Centre for Distance and Online Education
Punjabi University, Patiala

Class: M.A. (Education) Part-I **Semester-I**

Paper : II **PSYCHOLOGICAL FOUNDATIONS OF EDUCATION**

Unit : I

Medium : English

Lesson No.

1.1 : Educational Psychology: Concept, Scope and Contribution of Psychology to Education, Relevance for teaching, Identification of learner

1.2 : Methods of Educational Psychology : Observation Case study & Experimental Method

1.3 : Human Development : Piaget's and Bruner's theories of cognitive development

1.4 : Learning : Concept theories of Learning Skinner Bandura and Gagne's hierarchical

PAPER-II : PSYCHOLOGICAL PERSPECTIVE IN EDUCATION

SUBJECTCODE:EDUBED1102T

Max.Marks: 100
External:70
Internal:30

(A) COURSE OUTCOMES

After completion of the course the student teacher will be able to:

- Understand the concept, nature and scope of Educational Psychology with special reference to its importance to education.
- Understand the concept and principles of growth and development.
- Know the influence of heredity and environment on the child's growth and development.
- Understand the characteristics and problems of adolescents.
- Understand the role of family, school, community,mass-media and culture in the development of adolescents.
- Become aware of concept, causes and nature of individual differences.
- Understand the concept and major theories of intelligence and learning.
- Understand the types and techniques of motivation.
- Know the children with special needs and their education.

SECTION-A

(i) Educational psychology- concept, nature, scope and importance.

(ii) Growth and development: meaning, difference, principles, influence of heredity and environment on growth and development of a child.

(iii) Indian Adolescents : Characteristics of emotional, social, cognitive and moral development, Problems of Indian adolescents. Role of family, school, community andmass-media in development of adolescents. Role of different cultures in the development of adolescents.

SECTION-B

(iv) Individual differences : inter and intra individual differences, concept, causes and implications.

(v) Intelligence: concept, theories-Spearman, Thurstone and Gardner. Uses and limitations of Intelligence tests.

(vi) Learning:Meaning, process and factors affecting learning of an individual, Trial and error theory and classical conditioning theory.

(vii) Motivation : Concept, types and techniques, educational implications.

(viii) Learner with special needs: Meaning, types: gifted, delinquents, creative, slow learner and their educational programmes.

Activities (Anyone of the following)

(i) Administration and interpretation of any one psychological test (Intelligence/ motivation/creativity).

(ii) Visit to aschool and write a report on problems being faced by the students.

(C) RECOMMENDEDBOOKS

1. Dandapani,S.(2004) Advanced Educational Psychology.New Delhi : Anmol Publications Pvt.Ltd.
2. Bigge,M.C. & Row.(1971) : Learning Theories for Teachers(2nd Collins.Ed.).N.Y.:Harper
3. Bower,G.H. and Hilgard, E.R. (1981) theories of Learning. PrenticHall, Inc. Englewood Cliffs, New Jersey.
4. Woolfolk,A. (2006) Educational Psychology. New Delhi : Pearson Publications.
5. Hall, C.S., Gardener, L. and John, B.C.(2010) Theories of Personality. Delhi : Aggarwal Printing Press.
6. Anastasi,A. and Susana U.(2010) Psychological Testing. New Delhi : PHI Learning Pvt.Ltd.
7. Aggarwal, J.C. (1995). Essentials of Educational Psychology, New Delhi : Vikas Publishing House Private Limited.
8. Allport,G.W.(1961).Pattern and Growth in Personality : New York.
9. Chauhan,S.S.(2002).Advanced Educational Psychology. New Delhi : Vikas Publishing.
10. Gore,M.S.(1984).Education and Modernization in India. Jaipur : Rawat Publishers.
11. Havighurst,R.etal.(1995).Society and Education. Baston:Allyenad Bacon
12. H.P.B Wheldall, K. (2006). Developments in Educatonal psychology. New York : Routledge.
13. Kamat, A.R. (1985). Education and Social Changein India. Bombay : Samaiya Publishing Co.
14. Rinehart and Winston, Bhatia, K.K. (2008). Basis of Educational Psychology. Ludhiana : Kalyani Publishers.
15. Sharma,K.N.(1990).Systems, Theories and Modern Trends in Psychology. Agra : Woolfork.
16. Anita (2004). Educational Psychology : Reason Education (Singapore). New Delhi : Indian Branch.
17. Upadhya, B. & Singh Y.K. (2011). Encyclopaedia of Education Psychology. (vol. I to II). Delhi : APH

18. Crawford, W & De Cecco, J.P. *The Psychology of Learningand Instruction* Delhi : Previtice-Hall.
19. Kumar,R. (2009) *Child Development*. (Vol.ITo II). New Delhi:APH

(D) EVALUATION External Examination Time

External Examination	70 Marks	
Time	3 Hrs	
Internal Assessment	30 Marks Attendance	6
Written Assignment/Project work/ Response Sheets		12
Two Mid-term Examinations/ House		
Test		12

INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three Sections: A, B, and C. Section A and B will have four questions from the respective Sections of the syllabus and will carry 10 marks each. Section C will consist of 10 questions of 3 marks each which will cover the entire syllabus uniformly and carry 30 marks in all.

(E) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the sections A and B and the entire section C.

M.A.(EDUCATION) PART-I (SEMESTER-I) PAPER-II

PSYCHOLOGICAL FOUNDATIONS OF EDUCATION

LESSON NO. 1.1 AUTHOR : DR. SUDESH GAKHAR

Educational Psychology: Concept, Scope and Contribution of Psychology to Education

Structure

1.1.1 Objectives

After going through this lesson you will should be able to:

1. Discuss the concept of educational psychology.
2. know the relevance of educational psychology for teachers.
3. Describe the scope of educational psychology.
4. Explain the contribution of psychology to the field of education.

1.1.2 Introduction

Educational Psychology can be understood as a science which studies the process and actions involved in the education of human beings. It is a systematic study of the changes that occurs in an individual at various stagesof his development. It highlights the conditions that promote or retard educational development of the learner. The principles of educational psychology are utilized to improve the teaching learning process. They prove equally useful in the organizations and administrational institutions of educational institution.

1.1.3 Concept of Educational Psychology

To understand fully the concept and scope of educational psychology, we must have a general view of these two fields i.e. Education and Psychology and their interdependence. The modern concept of education is an outgrowth of continuous research concerning human development and behaviour.

Educational psychology represents the application of scientifically derived principles of human reactions and actions that affect teaching learning process. The primary function of education is to make provision for situational stimulation where by inherent potentialities express themselves in the form of appropriate skills, knowledge and attitudes.

Education as a process refers to the continuous experiences which help in the development of innate abilities. The product of education are changes that result from participation in teaching-learning experience.

Education and Psychology exist on an inter-dependent plans as the former suggests: 'what' to study and later 'how' to study.

Psychology may be defined in its simple form as the science of the behaviour. It uses scientific methods to collect data about human behaviour under controlled conditions and to formulate hypotheses or generalizations. It helps us to understand, control and predict behaviour. Educational Psychology, however, is a study of human behaviour as it bears upon learning and teaching activities. It is an application of principles of general psychology to the problems of education.

According to Judd, "Educational psychology is a scientific study of the life and stages in the development of an individual from the time he is born until he becomes an adult".

According to Skinner, "Educational psychology is that branch of psychology which deals with teaching and learning".

Anderson assumes that Educational psychology is a subject to be studied as an area or a field of knowledge, a set of application of laws and principles from a field of knowledge to a social process, a set of tools and techniques and a field for research.

According to Garrison, "It is concerned with the study of human behaviour as it is changed or directed under the social process of education, and secondly it studies the processes that contribute to an increased understanding of how behaviour is changed and directed through education".

These definitions imply that Educational psychology takes its form and gets its meaning from two fields, i.e. Education and Psychology. Education is a social process and psychology is a discipline, a body of knowledge, a social and natural science.

Education as a social process is concerned with the establishments of certain behaviour patterns in men in order that they can adapt to a given environment or in order that they may perform certain ways so that the adaptation of other men is enhanced. Teachers by virtue of training have a special skill in helping others to learn. The teachers task can be described under three broad categories.

(i) Selecting and organizing material.

(ii) guiding and directing learning.

(iii) evaluation.

The teacher actually helps the learners to change their behaviour in specified and desirable direction. Two basic factors involved in this statement need to be mentioned here.

(i) a process (behaviour change) and

(ii) a criterion (specified desirable direction).

Suppose that the teacher has clearly specified the "desirable behaviour change" now his focal task is to interact with his pupils and to arrange the conditions and materials in such a way that the pupils will change. The teacher, therefore, must be an active continuous inquirer into validity of his own procedures.

Educational Psychology is concerned not only with constructive and validation from time to time of good teaching procedures but also with evaluation of the effect of teaching in an objective manner. It explores psychology of the child, his modes or responses, his hereditary nature and the impact of all these on learning mass and his development.

It is an area of application rather than unique category of subject matter. It encompasses the subject matter, research and procedures of psychology as related with problems of classroom. It also attempts to define and explain changes that take place in an individual at various stages of development. It deals with the conditions that enhance or deteriorate human development. Its study results into formulation of certain principles which are considered worthy in directing and fostering school programmes on humanistic lines.

Kelley analyses the task of educational psychology as follows:

-to give the knowledge of the nature of the child.

-to give understanding of the nature, aims and purposes of education.

-to foster understanding of scientific methods and procedures.

-to utilize principles and techniques of learning and teaching.

-to give training in methodology of measuring abilities and achievements.

-to understand growth and development patterns of children.

-to help children in better adjustment.

-to help children in attaining emotional control.

According to Dewis, contribution of educational psychology is as follows:

"Psychology has made a distinct contribution to education through its analysis of pupil's potentialities as differences as revealed by means of various types of psychological tests. It has also contributed directly to the knowledge of pupil's growth and maturation during the school years."

Blair stresses the importance of educational psychology as "Modern teacher if he is sincere with his work, should be a specialist who understands children how they grow, develop, learn and adjust. He should be a diagnostician who can discover, special difficulties of children and at the same time possesses the requisite skills for

carrying forward the necessary remedial work. He should also be performing featuring in educational and vocational guidance. An untrained person in the methods of psychology cannot possibly fulfil the obligations and tasks which are the responsibilities of the teacher."

1.1.3.1 Brief History of Educational Psychology

The development of educational psychology can be traced back from the time of Plato. Although both Plato and Aristotle developed a system of education basedon psychological principles, yet Aristotle presented his ideas more systematically. He believed in faculty theory and dominated the field of education for more than two thousand years.

Rousseau raised his voice for individual freedom, self-expression and learning through experience. He presented entire scheme of education in his book "Emile". Pestalozzi advocated education through sense of perception, reasoning and through utilization of concrete and real objects.

Herbert gave five formal steps of learning as:

-preparation

-presentation

-comparison

-association

-application

These ideas underwent an influence because of revolutionary doctrine of evolution put forward by. Darwin (1859). This resulted in significant researches in animal psychology and human heredity. Galton (1900) set forth his studies on inheritance of the genius. He worked on mental imagery and conducted in the area of individual differences. Stanly Hall presented useful principles governing the stages of human growth and thus gave impetus to child study movement.

In America, William James pleaded for experimentation in the problems of emotional, intellectual and moral development. He advocated functional approach to psychology. He contributed significantly to research in the projectmethod of learning.

By the end of nineteenth century, Cattle led the movement of measurement and test. As this movement gathered momentum, the field of testing grew rapidly and standardized tests of intelligence, aptitude and achievement became valuable tools in educational psychology.

