgment depends on their level of intellectual development as well as on their upbringing and learning experience.

For studying the process of moral development in human beings, kohlberg first defined moral development as the development of an individual's sense of justice.

**Table 3.7 Kohlberg's six stages of Moral Development**

<b>Level I</b> Pre- moral (age 4 to 10 years)
Stage 1: The stage of obedience for avoiding punishment
Stage 2: The stage of conforming to obtain rewards and favours in return.
<b>Level II</b> Conventional Morality (Age 10 to 13 years)
Stage 3: The stage of maintaining mutual relations and approval of others
Stage 4: The stage of obedience for avoiding censure by higher authority or social systems.
<b>Level III</b> Self – accepted moral principles (Age 13 or not until middle or later adulthood)
Stage 5: Stage of conforming to the democratically accepted law and mores of community welfare
Stage 6: Stage of conforming to the universal ethical principles and the call of one's conscience.

### **Pre-Moral Level ( 4 to 10 years)**

The child begin to make judgments about what is right or wrong, good or bad. However, the standards by which he measures the morality are those of others. He is persuaded to take such judgment either to avoid punishment or to earn rewards. Development of morality at this level usually follows the following two stages.

**Stage 1** In the beginning the child's morality is controlled by the fear of punishment. He tries to obey his parents and elders purely to avoid reproof & punishment.

**Stage 2** In the second stage of the pre-moral stage, children's moral judgment is based on self-interest and considerations of what others can do for them in return. Here they value a thing because it has some practical utility for them.

### **Conventional Morality Level (10 to 13 years)**

At this stage also, children moral judgment is controlled by the likes and dislike of others -the conventions, rules and regulations and the law and order system maintained within society. Staling or mercy killing would thus be judged wrong because it is considered wrong by the society at large by the legal system. In this way, the conventional level of morality may be regarded as the level where the child identifies with authority. It is characterized by the following stages.

**Stage 3** In the early years of the second level of moral development, the child's moral judgment is based on the desire to obtain approval of others and avoid being declared a good boy or a good girl. For this purpose he begins to judge the intention and likes and dislikes of other to act accordingly.

**Stage 4** In the later years of conventional morality level, children's moral judgment are governed by convention as well as the law and mores of social system.

### **Self Accepted Moral Principles (Age 13 or Later Childhood)**

This marks the highest level of attainment of true morality as the centering force for making judgments now rests with the individual himself. He does not value a thing or conform to a idea merely because of consideration of the views of others, conventions or the law and order system of society but because into the frame work of the frame work of the self-accepted moral principles. This level is also characterized by two separate stages.

**Stage 5** At this stage the individuals moral judgment are internalized in such a form what he responds positively to authority only if he agrees with the principles upon which the demands of authority are based.

**Stage 6** At this stage the controlling forces for making moral judgments are highly internalized. The decision of the individual are now based upon his conscience and the belief in universal principles of respect, justice and equality. He does what he, as an individual thinks regardless of legal restrictions or the opinion of others. Thus at this stage people act according to the inner voice of their conscience and lead a life that they can without self-condemnation or feeling of guilt or shame.

### **The Theory of Psycho Sexual Development (Freud)**

Psycho analysis is a system or school of psychology was the brain child of Sigmund Freud (1856 – 1939), a Viennese physician. On the theoretical side it presented a theory to understand and explain the human psyche and on the practical side it provided a method known as Psycho analysis for the study of human behavior.

#### **Structure of the Psyche or Mind**

Freud, while explaining the structure of the human psyche or mind, divided it in two different parts, first by arranging it into three layers as the conscious, the sub-conscious and the unconscious and second by postulating three other components i.e. id, ego and super ego.

#### **The Concept of Conscious, Sub-Conscious and Unconscious Mind**

The Conscious mind lies just above the surface of the water like the tip of an iceberg and occupies only one tenth of our total psyche or mental life. The ideas, thoughts and images that we are aware of at any moment of our mental life are said to lie within this upper layer our mind. First beneath the conscious layer lies the sub-conscious mind. This middle portion of our mind stores all types of information just beneath the surface of awareness. dormant or untapped which can be easily brought to the level of consciousness at a moment's notice whenever required.

Below the subconscious mind lies the unconscious, the most important part of our mind. It is related to the vast part our mental life which is hidden and usually inaccessible to the conscious. It contains all the repressed wishes, desires, feelings, drives and motion, many of which relate to sex and aggression.

## Psycho – Sexual Development

According to Freud, sex is the life urge or fundamental motive in life. All physical pleasures arising from any of the organs or any of the function are ultimately sexual in nature. Sexuality is not the characteristic only of the adults. Children from the very beginning have sexual desire also. This, he termed as 'infantile sexuality'. A child passes through the following different stages with respect to his psycho-sexual development.

1. **The Oral stage:** According to Freud, the mouth represents the first sex organ for providing pleasure to the child. *The beginning is made with the pleasure received from the mother's nipple or the bottle.* Thereafter the child derives by putting anything, candy, a stick, his own thumb etc in to his mouth.
2. **The anal stage:** At this stage the interest of the child shifts from the mouth as the erogenous zone to the organs of elimination i.e the anus or the urethra. He derives pleasure by holding back or letting go of the body's waste material through the anus or the urethra. This stage generally ranges from two to three years.
3. **The Phallic Stage:** This phase starts from the age of four years with the shifting of the child's interest from the eliminating organs to the genitals. At this stage children come to note the biological differences between the sexes and derive pleasure by playing with and manipulating the genital organs. This stage, according to Freud, may give rise to a number of complexes like deprivation and Electra complex in girls and castration and Oedipus complexes in boys.
4. **The Latency stage:** This period starts from six years in the case of girls and seven to eight years in the case of boys and extends up to the onset of puberty. At this stage, boys and girls prefer to be in the company of their own sex and even neglect or hate members of the opposite sex.
5. **The genital stage:** Puberty is the starting point of the genital stage. The adolescent boy and girl now feels a strange feeling of strong opposite sex. At this stage, they may feel pleasure by self-stimulation of the genitals, may fall in love with their own self by taking interest in beautifying and adorning their bodies and may be drawn quite close to members of the opposite sex even to the extent of indulging in sexual act.

### **Theory of Emotional Development (Goldstein)**

Once children become able to talk, emotional development assumes a whole new dimension. Emotions can now become a subject for reflection: by being able to label the feelings they experience, children can stand apart from them, think about them and in this way objectify whatever is going on inside them. Having words for emotions, children can also enter into discussion about them: on the one hand, they can listen to other people give an account of the feelings that they experience. Emotions can thus be shared, and learning about their nature – their causes and consequences and how to handle them – becomes so much easier once they can be dealt with at a verbal level.

Children do not only experience emotions; as they grow older, they increasingly think about them as well. They try to understand what it means, for them and for other people, to be involved in emotional episodes, and accordingly they will construct theories about the nature and causes of the feelings they encounter.

Emotional development is based on common biological foundations; its subsequent course, however, is shaped by varied social experience. As a result, the way in which emotions are expressed may differ radically from one society to another.

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### **3.9 FACTORS AFFECTING LEARNING**

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Learning is the term used in the modification of the learner when occurs as a result of training or experience, with the modification in behavior, the learner now can do what he could not do earlier. The outcomes of learning from learning activities or experiences

may result in the modification of attitudes, skills, social competence and abstract and creating thinking. Learning is an enrichment of experience.

Fagin (1958) states that learning is a sequence of mental events or condition leading to changes in the learner. As a sequence of events there are various factors affecting learning.

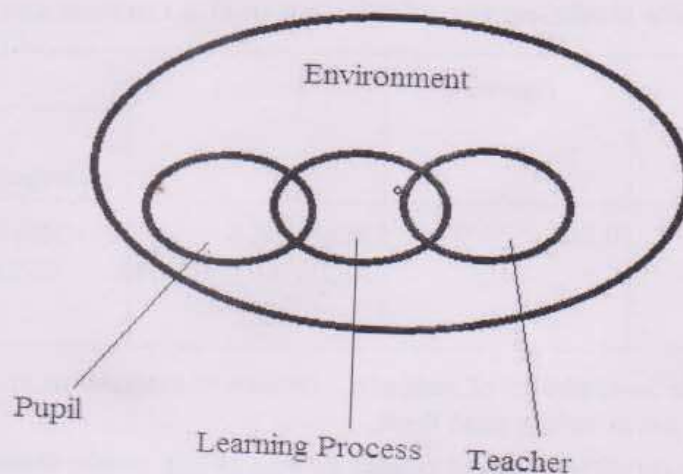


Fig.3.8 Learning process in the classroom

### 3.6.1 Learning Problems

The learner is to learn and therefore his interests, abilities, aptitudes have to be taken note of. It must be remembered that he is an active being. Individual differences have to be attended to. Some of the learning problems will be highlighted below:

#### (i) Limits of Learning:

The capacity to learn has a limit in every child. One cannot learn more than what is set by physiological capacity.

#### (ii) Role of practice in learning:

A judicious use of practice strengthens learning.

#### (iii) Importance of Incentives

Usually use of rewards leads to better learning. Rewards may be in the form of verbal appreciations or in cash or in certificate.

**(iv) Place of Insight Learning:**

Insight learning is considered more effective than trial and error.

**(v) Transfer of training in learning:**

Learning is only effective if it can be transferred from one situation to another.

**(vi) Learning and Motivation:**

They are inter-related and inter-dependant.

**(vii) Learning and Forgetting:**

We learn as well as we forget.

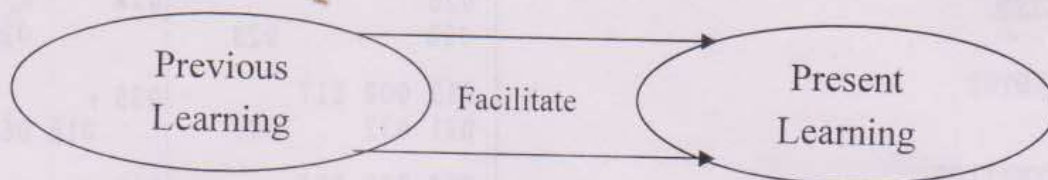
**3.3.2 Enhance Learning Skills**

- (i) Active participation of the learner is more effective than passive reception.
- (ii) Meaningful materials and meaningful tasks are learned more quickly.
- (iii) Moderate practice and repetition is very useful for durable learning.
- (iv) Effective audio-visual aids contribute to make learning effective and inspirational.
- (v) Transfer of learning will be better if learner himself discover relationship between new and old tasks.
- (vi) Optimal learning takesplace when appropriate teaching strategies are adopted.
- (vii) Learning through reward or success motivation is more effective than punishment or failure.
- (viii) The personality of a teacher is a great contributory factor is teacher-learning.

## 3.7 TRANSFER OF LEARNING

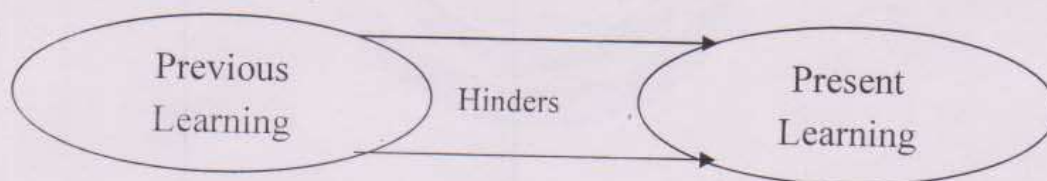
Students learn and gain knowledge within the classroom contexts. The knowledge that they have gained in this way should be useful for them to solve problem that they face later in life. Effective learning in fact is learning in such a way that the present learning becomes useful for later problems. If this does not happen, learning becomes very much contextual and further use of learning is not possible.

### (i) Positive Transfer



We can think of another use of transfer of learning where the present learning may help the future learning. For example, the knowledge and skills related to school mathematics help in the learning of statistical computation. Positive transfer is facilitated where there are identical elements or components in both present and future learning.

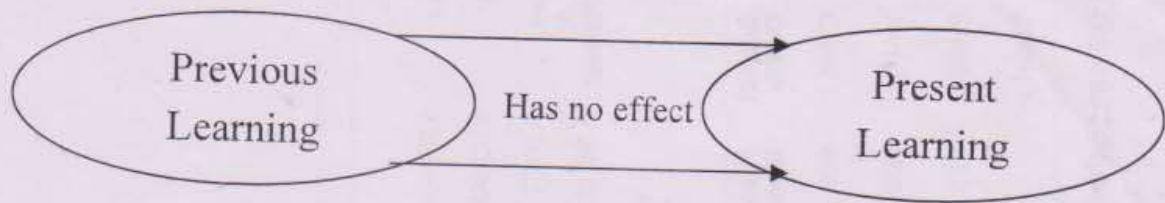
### (ii) Negative Transfer



Transfer of learning or training is said to be negative when learning or training in one situation hinders, interferes or weakens the learning in another situation. For example, one's regional language or mother tongue may create problems, in one's learning the correct pronunciation and intonations related to one's natural or foreign language.

### (iii) Zero Transfer

Transfer is said to be 'zero' when learning or training in one situation does not have any significant influence over the learning or training in another situation.



For example: Learning history may neither help nor hinder the learning of economics

### 3.3 REMEMBERING AND FORGETTING

“Memory can be likened to a giant filing cabinet in the brain, with data sorted, classified and cross- filed for future reference. Remembering depends on how the brain goes about coding its input” Levin (1978)

#### HOW DO WE REMEMBER-MODELS OF MEMORY

##### (i) Storage and transfer model

This model has been suggested Atkinson and Shiffrin (1968, 1971). In connection with the working of memory, they have suggested three different memory storage systems: memory stores, a short term store and a long-term store.