In the beginning of twentieth century, emotional behaviour was not studied. Watson investigated maze learning in animal psychology. Pavlov worked on conditioning of responses. Wertheimer, Kofka and Kohler elaborated Gestalt theory with their investigations. Sigmund Freud founded school of Psycho-analysis. Adler put stresses on will to power as the driving force of human behaviour.

Guilford Terman worked in specific creativity in educational psychology.

Educational psychology is a continuously growing discipline, adding new dimensions to its field of study.

1.1.3.2 Aims of Educational Psychology

Campbell Stewart speak of the following as the main aims of educational psychology :

(i) to outline aspects of learning process.

(ii) to outline the main phases in psychological growth i.e. from infancy to maturity.

(iii) to match subject matter of processes to be learned with levels of development and psychological principles.

(iv) to give some training in assessing and making allowance for the social side.

(v) to give the teaching insight into his own psychological processes and into his own as a teacher.

Charles E. Skinner analyses aims of educational psychology as follows:

(i) to develop a conviction that growth can be promoted learning acquired, social behaviour improved and personality adjustment affected and to realize the extent to which all these can go.

(ii) to assist in defining and setting up educational objectives and standards in terms of desirable behaviour and ought to be the goals of all teaching effects.

(iii) to aid in developing an impartial but sympathetic attitude towards children.

(iv) to assist in achieving a better understanding of the nature and importance of social relationship and to learn the methods of developing in children such modes of social functioning as getting along with other, group participation and co-operation.

(v) to provide a body of facts and principles that can be used in solving the problems of teaching.

(vi) to aid in affording the teacher a better perspective for judging results of his own teaching and educational practices of others.

(vii) to furnish the teacher with the necessary facts and techniques of analyzing behaviour both his own and that of others to the end that normal adjustment can be facilitated.

(viii) to assist in setting up, defining and maintaining progressive teaching procedures, guidance processes and functional forms of organization and administration.

Short in text question:

Q. Define Educational Psychology.

1.1.4 Relevance of Educational Psychology: Educational Psychologyhelps the teacher &Prospective teachers in the following ways:

1. Understanding Educational Process

The purpose of educational psychology is to help teachers and prospective teachers to develop a better understanding of educational processes. A teacher who has acquired understanding of educational processes is likely to become a more effective teacher than he would be if he had not undertaken the study of educational psychology.

2. Understanding Children

It is very important for teachers to understand children. If he does not understand children very well, he is not as effective teacher as he could be. This does not mean that understanding children in and above makes a good teacher. Good teaching involves much more than understanding. But understanding is a basic requirement. The study of educational psychology helps a teacher to understand child behaviour which seems so complex and unpredictable.

3. General Competency

Today's teacher not only needs to know his subject matter but he also needs to have good psychological understanding of what he is doing and what is happening as a result of his actions. He needs to be behavioural scientists. The competency and general effectiveness of any teacher can be extended if he understands the psychological implications of what he is trying to accomplish, as well as of the events taking place in his classroom.

4. Role Perception

A teacher has to play many different roles in the classroom and the school, e.g. the role of an instructor, subject-matter expert, disciplinarian, youth groups worker, interpreter to the public, artist in human relations, learner and scholar, parent figure etc. Some of those roles are complementary and some are contradictory. One of the key problems that faces the teacher is that of integrating his roles and playing them effectively in different situations. The study of educational psychology will help a teacher in perceiving, integrating and playing his roles effectively.

5. Self-analysis and Self-understanding

An improved understanding of both human behaviour and learning situations must imply a certain amount of self-analysis and self-understanding. It is hoped that teacher who study educational psychology will come to know and understand themselves better both as persons and as teachers. It is almost axiomatic that the understanding of the behaviour of the other persons develops to the growth in understanding our own behaviour.

1.1.5 Scope of Educational Psychology

Educational Psychology can be considered applied science so far as it utilizes those scientific determinants and psychological principles that deals with human behaviour as an applied branch of psychology, it specifically, studies those variables that allow for better prediction, control and understanding of human behaviour.

Being an independent science, it has within its own scope (a) body of principles of fundamental truths (b) Objective and verifiable facts/data and (c) workable and precise technique of study, research, experimentation and evaluation.

In the initial stages, the scope of educational psychology was limited to so called laws of learning that had resulted from laboratory-controlled experiments with animals and children. By the end of second decade of 20th century, however, both extensive and intensive studies were conducted which utilized data from biological, sociological, anthropological, medical and psychiatric science.

The focal point of educational psychology is the individual child and how an individual child responds to the variations he meets in school and life situations. The scope of educational psychology encompasses those facts and principles of psychology that have a direct bearing upon the growth, learning and adjustment of children. Heredity and environment, behavioural process, perceptual and motor adaptability to the environment, attitude, intelligence, achievement, character, development and mental hygiene are some of the psychological issues that lie in the scope of educational psychology.

Socio-psychological facts that influence learning and development, the teacher, the taught and the whole community who act and interact in the learning situation, the developmental programmes that strive to improve, enrich and deepen the pupils learning experiences that stimulate his interests andfacilitate his physical, intellectual, social and moral growth also form the part of the scope.

Noll and Noll have given five such major areas:

1. Human growth and development:

(a) Heredity and environment.

(b) General growth and development.

(c) Social and emotional development.

(d) Motivation, drive theory.

(e) Intelligence, aptitude and interests.

(f) Individual difference.

2. Learning

(a) General nature of learning.

(b) Factors influencing learning.

(c) Motivational devices in teaching.

(d) Skills learning.

(e) Reasoning and problem solving.

(f) Attitudes formation.

(g) Learning of particular school subjects.

(h) Transfer of training.

3. Personality and Adjustment:

(a) Emotional Adjustment.

(b) Mental hygiene of the pupils.

(c) Mental health of the teacher.

(d) Exceptional children.

(e) Character development.

(f) Social interaction.

4. Measurement and Evaluation:

(a) Basic principles of management.

(b) Measurement of intelligence and aptitudes.

(c) Measurement of learning.

(d) Measurement of adjustment.

(e) Evaluation, interpretation and application of result of measurement.

5. Techniques and Methods of Educational Psychology:

(a) Scientific study of educational problems.

(b) Statistical techniques.

(c) Implementation of research findings by class-rooms teachers.

(d) The fields of educational psychology may also be approached from the stand point of the job held by the educational psychologists:

  (i) Teaching function.

  (ii) Research function.

  (iii) Function of personnel worker.

  (iv) Consulting function.

  (v) Function of administering psychological services.

  (vi) Function of test construction and the evaluation of measuring instruments.

(e) H.C. Lindgren suggested areas of educational psychology that revolve around educative process which in turn is composed of:

  (i) The learning.

  (ii) The learning process.

  (iii) The learning situation.

(f) Garrison emphasized the following major areas of educational Psychology:

  (i) The child and his development.

  -the course of development.

  -the nature of intelligence.

  -language and thinking.

-socialization.

(ii) Learning and educative process

-learning and motivation.

-learning of skills.

-problem solving.

-character development.

(iii) Evaluation of pupil growth:

-method of pupil evaluation.

-studying the individual child.

-evaluating the results of instruction.

(iv) Guiding the child:

-personality integration.

-adjustment problems of a child.

-pupil-teacher relations.

(g) Kolesnik suggested the following areas dealt by educational psychology: -

(i) Individual differences.

(ii) Motivation.

(iii) Method of instruction.

(iv) Evaluation.

(v) Class-room management.

(vi) Mental health.

(vii) Character formation.

Rajamanickam has given the fields to be studied under the heads given below:

1. Developmental Psychology.
2. Social Psychology.
3. Psychology of Personality.
4. Physiological Psychology.
5. Psychometry.
6. Educational Psychology.
7. Clinical and Counselling Psychology.
8. Industrial and Engineering Psychology.
9. Environmental Psychology.
10. Population Psychology.

1.1.5.1 Scope of Educational Psychology as co-existent with life

During the course of the development from birth to maturity, an individual faces variety of situations and undergoes varied experiences which subject him to varying and continuous process of changes. Throughout his life, an individual has to learn and adjust according to his personal changes. The new experiences thus gained contributes towards his mental and physical growth. Broadly speaking this process of growth up to the maturity, which is lifelong process, is a major area of interest for educational psychology.

In brief, educational psychology studies all aspects of life from infancy to adulthood so as to help pupils lead a meaningful life. It deals with the issue of assessment of learning, improved methods of framing questions and evaluating pupil performance. It throws light on personality development, human growth and development, intelligence and creativity and the problems of maladjustment. Teaching methods are made more useful and interesting through experiments in the area of psychology.

Short in text question:

Q. Enlist the areas of Educational Psychology as given by H.C. Lindgren.

1.1.6 Contribution of Psychology to Education

Psychology is a science of behaviour and experiences of individuals. It studies and modifies behaviour & shapes it according to the norms of the society. As Blair has said that a modern teacher should be specialist who understandschildren as they grow, develop, learn and adjust. Without the knowledge of psychology, a teacher cannot fulfil the responsibility of true teaching. Every individual has his own individual personality. It becomes more important forthe teacher to know the learner quite accurate in order to perform his duties in more appropriate way. He ought to know the stages of his development inrelation to his social, emotional, intellectual, physical about his interests, aptitude, intelligence and other innate capacities and abilities. In a broader way one of the functions of education is modification of the behaviour. of the individual for proper adjustment in the socio-cultural sphere. Application of psychological principles & techniques to human behaviour in educational situations can be helpful in achieving the aim of education. Psychologists have provided a sound base to the theory & practice of education.

1.1.7 Summary

Educational psychology takes its meaning from two fields viz. : education and psychology. Psychology helps in understanding, controlling and predicting whereas education helps in constructing and evaluating teaching procedures that will determine how change of behaviour can be utilized. Educational psychology helps in analyzing the child's potential, his growth and maturity at different stages of development. Accordingly, it helps a teacher not only tounderstand children but also to device programmes for better adjustment of children.

History of educational psychology can be traced back to 400 B.C. when Plato and Aritstotle's ideas dominated education. Rousseau and Pestalozzi raised their voices and incorporated learning through self-expression and from concrete objects. Herbert gave five systematic steps to learning. Darwin brought a revolutionary change with his doctrine of evolution and heredity became an important factor in the studies of educational psychology. Galton's contributions to this effect cannot be denied.

Stanley Hall introduced principles of stages and stages of human growth and educational programmes were modified accordingly. Dewey and William-James brought about functional aspect of psychology. Cattle, Binet were the pioneersin the field of measurement and development tests in educational psychology. Behaviourism, Gestalt school came into limelight because of Watson and Wartheimer, Koffka, Kohler respectively. Guilord, Terman gave a new turn and put forward their experiences about creativity. Educational psychology, however is a continuously growing discipline and adding new dimensions from time to time.

Main aims of educational psychology have been specified differently by different psychologists. Noll gave major areas of educational psychology viz.: Human growth and development, learning, personality and adjustment, measurement and evaluation, techniques and methods in educational psychology.

The scope of educational psychology extends to the functions of teaching, research, counseling, psychological service, learning process and learning situation. Garrison gave the child and his development, learning and educative process and pupil guidance as the areas of educational psychology.

1.1.8 Key Concept

1. Concept of Educational Psychology
2. Scope of Educational Psychology
3. Contribution of Psychology to Education

1.1.9 Self-Check Exercise:

Fill in the blanks:

(i) Education suggests ..... to study.
(ii) Psychology suggests..... to study.
(iii) Herbert gave .....formal steps of learning.
(iv) Rousseau raised his voice for individual freedom, ...and learning through ..... .
(v) Psychology helps in ..... , ... and ..... behaviour.