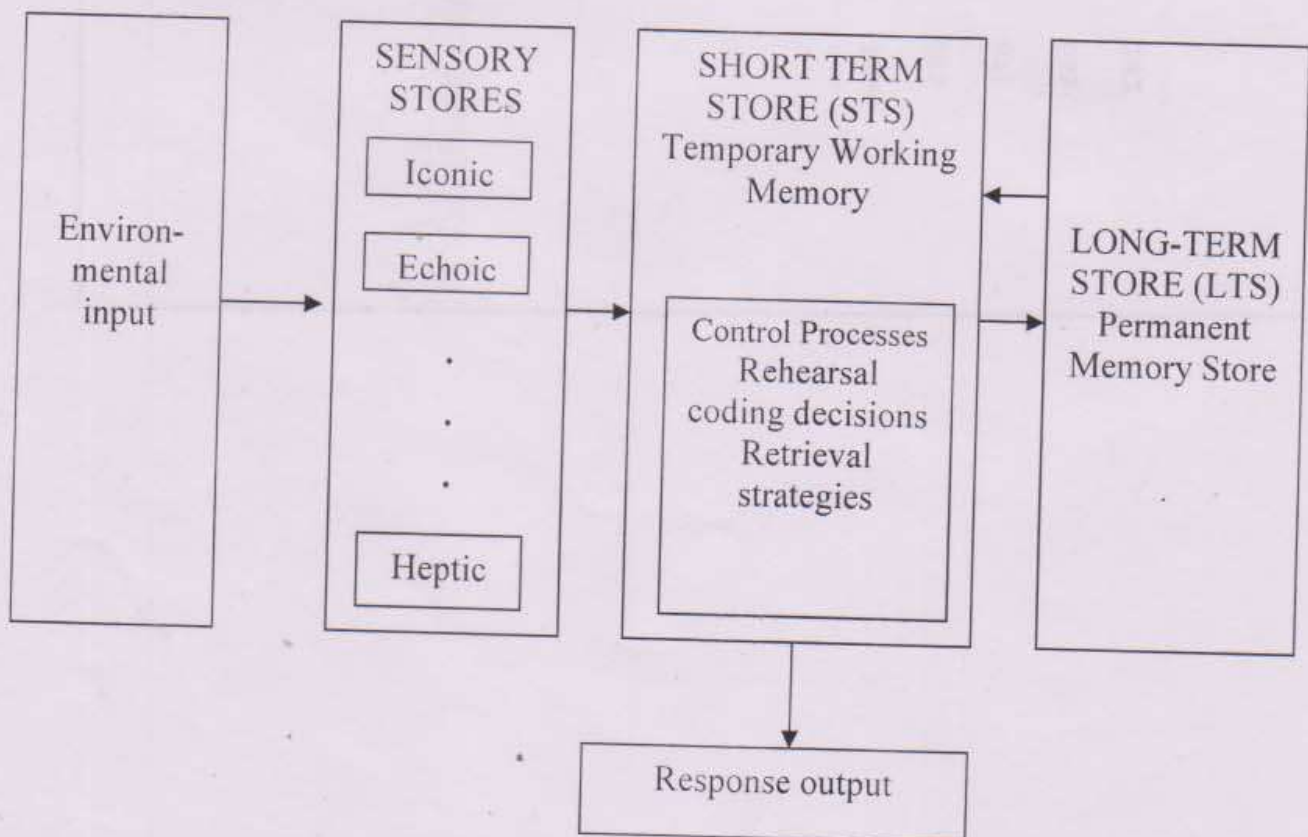


Fig 3.7 The Model of Memory Storage

The process of memorization starts with the interaction of one's sense organ with one's environment. The sensory message or information must stay or linger in the resource system briefly, to give the brain time to interpret it. Sensory information passing through the sensory stores either disappears within a second or is transferred to the short-term store. In the case of short-term store is able to hold or register the information up to 20 seconds, it may move to the long-term store. For transferring information from the short-term store to the long-term store one can make control processes. The long term store is used for storing the sensory information on a permanent basis.

## **Forgetting**

"Forgetting is the loss, permanent or temporary of the ability to recall or recognizing something learned earlier" Munn (1967).

### **Types of Forgetting**

It may be broadly classified as natural and morbid forgetting. In natural forgetting, forgetting occurs with the laps of time in a quite normal way without any intention of forgetting on the part of the individual while in morbid or abnormal forgetting one deliberately tries to forget something.

According to another view, forgetting may be classified as general or specific. In general forgetfulness, one suffers a total loss in one's recall or some previous learning while in specific forgetfulness the individual forgets only one or the other specific parts of his earlier learning.

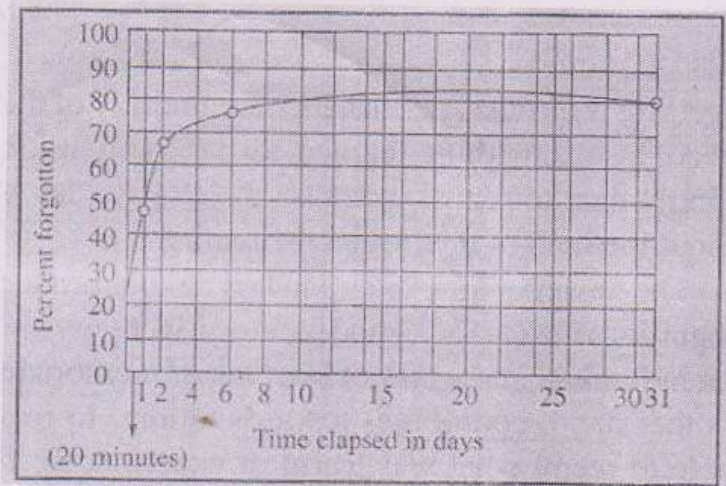
### **3.3.3 Curve of Forgetting**

Studies done by the psychologist Ebbinghaus (1885) represents the earliest systematic work in studying the phenomenon of forgetting. He himself worked as a subject for these studies and described his results by plotting a curve for forgetting.

He memorized a list of non-sense syllabus and then tested himself at intervals varying from 20 minutes to a month to see how much of the list he remembered. The result in terms of the percentage of material forgotten with the lapse of time were as follows:

<b>Time elapsed</b>	<b>Amount forgotten</b>
20 minutes	47%
One day	66%
Two days	72%
Six day	75%
Thirty one days	79%

He plotted the data as a graph as shown below



**Fig 3.8 Ebbinghaus curve of forgetting**

Ebbinghaus concluded that (a) The amount learnt material forgotten depends upon the time lapsed after learning. And (b) The rate of forgetting is very rapid at first and then gradually diminishes proportionately as the interval lengthens.

### **3.3.2 Individual Differences in Learning**

Both heredity and environmental forces are said to be the role determinants of the wide individual differences found in human beings. After conception what goes on inside and outside a mother's womb (approximately for nine months) and after birth, our interactions with the environment forces, physical, social, cultural and educational opportunities available to us for our growth and development all these create individual differences.

The knowledge of the existing wide individual differences among the learners carry quite significant educational implications. It has helped the learners to know themselves in term of their potentialities and teachers and parents to realize that they have to teach and care for their children in terms of their individualities. It has led to the individualization of instruction and educational programmes to suit the needs, interests and potentialities of individual learners.



The performance of any task systematically and without any hesitation or interruption is considered a symbol of intelligence. The world's greatest literary person, Scientists, Psychologists and Politicians are arriving at special attainment in the context of intelligence.

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## **OBJECTIVES**

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At the end of this lesson, you will be able to

- Understand the nature of intelligence
- Explain the theories of intelligence
- Discuss the individual difference in intelligence
- Measure the intelligence by using tests.

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## **NATURE OF INTELLIGENCE**

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The true nature of intelligence can be understood by first defining it to understand its meaning, discussing the various theories explaining its structure in terms of the several constituents and factors and identifying the numerous other aspects and characteristics related to intelligence and its functioning. The term intelligence means intellect and understanding. Generally speaking alertness with regard to the actual situation of life is an index of intelligence. From the lay man point of view intelligence means common sense or application part of knowledge. Intelligence is generally guessed from the way a person appears to understand a fact or a group of facts, and the manner in which he/she responds to those facts.

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## **5.4 THEORIES OF INTELLIGENCE**

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The theories of intelligence propagated by psychologists from time to time have explained the meaning and nature of intelligence. Intelligence is not made up of only one ability if it includes more than one ability. The unifactor theory explains intelligence as a general factor, which forms the basis for all the activities.

### **5.4.1 Single Factor Theory**

This theory, the eldest in origin, holds that intelligence consists of one factor, a fund of intellectual competence, which is universal to all activities of the individual. A man who has vigor can move as much on one direction as he can in another.

Similarly, if he has a fund of intelligence, he can utilize it in any sphere of life and depending on it, be a successful in one sphere as in any other. The ideas propagated by this theory are not, however, born out in real life situation.

It may be seen for instance that a child who is good in mathematics may not, despite genuine interest and diligence, be able to do as well his civics while an above average performer in the laboratory may not exhibit comparable, competence in learning a language.

#### 5.4.2 Two Factor Theory

This theory was developed by Charles Spearman. He was the opinion that intelligence consists of two factors i.e., general intelligence, 'g' general mental ability is always the same for the same individual or present is all the individual exercises and common for all activities and the second factor 's' varies from task to task according to its nature.

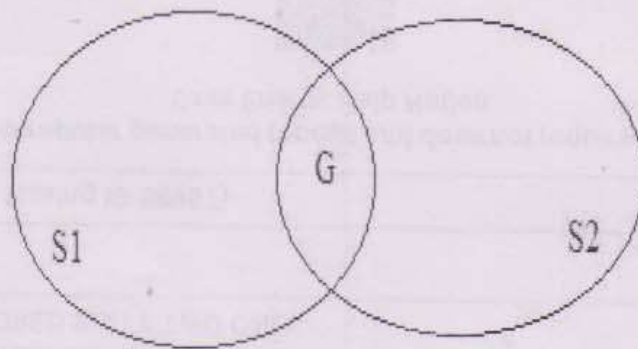


Fig 5.1 Spearman's two factor theory

It is also noticed that different individuals differ both in their 'g' as well as 's' factors. It is believed that 'g' is innate, omnipresent, and values with the individual ability where as 's' factor is acquired and differ from different action. For example, an individual's performance in literature is partly due to his/her general intelligence and partly due to some specific aptitude for language ie,  $g + s$  in mathematics his/her performance may be the result of  $g + S2$  in drawing may be due to  $g + S3$  and in social sciences in  $g + S4$  and so on. Thus the factor 'g' is present in all specific activities and the amount of 'g' and 's' factors required in an activity will depend upon its nature.

### 5.4.3 Multi Factor Theory

E.L. Thorndike the famous Psychologist propounded this multifactor theory of intelligence. This theory holds that intelligence is the means of undermined independent rudimentary elements or intelligence in the combination of numerous separate element or the factors of intelligence are independent to each other. These are numerical reasoning, vocabulary classification and sentence completion etc. This theory believes that every tasks needs different abilities or a host of highly independent factors and there is nothing like general ability

Thorndike believes that if a person gets 60 marks in mathematics and English it means there may be two or three factors are present and correlating each other. He concluded that in very task a group of abilities may belong to certain faculty and clear that the intelligence is composed of highly particularized and independent faculties.

Thorndike distinguished four attributes of intelligence. They are level, range, area and speed.

**(a) Level :**

It refers to the difficulty of a task than can be solved. It means if a task arranged in a sequential order and the person attain the task up to a certain level indicates his/her degree of intelligence.

**(b) Range (width):**

Range refers to the number of tasks at any given degree of difficulty that one can solve.

**(c) Area:**

It is the total number of situations at each level to which the individual is able to respond indicate his/her intelligence.

**(d) Speed:**

The rapidity, with which the individual can solve or respond to the test item, is called as his speed.

It can be interpreted that when we test a person or give him/her a certain number of tasks (area) these tasks vary in difficulty (level) there are number of items at each level of difficulty (range) and they respond in a given frame (speed).

### 5.2.4 Guilford Structure of Intellect

This theory of intelligence is known as three dimensional theory or the structure of intellect model. The profounder of this theory was J.P. Guilford and his associates while working in the Psychological laboratory at the University of Southern California in USA. This theory is the result of factor analytical research studies conducted by them which involved a number of intelligence tests.

Guilford's model leads us to conclude that any time one is engaged in a mental operation he or she would be employing some process or operation on some specific content to drive some final product. He developed a structure of intellect model that describes intelligence as the intersection of five cognitive operations, four content areas and six products.

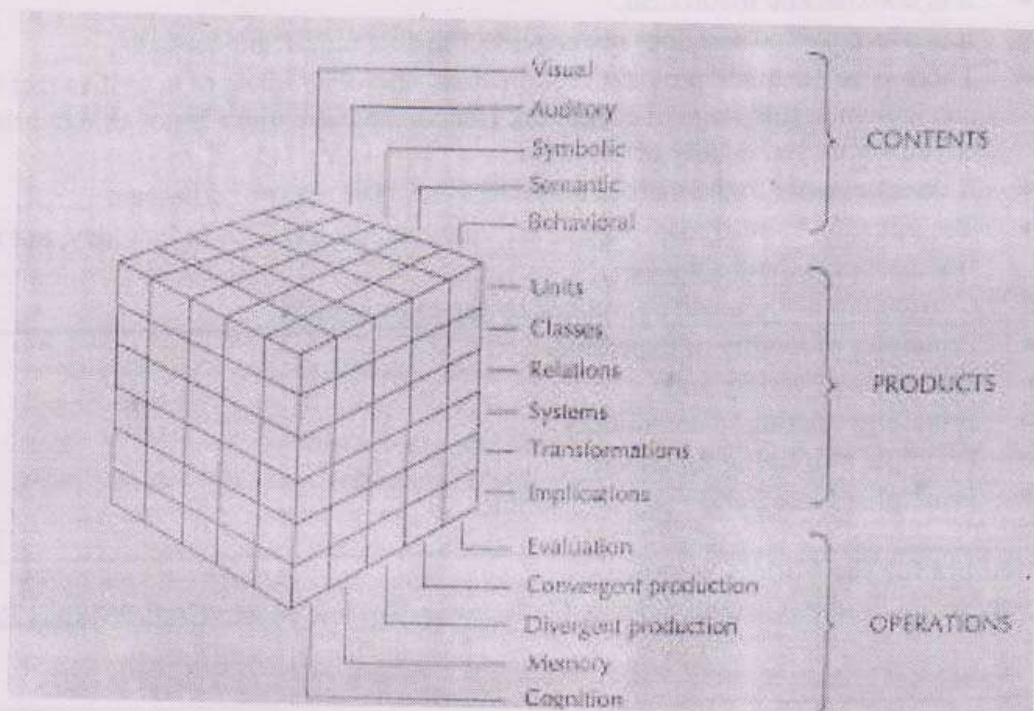


Fig 5.2 Guilford's Structure of Intellect Model

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## **5.5 INDIVIDUAL DIFFERENCES IN INTELLIGENCE**

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Wide individual differences exist among individuals with regard to intelligence. Truly speaking, no two individuals, even identical twins or individuals nurtured in identical environments are endowed with equal mental energy. The assessment of intelligence by various tests has given reasons enough to believe that not only does intelligence vary from individual to individual but it also tends to vary in the same individual from age to age and situation to situation.

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## **5.6 DISTRIBUTION OF INTELLIGENCE**

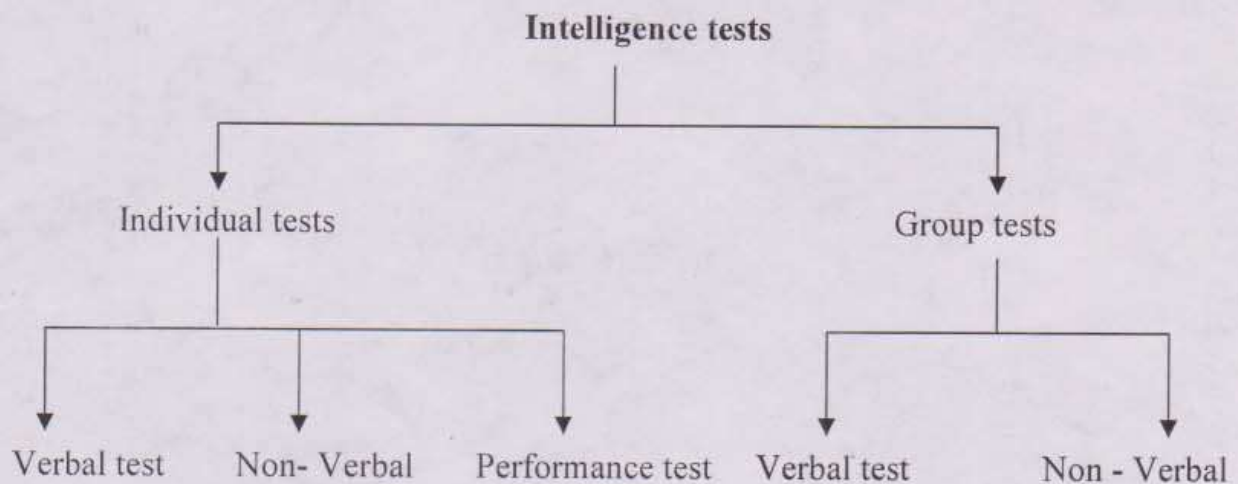
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The distribution of intelligence is not equal among all human beings. It resembles the pattern of distribution of health, wealth, beauty and similar other attributes or endowments. It is a normal distribution that is governed by a definite principle which states that the majority of people are at the average, a few very bright and a few very dull.

## 57 INTELLIGENCE TESTS

Psychologists to make the individual's intellectual ability more objective and scientific. It is not possible to measure innate potential so these tests sample various aspects of an individual developed intellectual behavior and thought processes to arrive at an estimate of his/her intellectual potential. So depending upon you well the particular test has been standardized the results are good approximations. They can depend upon for planning children's educational programmes, though they are not exact measures.

Generally the results of these tests are reported in the form of mental ages, intelligence quotients, percentiles etc.



### (i) Stanford -Binet test

Standardized intelligence test originated in the early 1900s with the work of Alfred Binet. Originally, Binet and his partner Theodore Simon used tasks on their intelligence test that differentiated students at each grade level. Initially they described performance as a mental age for instance a child who succeeded on task that had been demonstrated to be possible by most nine year old children, was described as having the mental age of nine years. However there were problems applying this method with old population

When the Simon-Binet test came to the United States it was translated by Lewis Terman at Stanford University. This revised form became known as the Stanford- Binet test, and with the revision the concept of intelligence quotient (IQ) was added. The Formulation was relatively simple. Divide the mental age (M.A) as defined by the number of items on the test successfully passed, by the persons' actual chronological age

(C.A). This ratio formed the basis for the ratio intelligent quotient and the multiplication by 100 removed the decimals from the final product.

$$IQ = \frac{MA (Mental Age)}{CA (Chronological Age)} \times 100$$

For instance, if a child who was six years old successfully completed all the tasks that were typically completed by those who were eight that child would have a mental age of eight years and her IQ would be 133. This would be calculated as follows ( $8/6 = 1.33 \times 100 = 133$ )

### **(ii) The Wechsler scale of Intelligence**

The most popular intelligence test used in the Wechsler scale of intelligence. There are three versions in use: one is for the pre-school primary population, one for elementary students and another designed for adults.