Answers: (i) What, (ii) how, (iii) five, (iv) self expression, experience
(v) understanding, controlling, predicting.

1.1.10 SUGGESTED QUESTIONS

1. "The process of education is entirely at the mercy of psychology." Discuss the above statement fully, bringing out the importance of educational psychology for the teacher.
2. Define Educational Psychology. Discuss and comment critically on the scope of Educational Psychology.

1.1.11 SUGGESTED READINGS & WEB SOURCES

1. *'Reading in Educational Psychology', edited by Victor H. Noll & Rechel P. Noll.*
2. *'Educational Psychology', edited by Charles E. Skinner.*
3. *'Advanced Educational Psychology' by S.S. Chauhan.*
4. *'Educational Psychology' by Kundu and Tutoo.*
5. *'Educational Psychology' by Gates.*
6. *Psychological Interpretations of Teaching by G.M. Blair.*
7. *Applicability of Psychology with particular reference to School Room Learning Journal of Educational Research 1945.*

Web Sources:

(i) en.wikipedia.org
(ii) www.wiziq.com

M.A. (EDUCATION) PART-I (SEMESTER-I) PAPER-II

PSYCHOLOGICAL FOUNDATIONS OF EDUCATION

LESSON NO. 1.2 AUTHOR : DR. MEENAKSHI SHARMA

Methods of Educational Psychology-Case Study, Observation Method, Experimental Method

Structure

1.2.1 Objectives

After going through this lesson the student will be able to:

1. Understand the concepts of observation method Case History method experimental method.
2. Differentiate between case history method and experimental method.
3. Describe various steps of experimental method.
4. Differentiate between case history and Experimental Mental Method.

1.2.2 Introduction

Educational psychology is an applied branch of psychology. It studies the behaviour of the individual in the teaching learning process. It was the research findings and principles developed by the psychologists in laboratory settings to improve teaching-learning process in the classroom. The main objective of educational psychology is to develop necessary skills and competencies in the prospective teachers, to enable them to understand, control and predict the behaviour of the learner in educative process. In order to study behaviour educational psychology employs certain tools or techniques to collect data and information and these techniques are called methods. The Oxford Dictionary defines methods as the way of doing something, system of procedure, conscious regularity etc.

Due to the development of educational psychology as a science, methods have undergone significant changes. In the early stages, Psychologists depended upon introspection and anecdotal records only. Now many scientific ways are used to study the behaviour. But it should not suggest that introspection and anecdotal have no place as tools. They have their role, but now more emphasisis given to principles of observation and inquiry. This has a scientific base.

Here are some methods of educational psychology and each method has its own merits and demerits. Which method will be used depends on the situation and problem of investigation.

1. Introspection
2. Observation
3. Differential and Survey method
4. Case History
5. Psycho-analysis
6. Experimental method

This lesson is devoted only to methods, namely (a) Case History (b) Experimental Method (c) Observation Method

1.2.3 Case Study

Case history method has also been called the clinical method. It is used by clinical psychologists, psychiatrists and teachers in child guidance, clinics, mental hygiene centres and also in ordinary school situations. Whenever some child or person has shown some, mental or behavioural disturbances and become a problem for himself or for others, there arises a situation for case history method.

Generally, we imply this method in the case for problem children. "Ramesh used to do excellent work in the class, now he has been found disinterested in the studies. He quarrels with others and disobeys his teachers. Geeta used to take normal interest in the clothes and work but now she tries to put on more makeup and tries to dress up in gaudy, attractive outfits, "These are the examples of two problem children and in these cases case history is the method to study the behaviour."

In such cases a complete record of the child since its birth is build up. The psychologists try to find out the reason for such changes in the behaviour and suggest remedies for a problem. Generally, we use this method when we want to understand the uses and sources of person's fear, anxiety, worries, obsessions, maladjustments and conditions of disturbance in the areas of learning, backwardness in the school etc. The main objective of this method is to study individual case to detect and diagnose his specific problem and to suggest therapeutic measure to rehabilitate him in the environment. The objective of clinical method is to develop deep into the unconscious of the individual to pinpoint the causes of maladjustment.

Case history means systematic, complete and intensive study of the pupil, his family background, his physical, social, emotional and intellectual environment. In the words of Ruth Strong "the case study or history is a syntheses and interpretation of information about a person and his relationships to his environment collected by means of many techniques. “The material for the case history is collected through the following techniques: tools or methods.

1. Psychological tests i.e. intelligence and aptitude tests, achievement tests and interest inventories.
2. Self-report.
3. Report by parents, teachers and friends.
4. Home visits.
5. Check lists.
6. Direct observation.
7. Cumulative record.
8. Anecdotal record.

In this method a record of the total events in the life span of a person is made. Although study of his family, birth development stages, achievements, failures, successes, environments, educational and other pursuits etc. is undertaken. Clinicians generally use two different procedures to develop case histories of an individual.

1.2.3.1 Clinical Case History

This method is followed in the case of learning difficulties, emotional disturbances, delinquencies etc. of the child. The psychologists or teachers collect detailed information of the problem. The complete information of past history and the present condition is collected. The developmental history is constructed after the events from the memories of the case, his family and friends. The preparation of this history record is the joint work of the parents, teachers,

friends, social workers, psychologist and medical men.

1. Preliminary Information: Name, sex, education of parents, siblings, income, ordinal position, social status etc.
2. Past History: Birth conditions, mother and father's health, any incidence during mother's pregnancy or birth of a child, development of child : physical, mental, emotional, social illness inquiry, brain inquiry, diseases, relationship of child with other achievements and failures etc.
3. Present Conditions: Physical and Medical examination results, diseases allergies etc., health, weight.
4. Mental Status: IQ, attitudes, interests, likes and dislikes aptitude etc.
5. Personality: Anxiety, fear, temperament.
6. Achievements: Educational & Co-curricular activities.

Allport suggests that successful case history seems naturally to fall into three sections.

	Present	*Past*	*Future*
1.	Problem	History & Problem	Educational plans
2.	Educational status	Educational History	Predictions of ultimate level
3.	Intellectual status	Intellectual development	Intellectual predictions
4.	Health & Physical Status	Health & Physical health	Predictions of future
5.	Maturity level	Development History	
6.	Personality	Personality development	
7.	Social relations	Social History	Vocational Plans
8.	Family relationship	Family history	

1.2.3.2 Developmental Case History

This is also called genetic method. Two approaches are followed.

(a) Longitudinal Approach: In this approach a child is studied from birth to maturity up to a specific age for all the 24 hours a day and then inferences are worked out about his behaviour. But it is difficult for the investigator to bewith individual for such a long time.

(b) Cross-sectional Approach: Here a sample is selected from different age levels to study specific aspects of development e.g. We study reading interests, play activities and emotional and social characteristics of children of different ages. Both the approaches have their uses and limitations.

1.2.3.3 Merits of Case History Method

1. It helps to locate the causes of maladjustment and suggest suitable treatment.
2. It is one of the best methods for dealing with particular persons or situations.

3. It is useful in studying reading disability case chronic delinquency cases and emotionally disturbed cases.
4. It provides insights into the dynamics of behaviour. It provides ideas for experimental studies.

1.2.3.4 Demerits of Case History Method

1. It is a subjective technique. A person who progress case history may project his own problem, plan ideas, attitudes, values and the likes into report.
2. It is a very time consuming technique.
3. Sometimes it is difficult to prepare a true case history especially when parents and teachers do not cooperate and give wrong information.
4. We need, expert and trained person to prepare case history. Experts are generally not available.
5. It is very difficult to interpret the results especially when there is inadequate data.

Briefly we can summarize that case history method helps to understand the root cause of maladjustment. It is a very valuable method in suggesting remedial measures for the rehabilitation of maladjusted cases. A successful case history falls into three sections i.e. present, past, future.

Case history is a systematic, complete & intensive study of the pupil, his family background, his physical, social, emotional & intellectual development. In this method a record of life events in a life span of the person is prepared & it is prepared by using two different procedures: clinical case history and developmental case history.

Check your progress:

Q. Enlist the steps used in the preparation of history record in case history.

1.2.4 Experimental Method

An experiment is a series of observations carried out under controlled conditions for the purposes of testing hypothesis.

Experimental method is the most important of all the methods. It has brought psychology to the level of an exact science. According to Sir John Stuart Mill, the experimental iniquity is based on the law of single variable.

Explanation: If two situations are alike in every respect and one element is added to one but not to other, any difference that develops is the effect of the added on the other side. If two situations are alike in every respect and one element is removed from one, but not from the other, any difference that develops may be attributed to the subtracted elements. The law of single variable provided basis for very early laboratory experimentation.

1.2.4.1 Attributes of the Experimental Method

1. Experimental method answers a question, "If this is done under carefully controlled conditions, what will happen?"

In the experiment the psychologist manipulates certain stimuli (s) and observes how the condition of the behaviour of the subject is affected for the changed.

The manipulation of the stimuli is systematic. Other factors which might influence the outcome are removed or controlled so that observed facts could be related to the manipulated factors.

2. Experimentation provides a method of hypothesis testing, in which:
   (i) The experimenter poses a problem.
   (ii) He denies it.
   (iii) He states it clearly.
   (iv) He proposes a tentative answer called hypotheses.
   (v) He tests the hypothesis an experiment.
   (vi) He confirms or rejects the hypothesis in the light of controlled observation.
3. Experimentation provides a situation where manipulated elements and observed facts can be controlled.
4. Experimental method helps in the discovery and development of organized body knowledge.

In short (i) problem (ii) hypothesis (iii) designation of dependent and independent variables (iv) controlling of certain variables. (v) relating outcome with manipulated variables and (vi) discovering a new body of knowledge, a principle or law are the attributes of the experimental method.

1.2.4.2 Steps in an Experiment

1. Raising, defining and stating a problem: The first in a experiment is to raise a problem. The problem should not be vague, hazy or dubious. It should be clear and unambiguous. Its limits and scope should be defined. The problem should be stated in a simple, straight and clear language through a statement or question.

Example: What is the effect of reward on retention?

2. Referring to past researches: The classification of problem and formulation of time of action call for a careful study of past research in the relevant area. This helps in deciding upon the methods of experimentation, choice of the sample, selection of variable, statistical procedures etc. Besides it makes the experimenter confident and moves on with surety and strength. It also answers him that he is not experimenting in the field already explored.

3. Formulation of Hypothesis: The next step in the experimental method is the formulation of hypothesis. A hypothesis is a guess, hunch, tentative solution of the problem or answer to the question raised under the first step. If x =? then Y will be? type relationship is proposed. Hypothesis is called the eye of the experimenter. It gives him direction it shows him path, he does not beat about the bush, he does not waste time and energy, he becomes sensitive. He knows what to observe and what not to observe. Hypothesis does not hand in air. It is based on related literature.

Example: If the problem is: How reward affects retention, the hypothesis may be as under:

(i) Reward has positive effect on retention.

(ii) Reward has no effect on retention.

(iii) Reward negatively affects retention.

4. Identification of Independent and dependent variables: Next to formulation of a hypothesis comes the identification of dependent and independent variables in the experiment. In the above example retention is a dependent variable. It will be fixed in the experiment; reward will be an independent variable since we want to see its effects on retention.