The Wechsler test, regardless of which version, is designed in two parts verbal and performance. The verbal tests all require a question to be posed orally and the students to respond verbally. The Performance subtests all require the student to visually process some test material and respond with a motoric response. The test is individually administered and consists of thirteen sub texts, six of which are verbal and seven of which are performance.

## **USES OF INTELLIGENCE TESTS**

### **(i) Understand the capacity of a child:**

Intelligence tests are of valuable aid to the education as a means of diagnosis of the capacity or efficiency of pupils. The scores of intelligence test reveal the mental age of a child and indicate the readiness of a child for learning.

### **(ii) Homogenous grouping:**

A class consisting of students with widely different abilities, is difficult to handle. This homogenous grouping of pupils can be done on the basis of intelligence test results.

### **(iii) Purpose of admission /selection to various courses:**

It has been known that success in school is to a great extent correlated with intelligence. While admitting pupils it is desirable to consider their mental age rather than chronological age. Thus, it is an asset and help the professionals and students to chose the right initiation and right courses.

# CREATIVITY

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## 6.1 INTRODUCTION

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Good education, proper care and provision of opportunities for creative expression inspire, stimulate and sharpen the creative mind, and it is in this sphere that parents, society and teachers make a significant contribution. They are required to help the children in nourishing and utilizing their creative abilities to the utmost. The educational process therefore should be aimed at developing creative abilities among children. This can be achieved by acquainting the teachers and parents with the real meaning of the creative process and the ways and means of developing and nurturing creativity.

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## 6.3 OBJECTIVE

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By the end of this lesson you will

- Understand the concept of creativity
- Understand the nature of creative pupils
- Know the process of creativity
- Identify the methods of fostering creativity among students

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## 6.4 CONCEPT OF CREATIVITY

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Creativity is creating something innovative and unique. Creativity as the capacity or ability of an individual to create, discover or produce a new or novel idea or object including the rearrangement or reshaping of what is already known to him which proves to be a unique personal experience. According to Guilford, Creative thoughts mean divergent thinking and uncreative means convergent thinking. Convergent thinking is measured by means of intelligence tests which includes items like remembering, recognition and manipulation of some create material. Guilford defines creativity involves divergent thinking with respect to the traits of fluency, flexibility and originality of thought processes.

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## 6.4 IDENTIFICATION OF CREATIVE PUPILS

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Creativity of an individual can be seen in the interaction of his intellect, personality, motivation and the biography although its distribution is neither equal nor universal. Researchers in this regard have proved that creative potentials are unique and divergent in nature rather than associating with intelligence. The identification of creative potential depends upon the following measures.

- (i) By observation of behavior
- (ii) Through rating scale and attitude scales
- (iii) By the help of interview/asking questions informally
- (iv) By the help of situational tests, interest inventories, aptitude test, projective techniques, personality test etc
- (v) By studying the cumulative record, if maintained about the individual, and
- (vi) By the help of standardized tests along with creativity tests.

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## **6.5 DIFFERENCE BETWEEN INTELLIGENCE AND CREATIVITY**

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Research findings and observation have demonstrated that there is no positive correlation between creativity and intelligence. One is not the essential or necessary prerequisite of the other. Those found scoring high on intelligence tests may demonstrate little or no sign of creativity whereas individuals performing poorly on intelligence tests may sometimes create something very original.

Intelligence and the creativity component of one's personality can function independently, a certain minimum level of intelligence is a necessary precondition for successful creative expression. In spite of the fact that intelligence or creativity may function independently and creativity involves more of divergent thinking as opposed to the convergent thinking employed in the demonstration of intelligence, it is not possible to entirely separate creativity from intelligence.

This is because thinking is neither purely divergent nor purely convergent and always has elements of both which are simultaneously involved in the creative and the intellectual process. It therefore follows that when a person is considered to be creative, he has to have a minimum level of intelligence certainly above the average.

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## **6.6 CONVERGENT AND DIVERGENT THINKING**

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Divergent thinking involves a broad scanning operation, enabling a person to evolve a general multiple possible solution and hence it is put into use when one is confronted with a problem which has many possible solutions. (Convergent thinking on the other hand requires a narrow process leading the individual to pinpoint the one most appropriate solution or response). It is involved with situations which require the reproduction of any one correct solution or answer as for example a multiple-choice test.

Divergent thinking has been considered to be more characteristic of highly creative individuals rather than those not rated as being highly creative. That is why, in the tests designed to test creativity one is required to list as many uses as possible for some common articles such as a knife or a brick, provide as many solutions of a problem as possible etc. Tests of this kind requiring divergent thinking are therefore scored for divergence i.e. the number of diversity and uniqueness of the responses and not for the convergent outcomes in the form of one single correct answer as it is usually done in tests of intelligence.

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## LATENT THINKING

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Creative thinking in all its shapes and norms is absolutely an internal mental process and hence should be considered as an important component of one's cognitive behavior. Every one of us is capable of creative thinking it is a universal phenomenon. Any creative experiment as a result of one's creative thinking is a source of joy and satisfaction for the creator. Creative thinking in all its dimensions involve divergent thinking instead of the routine and fixed type of convergent thinking. The mind has complete freedom to wonder around to create a new idea.

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## PROCESS OF CREATIVITY

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Following stages have reported by artists, composers, and novelists in the development of creative thinking.

**(i) Stage of Preparation:**

This stage is the development of creativity focuses attention on the problem, organizing the data, defining the problem and producing relevant ideas, or parts towards that end. It is a period of study, of learning and of attempting to relate factor in various ways. There is an inner urge to create in the individual.

**(ii) The Stage of Incubation:**

The second stage is incubation, when the person organizes and reorganizes and tests his ideas. This period involves vicarious experiencing of the problem. Flashes of

insight trial judgment occur. This is a period of no obvious activity and progress. The problem is being solved unconsciously.

### **(iii) The Stage of Illumination:**

This is called "Eureka" when the individual suddenly perceives the theme and relationship among the various components of the problem. Most of the creative thinkers claim that their creative ideas emerged all of a sudden.

### **(iv) Revision:**

It is the last stage in the development of creativity. At this stage, the individual reflects, evaluates and submits to critical appraisal.

## **CREATIVITY TESTS**

Creativity test may be used in the identification of the creative in the same way as intelligence tests are used for the assessment of intelligence. There are many standardized tests available for this purpose in India. Some of these are now enumerated.

The tests standardized in India

1. Baquer Mehdi's tests of creative thinking (Hindi/English)
2. Passi's tests of creativity
3. Sharmas divergent production abilities test
4. Sexena's tests of creativity.

Creativity is a complex blend of number of abilities and traits, and hence all the creative tests mentioned above attempt to measure several dimensions of one's creative behavior through their test items –Verbal or Non-Verbal. The factors or dimensions of creativity commonly measured through these tests are a) fluency b) flexibility c) originality d) unusual responses e) resistance to premature closure and f) elaboration etc.,

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## **FOSTERING CREATIVITY**

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Creativity as a natural endowment needs stimulation and nourishment. Every one of us possesses some creative abilities and it is not only the geniuses who are needed to create manifest and produce. It becomes essential for teachers as well as parents to realize the need of creating an environment conducive to full growth and development of the creative abilities of children. Proper stimulation and nurturing of the traits which help to

develop creativity, namely flexibility, ideational fluency, divergent thinking, self-confidence, persistence, sensitiveness, ability to see relationship and make associations etc are essential for this and may be achieved through the following procedures.

- i) Freedom to respond
- ii) Opportunity for ego involvement
- iii) Encouraging originality and flexibility
- iv) Removal of hesitation and fear
- v) Providing appropriate opportunities and atmosphere for creative expression
- vi) Developing healthy habits among children
- vii) Using the creative resources of the community
- viii) Avoidance of blocks to creative thinking Proper organization of curriculum
- ix) Reform in the evaluation system
- x) Use of special techniques like brain storming method
- xi) Teaching by example

# PERSONALITY

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## INTRODUCTION

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Personality cannot be described through merely summing up the various elements involved in it and this definition is accepted, it would be like describing a house as a collection of bricks. Watson (1930), the father of behaviorism, on the basis of this behavioral studies concluded: Personality is the sum of activities that can be discovered by actual observation over a long enough period of time to give reliable information. In this way he tried to make the word personality synonymous with the consistent behavior pattern of an individual. This, however, reflected a very narrow meaning of the term personality.

Morton Prince (1929), tried to give personality a broader base by accepting the role of both environmental and heredity factors in constituting what is termed as personality. In his words, personality is the sum total of all the biological innate disposition, impulses, tendencies, instincts of the individual and the disposition and tendencies acquired by experience.

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## OBJECTIVES

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By the end of this lesson you can

- Understand the nature and determinants of personality
- Know different theories of personality
- Assess the personality using different methods
- Understand the integrated personality

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## MEANING AND DEFINITION OF PERSONALITY

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Personality is something unique and specific. Each one of us is a unique person in oneself. Every one of us has specific characteristics for making adjustments. However, the uniqueness of an individual's personality does not mean that he has nothing to share with others in term of traits and characteristics of personality. While interacting with the environment every human being manifests many personality characteristics or traits. Each one of the traits manifests in every part of that individual's total behavior.

All the traits are related in such a way that they are integrated into a unit. It is the organization of the traits in a unique fashion that is referred to as personality. Personality may be defined as the organization of all the physical, mental, and social qualities in an individual that manifests in a particular way, while he interacts with the environment.

Thus personality includes in it, the organization of various dimensions of the individual like that of his difficulties, interests, intelligence, and capacities, which emerge out of the individual's interacts with the environment including the social environment.

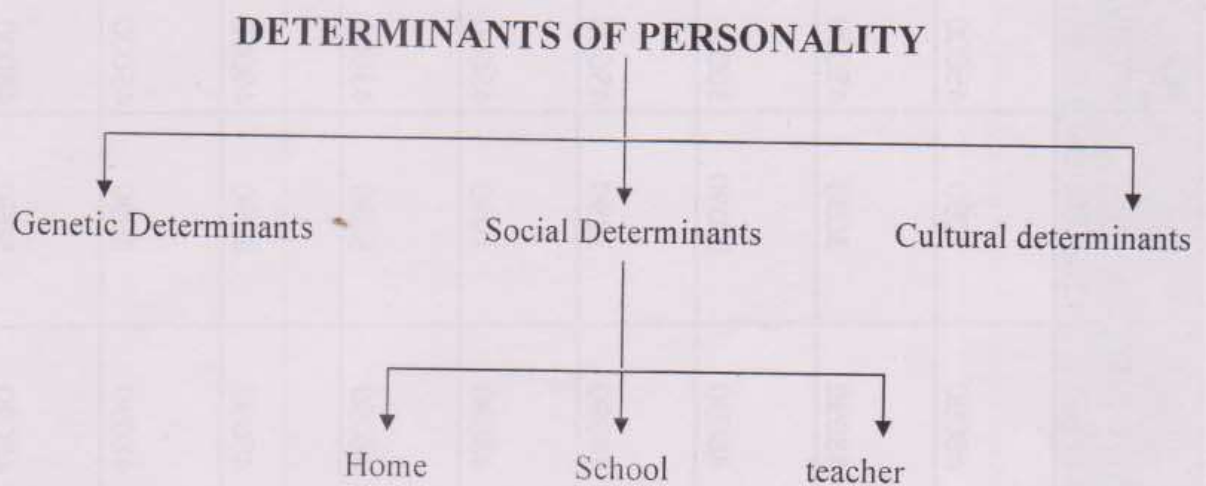
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## MAJOR DETERMINANTS OF PERSONALITY

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Man is the by-product of a complex system of variables, which constantly interact with personality and shape it. There are some important determinants which influence personality more than other factors. Genetic factors are basis that determine the

personality development of an individual physiological determinants such as ductless glands, nervous system, emotion and motivation all play an important role in the development of an individual's personality. Then there are a number of psychological factors which directly and indirectly influence growth and development. Social and cultural factors also help in moulding personality.



### **i) Genetic Determinants**

Heredity is of two types: Biological heredity which is the child inherits from his forefathers in the form of chromosome and second is the social heredity, which means all that one generation gets from preceding generation in the form of social tradition, customs, skills etc., Each generation transmits the acquired skills and knowledge to the succeeding generations.

### **ii) Social determinants**

Environment influences begin since the time of the conception of the child in the womb of the mother. Mother's mental, Physical and emotional conditions influence the development of the foetus in the womb. The external environment starts from the time of the birth of the child.

Physical and geographical condition of the environment plays an important role in shaping and personality of human beings. Physical and geographical environment create distinctive personality characteristics in human beings. Social environment of home greatly influences the personality development.

### **iii) Cultural determinants**

Every society is characterized by its cultural heritage which is transmitted from generation to generation in the form of social heredity. Indian society is very rich as regards its cultural heritage that has a deep influence by the culture, he is born in. E.B. Tyler a famous Anthropologist, defined culture as "it is that complex whole which includes knowledge, belief, morals, law, custom and many other capabilities and habits acquired by man as a member of society.

Culture refers to total life activities of a society, what the people think or do and feel constitutes culture of a society. It is the physical way of life. Biological inheritance is the same in human beings all over the world but it is the difference in their cultural conditions in the individual of different cultural groups. Culture is the great educator of human beings, sometimes directly and sometime indirectly by the methods of training and passing on great social heritage, it leaves permanent impression on the personality of the child.

#### **1. Role of Home:**

The Home plays the most important role in shaping the personality pattern of an individual in early infancy. The first environment the child moves in his home. Here the child comes in contact with his parents and other members of the family. There are several empirical evidences which support experiences and are decisive determinants of personality in later life. The type of training and early childhood experiences plays an important role in the development of personality. Children coming from home where good morale pattern dominated are better adjusted, more independent and more satisfactorily related to their parents than are the average adolescents of the group. Those coming from homes showing family discard pattern are, generally poor adjusted in their social environment. Good family morale is procedure of desirable personality traits and occurrence of conduct problem are associated with poor family morale.

Economic factor influences the development of personality. Poverty of parents and lack of money to fulfill the legitimate needs of children lead to certain kind of frustration.

#### **2. Role of School:**

School plays an important role in moulding the personality of children because a significant part of a child's life is spent in school between the ages of 6 and 18 years.

Hence he continues the process of liking and disliking, conforming and rebelling, acquiring a conception of the world and himself. Child's personality is already shaped at home before he comes to school. Here the teacher substitutes the parents. The School possess new problem to be solved, new taboos to be accepted into the superego and new models for imitation and identification, all of which contribute their share in moulding personality.

### **3. The role of the Teacher:**

The teacher is an important constituent in the instruction process who can play important role in shaping the personality of students. The way he teaches and handles the students has an effect on the future personality of children. The way the teacher carries out his role in the class will affect the emotional climate in the classroom. An authoritarian teacher will establish an autocratic climate and democratic teacher will create a different kind of climate. These differences in the attitude of teachers will imply differences in the number of frustrations imposed upon the students and in the kind of personality development encouraged.

The primary attitude of a good teacher is the ability to create a warm, friendly atmosphere in the classroom. Teaching should be geared to the needs of the child. The teacher must have sympathetic attitude towards deviant children. The teacher must try to locate the causes of anti-social behavior and help the children to improve their personality.

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## **THEORIES OF PERSONALITY**

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Psychologists have developed several theories of personality of study the structure and growth of it. The search of understanding the meaning and nature of personality would be incomplete if we do not discuss some important theories of personality. These theories in one way or another, try to describe the basic structure and underlying entities or constructs involved in personality along with the processes by which these entities interact.

Theories adopting the type approach. The view point of Hippocrates, Kretschmer, Sheldon and Jung belong to this category.