5. Controlling the Situation: This is very crucial step, the heart and soul of the experiment. For example, retention may be affected by studyinghabits of the students, their intelligence, their physical health, physical facilities, tutor's role, parent's interests and support. All such factors can be controlled as best as possible so that we are able to find the influence of read onretention. It is really difficult to control all such factors or variable. But if we are very careful and cautious we can reduce if not totally eliminate their effect on retention.

6. Selection of the subject: The hypothesis determines the nature of subjects to be used in the investigation e.g. children, women and workers. The subject should be matched and made uniform in all the respects in other variables except the independent variable.

Instructions to the Subject:

In most of the psychological experiments the subjects are required to perform an act. In all cases, the subject must be given clear and simple instructions and experimenter should made assure that subject has understood these instructions.

In the above example the following instructions may be given.

(i) If you are able to retain, you will be given a reward.

(ii) You should be very careful.

7. Selection and description of tools and apparatus: In every experiment some standardized, reliable and valid tools have to be used. For example stop watch, dynamometer ago graphs, tach is to scope, word lists are used in an experiment. The experimenter has to select the tools carefully and suitable for the experiment in question. The selected tools are clearly described. It has to be ensured that only reliable and standard tools should be used in an experiment.

8. Selection of Suitable design of the experiment : The next important step in an experiment is the selection of the design where variables are to be controlled. The design may be single group design, a double or parallel group design or a rotation design and factional design etc. The design has to be selected as per the requirements of the experiment.

9. Recording and analysis of observation, data and drawing inference: When the experiment goes on, the experiments takes the readings carefully and objectively. In an experiment generally there is one control group and one experimental group. The two groups are equal in every manner. Supposing we are trying to answer a question-what is the effect of the reward on retention? Two equal groups of students are taken. Both are given same unit of work like memorizing a poem. The control group is asked to remember as poem, say in a period of 15 minutes. The experimental group is also told todo the same but this group is promised a reward. The achievements of those two groups are then compared and an inference is drawn. The experiment is so designed that several readings are taken. For analyzing the data statistical formulas are also used i.e. the mean, median, S.D.'s correlation or 't' ratios are calculated.

10. Verification of Hypothesis:

After conducting the experiment and after analyzing the data, the hypothesis is verified. If the achievement of the experimental group is found to be higher than retention of the control group, we can conclude that reward has a positive effect on retention. The hypothesis given above is accepted and has positive effect on retention.

11. Generalization or building a theory: In an experiment when some hypothesis has been found to be correct, we repeat the experiment several times and then arrive at a generalization, which becomes a law or theory. It is an item of new knowledge or discovery.

1.2.4.3 Advantages of Experimental Method

Experimental method has following advantages:

(i) It is the most systematic procedure of solving problems.

(ii) Cause-effect relationship can be established only through this method.

(iii) The findings of an experiment can be verified by other investigator by conducting the experiment under identical conditions.

1.2.4.4 Limitations of Experimental Method

The experimental method suffers from some weaknesses also. Some limitations are as follows :

(i) Artificial situation of Laboratory : In psychology artificial situations are created for experimentation. Suppose we want to study the state of mind ofa child when he is refused to be allowed to play with a certain toy. Now sometimes such a situation may arise naturally. But sometimes we may have to wait for long time for such a situation. We have, therefore, to make an artificial situation and such a situation has its own disadvantages. If you want to study the manner how a man walks, we have to see him walk in a natural setting. If we ask a man to walk in an experiment, his gait becomes artificial.

(ii) Difficulty in controlling all extraneous factors: Suppose we want to study the effect of reward on memorization, we will have to control all other factors except reward which affect memorization, for example, subject's interest, his state of mind, his mood, his whims etc. All such factors are not easy to be

controlled. This is a real difficulty which an experimenter has to face. Sometimes experiments are to be conducted on children, abnormal people and illiterate people. It is really difficult to control their emotions, aptitudes and attitudes etc.

(iii) Difficulty to get the cooperation of the subject: Experiments are made on men, women and children, their cooperation is required and this is notalways for the coming quite often the subject refuses to cooperate. Sometimes he does not sincerely and correctly respond and he deceives and misbehaves.
Such difficulties are to be encountered in bad environments such studies cannot therefore be made.

(iv) Limited field : Experiments cannot be conducted in all fields. For example if we want to study the effect of poor environment on the developmentof a child born in a rich family, no such child will be available. No parents will allow their children to be reared in poor environments, such studies cannot therefore be made.

(v) Subjective observations and interpretation : The experimenterhas to be highly objective and impartial but sometimes he misses correct observations due to his own whims, notions and interests, prejudice in his recording and interpretation. This fails the experiment and spoils the results.

(vi) Universal application of results not possible: Usually experiments are conducted on small samples. The results thus obtained cannot be universally applied. This is a great limitation of the experimental method.

Experimental method, in particular, is concerned with demonstrating specific antecedents of various responses. In this method cause and effect relationship is studied scientifically. Human behaviour is studied under controlled conditions. In experimental method an attempt is made to understand the nature and characteristic of a certain mental process or behaviour. So such topics as interests, attention, memory, reasoning, intelligence, personality, aptitude, thinking forgetting, learning, imagination, sensation and perception are studies under this method.

1.2.5 OBSERVATION

One of the important and basic methods for collecting data in almost all types of research studies is observation. Observation means "looking outside oneself". Observation also means, "to pin point minutely". Through observation method we can collect elements or facts by observing overt behaviour of the organism. It helps to locate underlying problems and to study developmental trends of different types.

The overt behaviour is the manifestation of covert [internal] condition within the organism. The study of overt behaviour gives indirectly the clue about the mental conditions of the organism. The systematic observation as a method hasa great contribution to the fields of developmental psychology and child psychology.

1.2.5.1 Types of Observation:

1. Natural (uncontrolled) and Artificial [controlled]
2. Direct and Indirect
3. Scheduled and Unscheduled
4. Participatory and Non-Participatory

1. Natural/Uncontrolled and Artificial/controlled observation

Natural Observation: In natural observation we observe the specific behavioural characteristics of children or adults in natural settings. Subjects do not become conscious of the fact that someone is observing their behaviour.The teacher can observe the behaviour of their students in the playground or in any other social situation when students may not become conscious of his presence.

Artificial Observation: when influence of somebody is felt then behaviour does not remain natural then it is called an artificial observation. Certain modifications made in natural condition are artificial.

2. Direct and Indirect Observation

Direct Observations: when we directly observe things or behaviour that is called as direct observation. It is only meant to observe the overt behaviour of the individual. Covert behaviour cannot be observed by direct method. Indirect Observation: when the behaviour is observed indirectly. Subject is not aware of the process of observation. He does not know that someone is observing his behaviour.

3. Scheduled and Unscheduled Observation

Scheduled Observation-It is timely observation. System of events given as per time.

Unscheduled Observation-This type of observation includes surprise visits by the observer. These are not planned.

4. Participatory and Non-participatory

Participatory observation-In this observation the observer actually becomes an active participant in children's play or activities. He establishes rapport with the group of children so that they may not become conscious of his presence and may not hide their actual behaviour.

Non-Participatory Observation- It is similar to natural observation of behavior in natural condition when observer does not participate actively.

These observations are not exclusive. These are overlapping. Observation studies are particularly very important and yield significant results on developmental characteristics of children.

1.2.5.2 Steps in Observation Method: In order to observe the behaviours following steps should be kept in mind.

1. Observing the Behaviour: The first step in observation method is directly observing the behaviour. For Example-We want to observe the social behaviour of children, we can observe it when they assemble or play.
2. Recording the Observation: The observation should be carefully and immediately noted and recorded. Minimum time should be allowed to pass between happening and recording.
3. Analyzing the Observation: After recording observation is analyzed.

4. Interpreting and Generalizing the Observation: Last step is interpreting and generalizing the observation.

1.2.5.3 Merits of Observation Method:

1. Objective and Scientific: It is more objective and scientific than introspection.
2. Reliable and Valid: Its findings are more objective and more valid than introspection.
3. Economical: It is economical, as it needs no laboratory and costly apparatus.
4. Flexible: It is flexible and can be used in gathering data in many situations.
5. Behaviour of Individual and Group: This method can be applied to observe the behaviour of an individual as well as a group.
6. Useful in Educational Situations: With the help of this method supervision of class-room teaching can be made, behaviour of problem-children, backward-children, gifted children, delinquent children can be studied and outcome of education can be known.

1.2.5.5 Demerits of Observation method:

1. Trained Observer: It is very difficult to get trained observers. Untrained Observers may gather superfluous and irrelevant data.
2. Subjective: Subjectivity of interpretation is another weakness of observation. Observer may become lenient at one time and may be strict at another time.
3. Artificiality: Sometimes artificiality comes in the behaviour of the student when they come to know that observer is observing their behaviour.
4. Long Wait: Sometimes we have to wait for long time for the recurrence of events. For example-for observing the behaviour of an angry child we have to wait when he will become angry next time.
5. Difficulty in Studying Unconscious mind: Unconscious mindcannot be probed with the help of observation.
6. Difficulty in Studying Internal Behaviour: With the help of observation we can observe the external behaviour only. Internal behaviour of the individual cannot be studied.
7. Error in Sampling: There may be error in respect of the event to be observed. For example, we have to observe classroom discipline of a class. The students are restive before recess and in the last period. if we exclusively depend on observation of their behaviour at these stages then error with respect to timing of behaviour may occur in. Therefore, we must decide in advance as to what to observe, when to observe, and how to observe.

Though method of observation has many limitations yet it is considerably used in child psychology and educational psychology. In the field of education this method should be supplemented by the use of experimental procedure.

1.2.6 Summary

Methods of educational psychology are the tools and techniques to study the behaviour of the individuals. There are methods to study the behaviour.

Case history method is used whenever an individual has some problem and to study the behaviour, the investigator tries to help and rehabilitate the individual. Here the investigator looks deep into the cause of the problem and suggests remedies. Material for case history is collected through psychological tests, self report, reports by parent, teachers, friends, observation, interviews. There are two ways to prepare the case histories : (a) Development and (b) Cross-Sectional.

Experimental method is the scientific method and is carried out in the laboratory. In this method the effect of one variable which is called independent variable, is seen on the other variables. Thus the investigation controls some variables and manipulates one and studies its effect. There are responses, organism variables in this method. This method has advantages over the other methods because here we can make the subject show a specific behaviour under controlled conditions. Differential method is used to study the individual differences. A survey of the behaviour of the individuals is undertaken. It has three categories, namely field survey; developmental survey and differential survey. This method is best to study the public opinion and causes of maladjustment etc.

1.2.7 Key Concepts:

1. Mental Hygiene - Science of mental health
2. Case history - A systematic complete and intensive study of the pupil, his family background, his physical, social, emotional and intellectual environment.

1.2.8 Self Check Exercise

True/False

1. Experimental method is a scientific method.
2. Observation Method is used to observe the behaviour of an individual as well as a group.
3. A successful case history falls into two sections; present and future.
4. Case history is very less time consuming technique.
5. Hypothesis is a solution for a problem.
6. In every experiment some standarized, reliable, and valid tools have to be used.

Answers:

1. True
2. True
3. False

4. False
5. False
6. True

1.2.9 Suggested Questions

1. What is a method ? Discuss a method to study the problem child.
2. How is an experimental method a scientific method? Discuss its various designs.
3. What steps would you follow in an experimental method ?

1.2.10 Suggested Readings & Web Sources

1. Chauhan S.S. : Advanced Educational Psychology
2. Dash M. : Educational Psychology
3. Kakkar, S.R. : Advanced Educational Psychology, Oxford & IBH, New Delhi.