Theories adopting the trait approach – Theories like all point's theory, cattell's theory of personality are based on the trait approach.

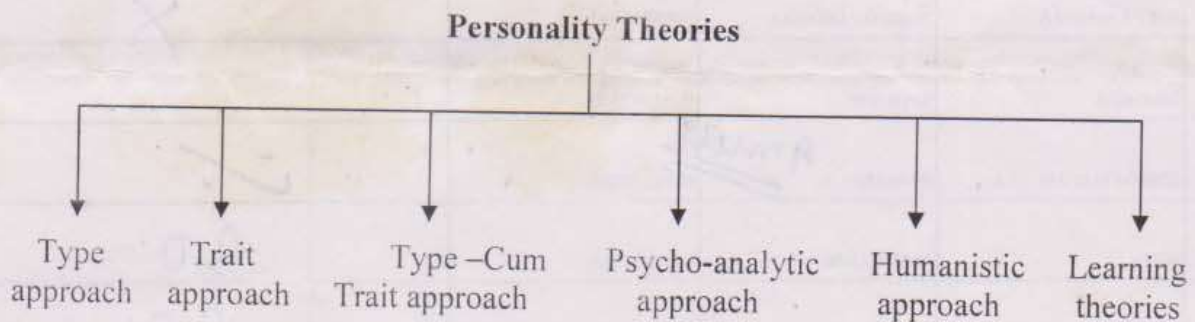
Theories adopting the type-cum- trait approach: Theories like Psychoanalytic theory of Freud.

Theories adopting the humanistic approach: Theories like Carl Rogers self theory and Maslow's self-actualization theory.

Theories adopting the learning approach: Dollard and Miller's learning theory and Bandura's social learning theory.

## PERSONALITY THEORIES

Type approach    Trait approach    Type-cum Trait approach    Psycho- analytic approach    Humanistic approach



### (i) Type Approach

Greek physicians were the first in the fifth B.C who classified people into four broad categories on the basis of emotional and temperamental characteristics. A number of topologies have been attempted for constitutional, temperamental and behaviourable types of persons by philosophies and psychologists in the ancient and current literature.

### (ii) Trait Theory

In the simplest sense by trait we mean a mode of behavior which is manifested in a number of life situations consistently. It is distinguishable, relatively enduring way in which one individual varies from other. Trait may be defined "as a property within the individual that accounts for his unique but relatively stable reaction to environment".

## **SOME PROPERTIES OF TRAITS**

### **1. Sociability:**

Traits are scalable. They can be measured and scaled quantitatively.

### **2. Inference from behavior:**

Personality traits are not directly observable but they are manifested in a number of activities and verbal expression. We infer a trait from the behavior of the individual.

### **3. Flexibility:**

Traits are not static in nature. Traits are flexible in childhood. They become stable with the maturity of the person in age but some variability is always there.

### **4. Traits are learned:**

Traits are learned in the interactions with the environmental stimuli.

### **(iii) TYPE-CUM-TRAIT APPROACH:**

This approach tries to synthesize the type and trait approaches. Starting with the trait approach, it yields definite personality types. The Eysenck theory of personality reflects such as approach.

#### **(i) Eysenck Theory of Personality:**

H.J. Eysenck, a British Psychologist, devoted much of his research studies to explore the trait dimensions. He conducted extensive research on trait dimensions by applying quantitative technique of factor analysis.

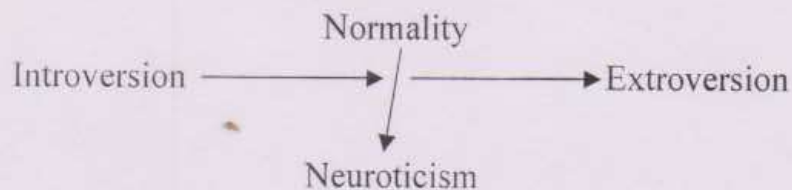
He conducted research on ten thousand soldiers and by statistical analysis isolated two dimensions in personality. (a) Introversion, Extroversion and (b) Neuroticism.

Later on, he isolated another personality dimension as Psychoticism. According to Eysenck, Psychoticism is an independent dimension of personality. It is quite different from introversion and extroversion dimension.

Eysenck has found three fundamental dimension of personality

- (i) Introversion Vs Extroversion
- (ii) Normality Vs Neuroticism
- (iii) Psychoticism

The first two dimensions given above may be taken as the part of normal personality. This relationship may be shown as below:



Eysenck developed personality inventory to test the traits of personality. His findings have generated research activities by several psychologists. His most important contribution is that he tried to prove that personality is genetically caused. He traced neuroticism to the autonomous nervous system and introversion.- Extraversion to central nervous system. He emphasized the importance of heredity in the development of traits of personality as against the concept of American Psychologists who are biased in favor of environment.

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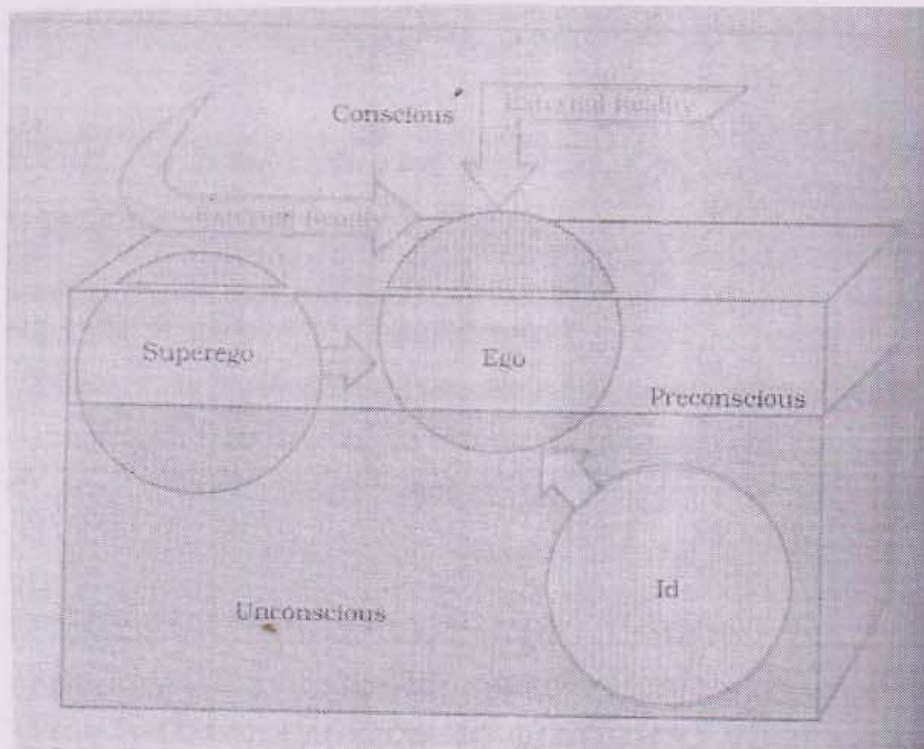
## PSYCHOANALYSIS THEORY

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Sigmund Freud (1856 - 1939), a Viennese Physician, developed psychoanalysis, a therapeutic approach aimed at giving patients insight into unconscious emotional conflict. Freud was the first psychologist who placed great importance on instincts as the determinants of human behavior. He proposed two instincts: a) Eros, the love and the self-preservation, b) Thanatos, the death instinct, as the ultimate cause of all human activity.

### Psychic Structure

Psychic energy, according to Freud, comes from libido. It denotes sexual energy when he revised his theory which includes two groups of instincts the libido was defined as the energy of all the life instincts. The sexual libido was regarded as the source of primary driving force of the personality. The dynamism of personality is seen as largely governed by the need to gratify the libido.



**Psychoanalysis theory of Personality.**

### **The Id**

It is inborn. Its main function is the discharge of psychic energy which when pent up produces tension through the personality system. The Id operates on an animal level. It cannot differentiate between good and bad and operates on the pleasure principle.

### **The Ego**

The Id knows only the subjective reality of the mind. The second concept of Freud is the ego which distinguishes between subjective reality and things in the external environment. It operates on the principle of reality. The Ego is called the executive of personality. It obeys the reality principle and operates by means of secondary process.

The Ego is an organized portion of the Id which has been modified by the contact of external reality and experience. It comes into existence to forward the aims of the Id. It brings a compromise between the instinctual urges of the Id and demands and forces of the external environment.

### **The Super ego**

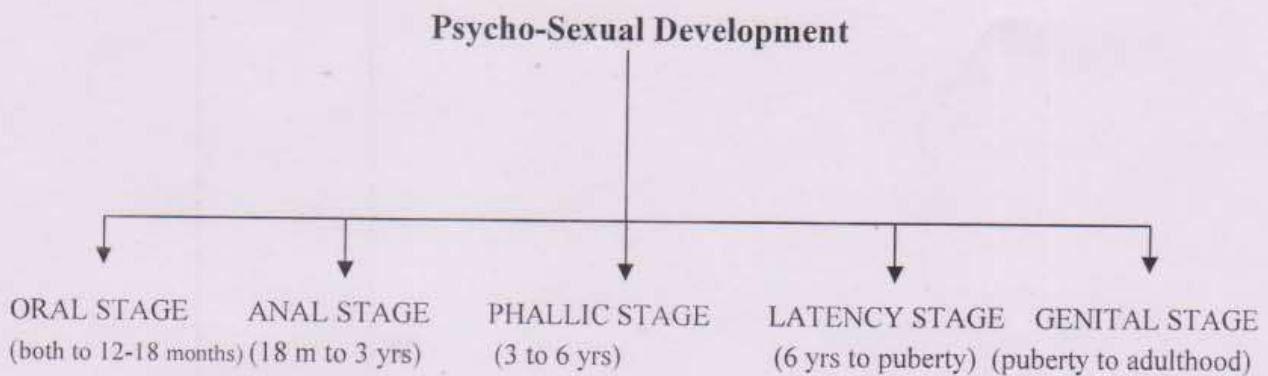
The third concept is the super ego. It is the agency which internalizes the parental influences and ideals of society through early childhood experiences. It represents the ideal rather than the real and strives for perfection. It works in accordance with the moral standards authorized by the agents of society.

## Dynamics of Personality

According to Freud, the human organism is a complex energy system which derives its energy from feed it consumes. The energy created by biological factors may be transferred to psychic energy. Three parts of Psychic structures Id, Ego and super Ego is constant conflict. The dynamics of personality involves a continuous interaction and clash between Id impulses seeking release and inhibition imposed by the super ego. The individual is in quest for immediate gratification of impulses, seeks pleasure and avoids pain order to reduce tension.

The divine for immediate gratification of instructual demands leads to early class between the individual and his environment conflict develops when the parents or other members impose restriction or control on expression.

## PSYCHO-SEXUAL –DEVELOPMENT (FREUD)



### (i) Oral stage: (Birth to 18 months)

Babies whose needs are not met during the old stages, when feeding is the main source of sensual pleasure, may grow up to become nail-biters or smokers or to develop "bitingly" critical Personalities.

### (ii) Anal stage (18 months to 3 yrs)

As a toddler had to stick toilet training may be fixed at the anal stage, when the chief source of pleasure was moving the bowels.

**(iii) Phallic stage: (3 to 6 yrs)**

A key event in psychosexual development occurs in the phallic stage of early childhood. Boys develop sexual attachment to their mothers and girls to their fathers, and they have aggressive urges toward the same-sex parent, whom they regard as a rival.

**(iv) Latency stage: (6 yrs to puberty)**

Children eventually resolve their anxiety over these feelings by identifying with the same sex parent and move into the latency stage of middle childhood, a period of sexual calm. They become socialized, develop skills, and learn about themselves and society.

**(v) Genital stage: (Puberty to adulthood)**

The genital stage, the final one, lasts throughout adulthood. The sexual urges repressed during latency now resurface to follow in socially approved channels.

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## **ASSESSMENT OF PERSONALITY**

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The methods used for the assessment of personality may be termed as subjective, objective and projective. Observation technologies and situation tests, autobiography, questionnaire, personality inventory, interview, case history, rating scales and socio-metric techniques can be used.

Projective techniques involving fantasy which aim at assessing the individual's reaction to imaginary situation.

### **1. Observation:**

Observation is a popular method to study the behavior pattern of an actual life situation. The observer decides what personality traits of characteristics he needs to know, and he then observe the relevant activities of the subject in real life situation.

### **2. Situational tests:**

Here situations are artificially created in which an individual is expected to perform acts related to the personality traits under testing. For example, to test the honesty of an individual, some situations can be evaluated in term of honesty or dishonesty.

### **3. Questionnaire:**

In general the world questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in himself. The subject responds to these questions in the spaces provided in column of yes, nor or cannot say etc., these answers are then evaluated and used for personality assessment.

### **4. Personality inventory:**

The questionnaire is a general device and can be used for collecting all kinds of information not connected specifically with personality traits or the behavior of an individual, personality inventory is specifically designed to seek answers about the person and his personality.

### **5. Rating scale:**

The rating scale is used to assess where an individual stands in terms of other person's opinion of some of his personality traits. It reflects the impression the subject has made upon the person who rates him.

## 6. Interview:

Interview is a technique of eliciting information directly from the subject about his personality in face to face contacts.

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## PROJECTIVE TECHNIQUES

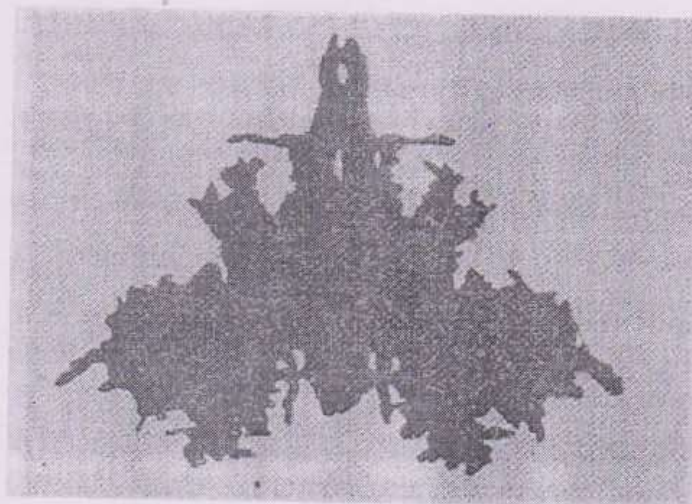
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Projective tests are so named because they include the individual to project himself into the test situations and thus reveal his motives, attitudes, apprehension and aspiration. The projects his own personality through the responses just as a film projector projects the image on the screen. Hence the name projective tests. Hence, unstructured test material and the whole situations in vague and unidentified. The subject is asked to project his wishes to the vague test situations. The way in which his projection takes place in an individual, gives an understanding of the personality of that individual.

Some of the important projective techniques the Rorschach Ink blot test, the thematic apperception tests.

### 1. Rorschach Ink-Blot Test:

This technique was developed by a Swiss Psychiatrist, Hermann Rorschach in the year 1921. The material used in the test consists of 10 cards on which there are ink-blots. Five of them are black and white and five are multicolored. These ink-blots are completely unstructured and do not have any specific meaning.



A Sample of an inkblot used in the Rorschach test

To investigate personality, the cards are exhibited before the subject one after the other and he is asked to describe everything he sees in the blot. The tester records the subject's responses comments and reactions; the time the subject takes to give his first response, the total time for the test; the position of the card when the responses are given: spontaneous remarks made by the subject: his emotional reactions: qualities perceived (colour, form, movement); kinds of things reported (like anatomical parts, animals, plants & people and so on); and other incidental behavior during the test session.

From the various responses the clinician or the tester infers certain personality traits. For the purpose of scoring, the responses are marked as location, content, originality and determinants.

## **2. Thematic Apperception Test (TAT):**

Morgan and Murray in 1935 developed the TAT to know the peculiarities of personality with the help of some pictures. The test consists a set of 31 cards out of which 30 depict various scenes and one black card.



**A sample card from TAT**

The test consists of perception of certain picture in a thematic manner i.e., revealing imaginative themes. Observing these pictures the subject of projection, identifies himself with the characters in the picture. The pictures are presented one by one to the subject who has to compose a story on them in some fixed the period, say five minutes. Unknowingly, the subject expresses many of the peculiarities of the personality