Web Sources :

(i) www.springerlink.com.

(ii) wiki.answers.com

M.A. (EDUCATION) PART-I(SEMESTER-I) PAPER-II

PSYCHOLOGICAL FOUNDATIONS OF EDUCATION

LESSON NO. 1.3 WRITER : DR. SNEH GUPTA

Human Development: Piaget's and Bruner's Theories ofCognitive development;

Structure

1.3.1 Objectives

After going through this lesson you will be able to understand:

(1) Piaget's theory of Cognitive Development
(2) Bruner's theory of Cognitive Development
(3) Discuss differences and similarities between Piaget's theory and Bruner's theory of Cognitive Development

1.3.2 Introduction

The development of the child is the most dramatic process that goes under the eye of a teacher. Development has different stages and it is of various types. It means a progressive series of changes of an orderly type towards the goal of maturity. This lesson contains the following sub-topics :

1. Piaget's theory of cognitive development
2. Bruner's theory of cognitive development

1.3.3 Concept of Human Development:

We know that human life starts from a single fertilized cell. This cell is under constant interaction with the environment in the mother's womb and after birth with the outside world. This interaction leads to the growth and development of the child. insight into the nature of growth and development of the human being is fundamental to an understanding of teaching and learning.

Growth refers only to increase in size of part and the consequent changes in size and shape of the body as a whole. It is the result of increase in number of size of the cells.

Development indicates changes in character and connection of cells. A child may be quite big for his age, but poorly developed. Development refers to co-ordination and integration of the cells. The increased mental power is the result, not changes in individual cells, but of changes in those connections between cells which make possible the use of many parts of the brain in the accomplishment of a single purpose.

Education aims at all round harmonious development of an individual. The development of a nation depends upon the development of its children and there is no doubt that the childhood is the foundation upon which the development of an individual depends. Development of proper attitudes, habitsand patterns of behaviour formed during the early years determines to a great extent how successfully an individual will adjust himself as he grows older. It is, therefore, imperative that the teachers who are charged with the

responsibility of the development of the child should be acquainted with the meaning and characteristics of development.

Every child is a unique one. There are individual differences of children which have a great bearing on their development. Needs of each individual child must be created for his optimum development.

The United Nations International Children Fund (UNICEF), an important organization of the United Nations, measures the development of a nation on the yardstick of the development of its children. It is of interest to note that this organization gives a secondary importance to per capita income.

Under the auspices of UNICEF, an Italian Committee organized a workshop at Rome in 1990 for promoting the movement of child growth and development. The workshop prepared the development Tree, which represents the rights of the children which should be taken into consideration in the development and growth of children. The roots of the tree represent the basic needs of children, (health, food, water etc.), the trunk represents the right to social and economic development, the branches represent the complementary rights (the right to information, to play, to live in peace, etc.)

1.3.3.1 Definitions of Development:

In the words of E.B. Hurlock (1959), the term "development means aprogressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience."

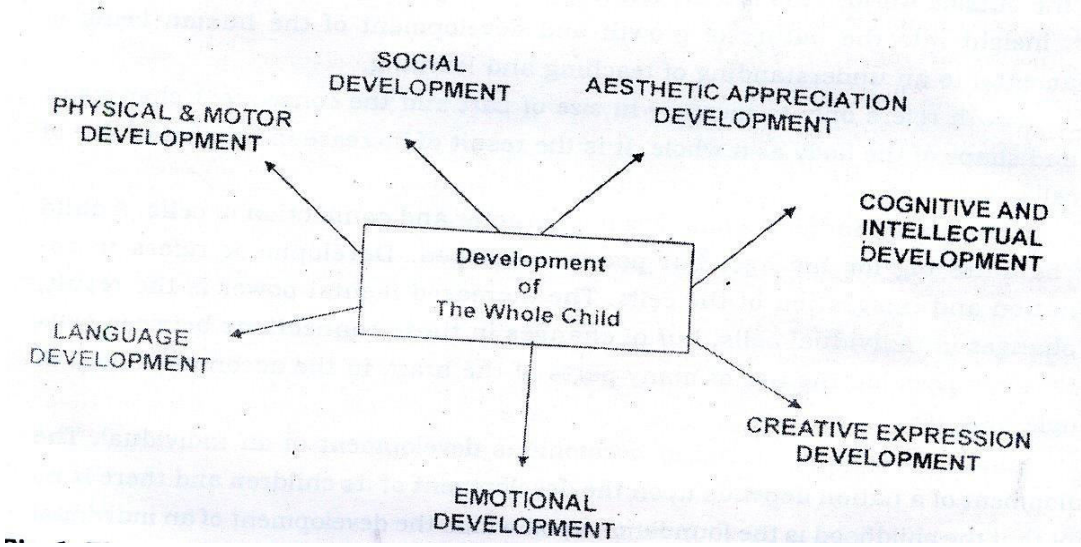


Fig. 1. The figure illustrates the various aspects of the development of the whole child

According to J.E. Anderson (1950), "Development does not consist merely of adding inches to one's height or improving one's ability. Instead development is a complex process of integration of many structures and functions."

Robert M. Liebert, R.W. Poulus and G.S. Marmor (1979) state, "Development refers to a process of change in growth and capability over time, as function of both maturation and interaction with the environment." Thus development includes (I) Growth (II) Capability (III) Maturation (IV) Interaction with the environment.

Harold Stevenson (1968), a prominent development psychologist has put the concept of development as, "Development psychology is concerned with the study of changes in behaviour throughout the life span."

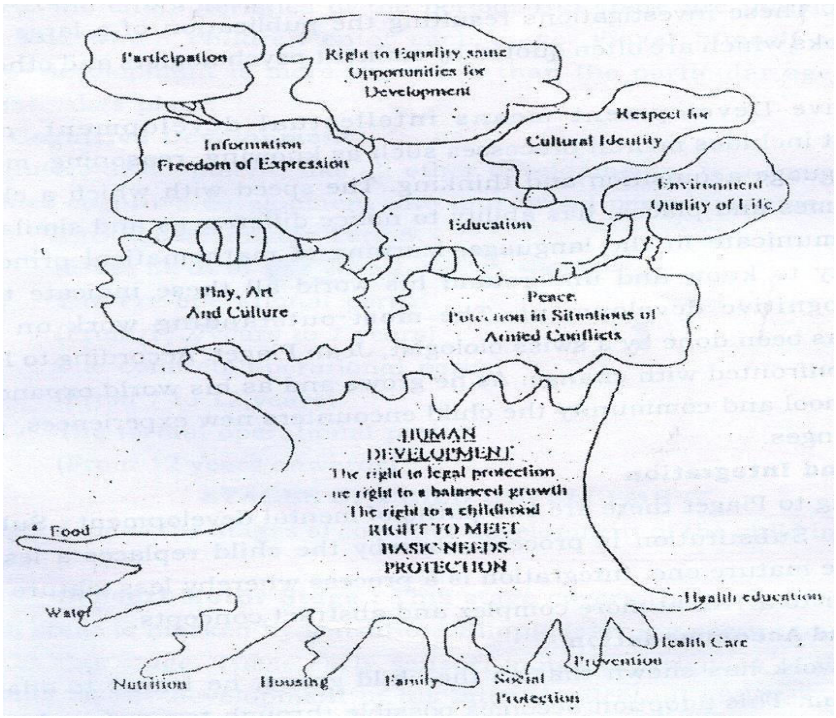


Fig. 2. Human Development: Development Tree

To sum up development is a series of orderly progression of change towards maturity. Orderly refers to the arrangement of the changes. That is 'each change at each stage is dependent upon what preceded it and what affects will come later. Development does not take place haphazardly. The term

progressive signifies that changes are leading forward and that the direction is toward adaptation which is conducive to survival of the individual.

1.3.4 JEAN PIAGET'S THEORY OF COGNITIVE DEVELOPMENT (Mental or Intellectual Development)

1.3.4.1 Brief Life Sketch of Jean Piaget (1896-1980) Piaget is regarded as one of the pioneers in psychological investigation of children although he neither undertook formal study nor passed any examination in psychology. He was a biologist by training. At an early age of 22, he obtainedhis Doctorate Degree in Zoology. By observing, dissecting and experimenting with children, he developed his educational theory regarding cognitive development or learning by children.

Piaget began his study of child development with the observation of his own three children. From this beginning, his investigations were gradually extended to other children. These investigations resulting the publication of a large number of papers and books which are often quoted by eminent psychologists and other thinkers on education.

Cognitive Development means intellectual development, or mental development. It includes mental processes such as knowing, reasoning, memorizing, imagining, language acquisition and thinking. The speed with which a child learns new words, names and places, has ability to notice differences and similarities, the ability to communicate in the language, learning of mathematical principles, the child's curiosity to know and understand his worldall these indicate the child's progress in cognitive development. The most outstanding work on cognitive development has been done by a Swiss biologist, Jean Piaget. According to Piaget, the child is daily confronted with change. Ashe grows and as his world expands beyond the home to school and community the child encounters new experiences, new ideas and new challenges.

1.3.4.2 Substitution and Integration

According to Piaget there are two paths of mental development: Substitution and Integration. Substitution is process whereby the child replaces a less mature idea with a more mature one. Integration is a process whereby less mature ideas are brought together to arrive at more complex and abstract concepts.

1.3.4.3 Assimilation and Accommodation

Piaget's work has shown that as the child grows, he learns to adapt to the world around him. This adoption becomes possible through two ways: Assimilation and Accommodation. When placed in a new or familiar situation the child tries to adapt by behaving in his established pattern. If the behaviour is found successful, the child does not change his behaviour. This is what Piaget calls assimilation. However, if the child's established behaviour pattern is not adequate or appropriate, he must change his behaviour in the new situation. This is what Piaget calls accommodation. In other words accommodation means changing an existing behaviour pattern that does not work in the next situation.

Cognitive development proceed through substitution and integration, assimilation and accommodation.

According to Piaget, cognitive development proceeds along with physical development or maturation. There are ages and stages of a child's cognitive development. These stages are not independent and unrelated to one another. Cognitive development is both continuous and discontinuous. It is continuous in the sense that each subsequent development depends on its previous development. It is discontinuous in the sense that qualitative changes take place from stage to stage. The age ranges for each period are the average ages atwhich children generally demonstrate the characteristics of the period. But there are individual differences in the ages at which children enter each stage. Piaget himself admits that the sequence of development is more important than the particular age at which such development takes place.

1.3.4.4 Stages of Cognitive Development of Child

Cognitive development, like all other developments, is a continuous process. Piaget divides cognitive development into four broad periods or stages. These are :

1. The Sensori-motor Period
   (From birth to 2 years)
2. The Pre-operational period
   (From 2 years to 7 years)
3. The concrete operational period
   (From 7 to 12 years)
4. The formal operational period
   (From 12 years onwards)

1. Sensory-Motor Stage : This stage covers the period from birth to two years. This stage is marked by sensation. Simple learning occurs but the child does not think at this stage. These early sensory-motor experiences of the child have a great bearing on the development of his later intellectual abilities. In the world of the child as object exists when it is physically present. He then gains some consciousness about the stability of the object. He starts comprehending casually. It is sometimes said that the child's mental development at this stageis equal to that of an intelligent animal. By the end of the two years, the child develops the concept which is characterized by relationship among objects and between objects and his own body.

2. Preconception Stage: This stage is roughly between two years and six years. The child develops ways of representing events and objects through symbols, including verbal symbols of language. He can now think about things that are not immediately present.

The child now becomes ego-centric i.e. primarily concerned himself.

3. Intuitive Stage : This covers the age four to eight years. The reason of the child is not logical and is based on institution rather than systematic logic. The intuitive thought is primarily concerned with static conditions but the childis able to use concept as stable generalization of his past and present experiences. He, however, cannot adequately link a whole set of successive conditions into an integrated totality.

4. Concrete Operations Stage : The stage of development is usually between the age of six and eleven or 12 years. At this stage a child is concerned with the integration and stability of his cognitive system. The child develops logical operations from simple associations. He learns to add, subtract, multiply and divide. He is in a position to classify, concrete objects. These operations are called concrete because they relate directly to objects. These operations do not involve abstract thinking. Piaget has coined a new term grouping to describe a set of operations, Piaget has given a long list of operations which make it possible to handle numbers in various relations to each other, the arrangement of objects into classes and sub classes and the ordering of objects according to one or more attributes.

5. Formal Operations Stage : This stage is roughly from 12 years to adolescence. At this stage the thought process of the child becomes quite systematic and reasonably well integrated. The child is in a position to free himself from the concrete operations related directly to objects and to groups. He is capable to reasoning with propositions removed form the concrete. He develops experimental spirit. Now he shows problems more systematically and the bases of action are not trial and error. The youngsters at this stage are able to organize information, give reasons scientifically, build hypotheses based on understanding to causality and test their hypothesis.

1.3.4.5 Piaget's Views on Various Aspects of Learning

1. Meaning of Learning : Learning includes the wide range of activities. Rigid distinctions like classroom for instructions, laboratory for practical, recess for amusement, mathematics for developing computational ability, athletics for strengthening the body muscles etc., are unnecessary. Piaget's approach helpsto tie together what have been treated as separate subjects.

2. Role of Learner's Actions: Action stresses the role of active exploration. A child is active when he stares at objects. A child is active when he stares at an organism. A child is active when he studies his body parts. A child is active when he lifts something. A child is active when he carries things.A child is active when he arranges things. Children are usually active for most of their time. There is no doubt that some of these activities may be rather aimless or unnecessary. However, most of these activities are purposeful.

3. Role of Practice: An important part of Piagetian model is repetition of an act by a child. The role of practice varies with the development. Concepts arethe products of a long history of action. A child may take three or more days to complete a puzzle. Each day he appears to go through the same sequence. Child's actions upon the environment are repeated again and again with slight modifications each time. Piaget depicts the child as somewhat slower and methodical and systematic in acquisition of new ideas.

4. Motivation: According to Piaget, a learner desires to reduce his internal conflicts by keeping his thoughts harmonious and in equilibrium. It is only through playing, imitating, exploring and questioning that a child gradually comes to distinguish the achievable from non-achievable, and logical from the illogical. To Piaget, the progress towards this end is inherent, a

property of cognitive style as are eating, drinking and breathing is physiological field.

5. Memory : Memory is a symbolic representation of how the child has schematized what he saw. Experiments conducted by Piaget reveal that after six months, 61 percent of the children from 4-8 years of age regressed in their memory ability if tested by recall or evocation.

A reconstruction test involving the child with some material showed regression in 4-5 years old but 48 percent showed progression among 6-7 years oldchildren. Piaget holds that recognition is perceptual and reconstruction internalized imitation. Each experiment reveals that the pattern of accuracy, improvement and regression (Gradual loss of memory) is determined by initial conceptual understanding and is altered by new understanding.

6. Interests : According to Piaget, the interest of the child at any given movement depends upon the system of ideas he has acquired plus his affective perception. A child tends to fulfil his interests in the directions of greater equilibrium. Equilibrium according to Piaget is development and the ability to think in a logical and natural manner.

1.3.4.6 General Educational Implications of Piaget's Cognitive Theory of Development

1. It provides a broad development perspective to the educators for building a curriculum for the children.
2. The description of developmental stages and qualitative aspects of intellectual growth is very useful in providing suitable educational practices.
3. The cognitive theory states that the child is to be actively involved in the teaching learning process for his intellectual growth.
4. Piaget-based curriculum requires that children should not skip any stage.
5. The pre-school child is at the pre-operational level. The educational programme at this stage should provide concrete operations.
6. Educational programmes should enable the child to integrate the information.
7. A child should be helped to develop internal consistency of the system.
8. Most of the activities of the Piaget type require simple equipment and material.
9. Drilling in skills is to be avoided.
10. Teaching learning situation should be geared to a point where the child is neither too familiar nor too unfamiliar with the objects and ideas.
11. Variety of cognitive activities like story telling, rhymes, singing, etc. are included in the programme in a systematic manner. There is a deliberate attention of developing cognitive growth.
12. A child's development is retarded if he is not allowed a fairly wide sensory and motor experience in his early years.

13. Real events and concrete objects play an important role in learning.
14. In science and mathematics, learning from physical environment is more important than what is learnt from people, books or television.
15. A teacher should arouse curiosity of the child through planned activities.
16. Children like to find out by themselves by their own spontaneous activity.
17. Children learn speedily if we provide concrete material to them.

In brief, Piaget stresses the importance of maturation, physical experience social transmission and equilibration in cognitive development. Piaget believes that every child has to initiate his own learning experiences spontaneously and not be forced to advance. He distinguishes three types of knowledge, namely physical, social and logical and each one is acquired by interaction with environment.

1.3.4.7 Criticism of Piaget's Theory of Development

Several psychologists do not agree with Piaget's theory of cognitive development. According to R.M. Gagne (1968), stages described by Piaget are not necessarily the inevitable result of an inborn time-table. Instead they are a consequence ofchildren having learned sets of rules that are progressively more complex and these rules are taught by their physical and social environment. Gagne thinks that Piaget was indifferent to the role of learning in developmental changes.

Some psychologists do not agree with the view of Piaget that infants are born with some elementary mental structures that are starting points for their attempts to deal with their environment.

Piaget's views are not new to educational thought. What is new is that they have been stated in the context of the classroom situations. Instruction in the classroom would serve the function of setting into motion the processes of assimilation and accommodation for a particular area of exploration.

Short in text Questions

(1) Enlist the stages of Cognitive Development given by Piaget
(2) Define assimilation and accommodation.

1.3.5 Bruner's Theory Cognitive Development

Bruner remains a potent figure in developmental psychology, cognitive studies, and education. Bruner's interests range over many disciplines. Whenever he champions a new idea it is sure to generate excitement and enthusiasm. Yet, as productive and innovative as Bruner is, he has had much less influence than either Piaget and Skinner. His varied interests are perhaps the reason. Bruner, unlike many of his colleagues, has investigated rate behaviour, German propaganda, perception, cognitive styles, sensory deprivation, learning, child development, innate behaviour and education.

Bruner's valuable insights deserve our consideration because his views of the child as an information processor, thinker and creator emphasizes both rationality and dignity.

1.3.5.1 The Pattern of Cognitive Growth

One of the Bruner's major assumptions is that teaching is an effort to assist growth. He believes that intellectual growth has several clear characteristics.

1. Freedom from Environmental Control : Increasing independence of response form an immediate stimulus distinguishes mental growth. We can predict much of young children's behaviour from knowing the stimuli around them. But as children grow mentally they are able to maintain a desired response although conditions (stimuli) change. A good example is the proficiency to give the right response in a multiple-choice examination the youngster maintains the response in spite of assorted stimuli. Children also can change their responses to meet unchanging environmental demands. For example, if an answer is incorrect, and children know it is incorrect, they change their answer (response) to the coming questions (stimulus).

2. A Model of the World: Intellectual growth depends upon the child's mental construction of model of the world. The child actively constructs a mental picture of the world. Building this mental image of the world permits a child to use the information to compare judge, and predict. It is similar toPiaget's explanation of a child's ability to go from the real to the possible.

3. Symbolism : Growing skill is symbolic activity features intellectual development. Youngsters can say what they have done or will do ; they begin to use proposition or statements and thus reflect a logico-mathematical capacity that did not previously exist.

4. Interactions : Intellectual development depends on a close interaction between a teacher and learner. There are many tutors in a child's environment school teachers, fathers, brother's friends, heroes and there is still considerable uncertainty about the details of the different relationships. For example, different individuals possess different personalities and thus do things differently. Is the relationship between a permissive teacher and her pupils radically different from the relationship between a firm teacher and her pupils ? What is the ideal learning environment for these two examples? Are they identical? More data are needed before confident decisions are possible.

5. Language : Language facilitates teaching and learning, but a child gradually uses it not only for communication but also to bring order to the environment. For example, while the young child uses language to inform others needs or to identify objects, the older child uses language to represent things or events not present: "Tomorrow I must bring my notebook home studyfor the week end."

6. Competence: Finally, intellectual development is marked by increasing competence in attending to several possibilities. For example, in Piaget's conservation experiments, when youngsters are no longer distracted by the length or width of the glass but realize that the liquid remains intact, they are attending to several things.

1.3.5.2 Modes of Representation

How can these ideas help us in teaching? Bruner believes that the mentalgrowth, characteristics aid a youngster in achieving three levels ofrepresentation; that, is, a child passes through three distinct cognitive phases.

1. Bruner calls the first level “the enactive mode of representation”. The infant knows the world only by acting on it; otherwise the object does not exist. As Bruner notes, there are times in the adult's life when words simply cannot express what is meant. For example, how can you tell someone about the feel of the golf or tennis swing?

2. The second level is “the iconic mode of representation”, Bruner's expression for perceptual organization. Faced with a series of apparently unrelated tasks, discovering a pattern makes the work easier e.g. A young child may draw the picture of a bird or house.

3. The third level is “the symbolic mode of representation” here the child engages in symbolic activities, such as language and mathematics. Bruner states that when children translate experience into language they enter the world of possibilities, enabling them to solve problems and engage in creativethinking.

Youngsters learn according to their mode of representation. For example, Youngsters at the iconic level need concrete objects and activities so that they can absorb them perceptually.

Bruner states that learning a subject involves three almost simultaneous processes.

1. Acquisition of new information, which replaces or expands what the child already knows, is the initial phase. Here the child incorporates environmental stimuli according to the existing mode or representation : by physical action, by forming images, or by abstracting, comparing and judging.

2. Transformation is the second phase. Once youngsters or adults acquire new information then they must manipulate or change it to meet new tasks. Bruner often uses the illustration, “going beyond the information given.” For example, your girl friend passes by the door and says, “Hi, Deepak.” You do notsee her, but immediately think, “There goes Deeply.” You manipulated verbal stimuli to form the idea of your friend.

3. Evaluation is the final phase. Have they successfully manipulated the information ? Was it adequately correct ?

Bruner joins mental growth, modes of representation, and leaning processes to introduce his idea of the spiral curriculum. He states that if teachers respect a child's thinking process and translate material into meaningful units (that is if they match the subject-matter to the child's mode of representation) they can introduce great ideas to children at different times and with increasing abstractness. For example, freedom discussed in the first grade differs from a junior high school discussion of slavery, which differs from a junior high school discussion of the meaning of the constitution hence the spiral curriculum.

In short, Bruner believed that it should be possible to introduce difficult concepts even at the lower level by restructuring to suit the mental maturity of the learner. He identifies three modes of representation, namely Enactive, Iconic and Symbolic, corresponding to the chronological and mental development. In the view of Bruner, teachers should be facilitators and motivators rather than mere presenters of information. They should help children learn how to learn.

1.3.6 Bruner and Piaget (Similarities and Differences)

Bruner and Piaget share many ideas, However, Bruner has stated that he differs from Piaget in emphasizing a culture's influence on intellectual development. Both believe that mental development involves qualitative rather than quantitative changes in cognitive structures. Both believe that mental development occurs in phases.

(A) Similarities

Piaget	Bruner
Sensorimotor	Enactive
Pre-operational	Iconic
Concrete operations	
Formal operations	Symbolic

1. Their interpretation of the levels is almost identical. Both believe that action in infancy is critical for normal intellectual growth.
2. Anglin states that there are also important differences, Piaget's work, highly mathematical and logical, is quite formal, Bruner emphasizes more psychological concepts, for example, cognitive conflict hastens mental development.
3. Bruner believes that his interpretations of language's role in development differs from Piaget's. Bruner states that language facilitates mental competence while Piaget believes that language is an outcome of growing mental competence.
4. Finally Bruner stresses more than Piaget a culture's role. He states that mental development is as much “form the outside in as from the inside out” due to language and man's use of tools.

(B) Differences

How real are these differences ? Probably minimal since both basically agree about mental development.

1. Bruner questions Piaget's interpretation of maturation and experience, but Bruner believes that two of the four agents that aid cognitive development are cultural experience and social transmission.
2. Piaget questions Bruner's interpretation of culture, but Brunerbelieves that material must match the growing child's changing capacities.

Both Piaget and Bruner have much to offer to parents and teachers.

Short in text questions

(1) Discuss in brief the growth pattern given by Bruner.

1.3.7 Summary

Education aims at the all round harmonious development of an individual in different aspects. The development of a nation depends upon the development of its children. Teachers must be familiar with the meaning and characteristics of development.

Jean Piaget's Theory has different stages of cognitive development. He has used four terms – substitution, integration, assimilation and accommodation. It has general implications for the teachers.

Bruner's Theory, he believes that intellectual growth has several clear characteristics. His view of the child as an information processor deserve our consideration.

1.3.8 Key Concept

1. Concept of human development
2. Jean Piaget's theory of Cognitive Development
3. Bruner's theory of Cognitive Development
4. Piaget and Bruners (Similarities and Differences)

1.3.9 Self-check exercise

Match the Followings

I	II
A. According to Jean Piaget the period from 7 to 12 years is known as B. According to Jean Piaget the period from birth to 2 years is known as C. According to Jean Piaget the period from 2 years to 7 years is known as D. According to Jean Piaget the period from 7 years to 12 years onwards is known as E. Piaget believes that language is an outcome of	a) mental competence b) Sensorimotor c) Pre operation d) Concret Operational e) Formal Operational

Answers: A – d , B – b, C – c, D – e, E – a,

1.3.10 Suggested Questions

Q.1. Briefly describe the theory of cognitive development of Piaget.

Q.2. Discuss Bruner's pattern of cognitive growth. How is he similar and different from Piaget ?

1.3.11 Suggested Books and Web Sources

1.	Mathur, S.S.	Educational Psychology
2.	Chauhan, S.S.	Advanced Educational Psychology
3.	Bhatnagar, A.B.	Advanced Educational Psychology
4.	K.P. Pandey	Advanced Educational Psychology
5.	Aggarwal, J.C.	Advanced Educational Psychology
6.	Mangal, S.K.	Advanced Educational Psychology
7.	Crow & Crow	Educational Psychology
8.	Sharma & Nanda	Educational Psychology
9.	B.C. Rai	Educational Psychology

Web Sources:

(i) www.kidsgrowth.com
(ii) yedda.com
(iii) www.ehow.com

LESSON NO. 1.4 AUTHOR : S.K. BAWA

Learning : Concept, Theories of Learning ; Bandura's theory and Gagne's theory of learning and Skinner's theory of Learning

STRUCTURE

1.4.1 OBJECTIVES

After going through this lesson you will be able to:

1. understand the concept and nature of learning.
2. Describe the process of learning.
3. Discuss the factors influencing learning.
4. Understand the applicability of Bandura's social learning theory and Gagne's Hierarchical theory.

1.4.2 INTRODUCTION

Learning is one of the key concepts in Psychology. It is not only a universal phenomenon but also of prime importance for the development especially of human beings. It is something very natural in every organism's life. Learning is a key process responsible for child's growth and development. It is a complex process and understanding of this process is very essential for all of us, but especially for a teacher. This chapter deals with the concept and nature of learning, factors affecting learning and theories of learning.

1.4.3 CONCEPT AND NATURE OF LEARNING

To a layman, learning is to acquire knowledge and skill. But it is more than this. Learning starts from birth and goes on throughout the life. One learns a lot from his daily routine and it adds to his experiences.

Mathur says 'Learning is the process of acquiring the appropriate responses'.

In the words of Ruch 'Learning is a process which brings about changes in the individual's way of responding as a result of contact with the aspect of the environment.'

Bernhardt define 'Learning as the more or less permanent modification of an individual's activity in a given situation, due to practice in attempts to achieve some goal or solve some problem.'

In the opinion of Peel 'Learning is a change in individual following upon change in his environment.'

According to Skinner, "The process of learning implies something more than the acquisition of facts and skills through mechanized procedures such as repetitive practice, instead the learner organizes and evaluates learning materials, endows them with many meanings and interpretations and becomes conscious of working goals.'

To quote Kingsley and Garry, "Learning is a process by which an organism, is satisfying his motivation, adapts or adjusts to a situation in which it must modify its behaviour in order to overcome obstacles or barriers."

According to Morse and Wingo, "Learning can be defined as changing one's potential for seeing, thinking, feeling and through experiences partly perceptual, partly intellectual, party emotional and partly motor'. Looking at learning in this framework learning is:

(i) Acquisition of experience.
(ii) motivated by adjustment to environment.
(iii) all activities which leave permanent effect on the individual.
(iv) establishing new relationship between stimulus and response.
(v) development of method for problem solving.
(vi) not a reflex action.
(vii) for conscious purposes of biological and social judgment.
(viii) for adjustment and maladjustment.
(ix) right or wrong.

(A) Nature of Learning

Learning occupies a very important place in our life. Most of what we do or donot do is influenced by what we learn and how we learn it. Learning therefore provides a key to the structure of our personality and behaviour. An individual starts learning immediately after his birth or in a strict sense even earlier in the womb of the mother. Experience, direct or indirect is found to play a dominant

role in moulding and shaping the behaviour of the individual from the very beginning. When he touches a burning matchstick the child gets burnt, and the next time when he comes across a burning matchstick, he loses no time in withdrawing from it. He learns to avoid not only the burning matchstick but also all burning things. When this happens we say that the child has learned that if one touches a flame, one gets burnt. In the same way from some other experience, he may conclude, for instance, that "green apples are sour", "barking dogs seldom bite" a bird in hand is better than two in the bush", "be very cautious in believing bring about a change in the behaviour of the individual. These changes in behaviour brought about by experience are commonly known as learning. In this way the term learning broadly speaking stands for all those changes and modifications in the behaviour of the individual which he undergoes during his life time.

However, this term has not been always interpreted in the same way by the numerous thinkers and psychologists as may be seen from the following definitions.

Gardner Murphy (1968): The term learning covers every modification in behaviour to meet environmental requirements.

Henry P. Smith (1962):

Learning is the acquisition of new behaviour or the strengthening or weakening of old behaviour as the result of experience.

Woodworth (1945):

Any activity can be called learning so far as it develops the individual (in any respect, good or bad) and makes him alter behaviour and experiences different from what they would otherwise have been.

Kingsley and R. Garry (1957):

Learning is the process by which behaviour (in the broader sense) is originated or changed through practice or training.

Crow and Crow (1973):

Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things, and it operates in an individual's attempts to overcome obstacles or to adjust to new situations. It represents progressive changes in behaviourIt enables him to satisfy interests to attain goals.

Hilgard (1958):

Learning is the process by which an activity originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native response, tendencies, maturation, or temporary states of the organism (e.g. fatigue or drugs, etc.)

Kimble (1961):

Learning is relatively permanent change in behavioral potentiality that occurs as a result of reinforced practice.

Skinner "It is a process of progressive behaviour adaptation."

It is the focus of education programmes. Life itself is a result of learning. Learning situations are most natural and common in life and every one of us is learning. It takes place inside as well as outside the school.

It is a comprehensive concept which leaves permanent impression on the individual. It is said to be equivalent to change, modification, development, improvement and adjustment.

All miracles of present day are result of learning. We want to educate students. It is learning which is education.

Learning is the key process in human behaviour. Parents and teachers always show concern for child's learning. It influences our language, skills, attitudes, interests and even our goals.

Three things:

1. It is change in behaviour : for better or worse.
2. Change takes place through experience: changes due to maturation such as increasing height, weight, development of muscles etc. are notconsidered as learning.
3. The change must be permanent, rules out due to fatigue, illness, brain injury or motivation.

Let us illustrate learning process: With the help of a concrete example. Suppose there are three children in a class from three different religions, one is from an orthodox Hindu family, is from Muslim family and the third one is from a Sikh family. They greet the teacher is three different ways one by "folding his hands" other by "salam saheb" and third by "sat sri akal". "You see, why is it so ? It is the result of their early training and experiences in home. The early training has brought a permanent change in their behaviour. This type of change can be termed as learning.

1. Individual learns when he needs to learn. Changes in performance take place in the process of satisfying motive or attaining goals.

Take any situation: -

Cycling

Unlearnt situation: - something learnt. In between process is learning.

2. Learning is a process of acquiring. It is a result of activity, training and experience. It does not happen automatically. It is a process not a product. For Layman end product is frequently seen in learning.

In the learning process the need for learning arises, the goal is set by the teacher, adjustment on the part of the child begins, change in the behaviour of

the child takes place and later on they are stabilized. The whole process is known as learning.

3. The child is born with natural endowments. We cannot allow these natural instincts to have free expression. We have to direct them to desirable channels and modify them according to the changing needs of the society. Learning means modification of behaviour of an individual.

4. Learning does not mean merely to learn from books. It means keeping mind open and active to receive all kinds of experience. Travelling contributes to learning.

5. Learning also means to practice or at least to appreciate an art. Every new art learning appears like a window in the universe, it is like acquiring a new sense.

6. Learning extends our lives into dimensions. It is cumulative instead of diminishing in time, like health and strength.

7. No learner has ever run short of subject to explore. One can live longest and best and more rewardingly by attaining and processing the happiness of learning.

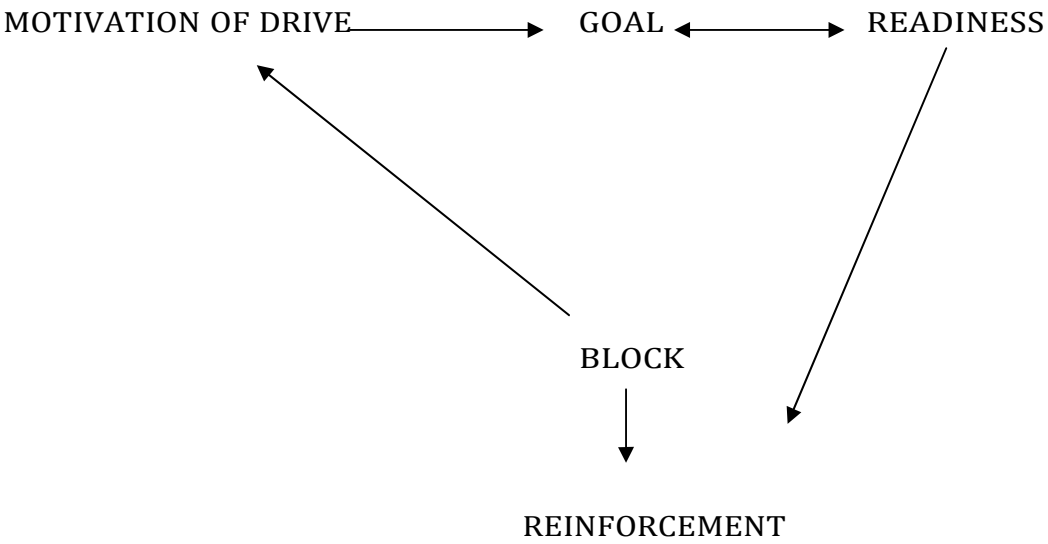
8. Learning is a natural pleasure, inborn and instinctive, one of the essential pleasures of human race. It is a feast for the mind and spirit and a source of lasting joy. Why some people do not enjoy learning. It is because they were made dull by poor teaching or by poor teachers.

9. Learning is not simply the acquiring of efficiency in school subjects or skill in vocations. It is rather any modification taking place in any field of an individual's life. It has been often defined as acquiring of knowledge andinformation. This is a narrow view. No doubt it is important. But it is not the whole of learning. It is a wide and comprehensive concept which embraces the full education of a child in the widest possible sense of the word.

It involves assimilation of the learned material and its intelligent used in one'sdaily life. An individual whose mind is stuffed with vast funds of knowledge and information but who does not possess the necessary wisdom to apply the knowledge to this development and for the welfare of humanity cannot be regarded learned or educated person.

1.4.4 LEARNING PROCESS

Learning takes place as a result of the total individual's attempt to satisfy themultiple motives and purposes which affect him. It includes the following steps.



1. Motivation or Drive: An individual has many needs and purpose. He cannot satisfy all his needs and desires. Only those having stronger motives will have the priority to be attended to. His direction of learning will be towards those purposes for which he has strong motives in relation to the nature of the situations in which he finds himself.

2. Goal: The behaviour of the individual is oriented towards a goal. Even at an early age. If a child is in need of water, his behaviour will be towards that situation which will satisfy his thirst.

3. Readiness: Readiness is an important factor to learn but many other factors like physiological, psychological and experiential background also affect the learning process of the individual. If one is ready to learn, only then he will try tolerance.

4. Block: It is hindrance in performing any activity. Block leads to reinforcement. If any individual gets through the block, he will reach to the last stage of learning process. The following example will clarify each step of learning process.

A child feels hungry. He looks here and there to find something to eat. Feeling of hunger is his motive or drive. He finds some bananas lying on the shelf. He cannot reach to them because of the high height of the shelf. He will try again and again to reach up to that level. He will pick up a stool and will try to get bananas by standing over it. He will learn to get things which are very high by using stool or table or chair etc. If he could have bananas without any block or difficulty, new learning would not have taken place.

1.4.5 **LEARNING AND Its THEORIES (BANDURA, GAGNE)**Introduction

Learning is modification of behaviour. It occupies a very important place in life. Education, training and experience play a dominant role in shaping the behaviour of an individual. Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things. It is learning which is education. This lesson contains following sub-topics: -

1. Bandura's Social learning theory.
2. Gagne's Hierarchical Theory.

1.4.5.1 Bandura's Social Learning Theory

Observation of other's behaviour may play a leading role in learning and acquiring various things concerning one's environment. The cognitive psychologists who appreciate the role observation in learning are termed as social psychologists and the theory of learning they propagate is known as the social learning theory. Albert Bandura was a prominent American social learning theorist and the social learning theory is often designated as Bandura'ssocial learning theory.

Introducing his theory Bandura (Levin, 1978) writes

We do not blindly respond to environmental stimuli. Rather, we pick and choose from many environmental options, basing our decisions on our own insights and past experience. This we do through observational learning, by incorporating and limiting the behaviour of those around us.

Observational (learning through indirect experiences) rather than the learning based on direct experiences is thus the base of the social learning theory. The advocates of this theory emphasize that most of what we learn is acquired through simply watching and listening to other people. The children from the very beginning keenly observe the behaviour of others, most commonly of thepeople nearest to them like parents, members of the family teachers, the older members of society, etc. In turn, they try to imitate and do what they observe. The power of observational learning can be confirmed through laboratory experiments as well as through observation in our daily life. A child who observes his father throwing utensils around simply because he has not been served food of this taste, learns such behaviour and reproduces it in similar circumstances. He may also incorporate and imitate the behaviour of the characters he reads about in novels, hears about over the radio or sees on TV or in movies. The persons whose behaviour he observes and often imitates are known as models and observational learning is referred to as modelling.

Direct experiences no doubt constitute the most effective and powerful sources of one's learning but the role of indirect experiences leading to observational learning can also not be underestimated. In many cases, they prove more desirable less expensive and more beneficial than the direct experiences.

Commenting on this aspect Bandura (1977) writes.

One does not teach children to swim, adolescents to drive automobiles, and novice medical students to perform surgery by having them discover the appropriate behaviour through the consequences of their successes or failures. The costlier and hazardous the possible mistakes, the heavier is the reliance on observational learning from competent examples.

Observational learning can thus provide extra dimensions and opportunities for the learners in addition to their learning through self-experience and direct involvement with environmental consequences. It has certainly reduced the need of an individual going through every experience himself and thus helped him to learn from the examples of others.

How does learning take place: According to the social learning theory, one learns through observations by incorporating and imitating the behaviours of others taken as model belonging to one's social environment. According to Bandura (1977), the following processes or steps are usually involved in this kind of learning.

(i) Attending to and perceiving the behaviour : In this step the learner is made to observe the behaviour of the person acting as a model. Here the total behaviour or a particular aspect of it may attract attention and become the subject of close attention.

(ii) Remembering the behaviour : In this step, what the learner observes isfiled away in his memory in the form of mental images.

(iii) Converting the memory into action. In this step, a behaviour observed and remembered by the learner is analyzed in terms of its acceptability to the learner with reference to the demands of his self and his environment. It is transformed into action afterwards and thus the observed relevant and accepted aspects of the model's behaviour are imitated by the learner.

(iv) Reinforcement of the imitated behaviour. In this final step, the behaviour of the model imitated by the learner is reinforced for proper adoption and further continuance.

Let us see how these steps may work in one's learning. Suppose a young girl happens to watch a T.V. programme concerning the preparation of some new dishes. She takes keen interest and is greatly influenced by the demonstrationon the TV screen. She tries to keep in her memory all that she has observed on the screen and then enters her kitchen to covert the remembered observation into action. The new dishes are thus prepared by her in accordance with her observation of the performance on T.V. of home science specialist. Her learningof the preparation of the new dishes may then be reinforced by the response she gets from the members of her family who taste the new dishes.

In this way, social learning i.e., learning through observation and modelling proves to be an effective means of learning many things concerning one's behavior. How one displays love and anger, shows sympathy and prejudices, speaks and writes, dresses and eats, takes initiative or shies away, all depend upon what has been observed remembered, imitated and reinforced in context of the model learning as propagated by the social learning theory.

1.4.5.2 Gagne's Hierarchical Theory

Gagne starts with the assumption that all learning not alike. He described learning as "a change in human disposition or capability which can be retained and which is not simply to assign a reason to the process of growth."

According to Gagne learning has the following features:

(i) It leads to change in observable behaviour;

(ii) We are able to make change in performance which in other words is learning.

(iii) He points out eight classes of learning and their corresponding sets of conditions.

(iv) He also distinguishes between external and internal conditions. External conditions include the arrangement and situation in which the stimulus event is to be presented. Internal Conditions include, attention, motivation and the previous knowledge of the child. Gagne is of the view that we should first look at the internal capabilities of the child. Later on the external which includes the stimulus situation of the learner.

(v) Gagne held that before any new higher capability is learnt by the learner we should try to find out his lower capabilities It is these which may be a part of the new and higher capability. It is on the basis of these subordinate learnings that a higher capability is learnt.

Gagne is of the view that such a progression of learning may be termed as learning hierarchy.

As a result of learning the individual develops five major capabilities. These are as follows:

1. Verbal Information : The individual merely states the desired information.
2. Intellectual Skills : The individual knows how to perform an act.
3. Cognitive Strategies : These are special kind of intellectual skills that are related to the behaviour of the learner regardless of his learning.
4. Attitudes : These are acquired internal states of the individual that influence his action towards things, persons, and events.
5. Motor Skills : It refers to certain mechanical skills which are related to motor nerve, for example, driving a car.

Gagne's Eight Conditions of Learning : Gagne divided learning into eight types arranged in a hierarchy. It implies that the earlier one is related to the previous.

	Types	Main Features
1.	Signal learning	It is like the classical conditioned response of Ivan Pavlov in which the individual makes a spread out response which is not concentrated.
2.	Stimulus-response learning the	It is an instrumental response like connectionism of Thorndike.
3.	Chaining	Connecting two or more stimulus responses together.
4.	Verbal association	Establishing verbal chains.
5.	Multiple discrimination	Recognising similar responses to a stimulus and draw some inferences.
6.	Concept learning	Formulating a common response to a class of stimuli.
7.	Rule learning	A chain of two or more concepts and also arriving a rule.
8.	Problem-solving	Thinking and combining of principles for some higher goal.

(A) The other points of this theory are:

According to Gagne the eight varieties mentioned above have the following features.

(i) There are eight corresponding kinds of changes in the nervous system. These have to be identified and carefully examined.

(ii) Each variety of learning begins with a different mental state ofindividual and ends with a different capability of performance.

(iii) There is a proper gradation in these varieties of learning. However, the later one needs the earlier, for example, 2 types of learning requires I as its basis and 3 types of learning requires 1 and 2 as its basis and so on. Type 1 is important and is the basic fundamental variety of learning.

(iv) 6, 7, 8 types of learning are used in school instruction.

Gagne also describes eight phases of an act of learning. These are in the order of their occurrence. These are as follows:

	Phase	Brief Description
1.	Motivation	The child strives to achieve some goal and rewarded when he reaches it.
2.	Attending	The child attends and perceives the stimulus.
3.	Acquisition	The essential incident of learning takes place. The knowledge is coded for storage in the nervous system.
4.	Retention	Memories are stored up in the nervous system.
5.	Recall	The memory store is searched and the learned entity is re-called.

6.	Generalized	The acquired knowledge is applied on a new situation. There may or may not be a transfer of learning.
7.	Performance	There is change in behaviour and performance. It implies that learning has taken place.
8.	Feed Back	This is the phase of learning. It is achieved through the reinforcement process. The feed-back shows the achievement of the child.

(B) The Role of the Teacher

1. The teacher designs, manages and evaluates the learning of the student.
2. Learning in its various phases brings about changes in the nervous system.
3. External events, in the form of environment stimulation, influence internal processes.
4. The foremost general components of instruction are:
5. The stimulation of recall of the learned capacities;
6. The presentation of the appropriate stimuli;
7. The desired mental sets become active.
8. The feedback is received by the teacher.

For example, in sequencing a course, a topic within that course, a lesson within that topic, a component within that lesson, none of the steps can be prevented, whether or not everything is written down in planning the curriculum. The main point is that Gagne has found the hierarchical principle a useful one for moving from learning principle to the sequencing of instruction. In this sensehe has made hierarchy the basis for his approach to a theory of instruction.

So, we conclude that Gagne has divided learning into eight types in a hierarchy where any higher capability is learned on the basis of subordinate learnings. As a result of learning individual develops new capabilities. He has described eight phases in an act of learning which have implications for the students as well as for teachers.

1.4.5.3 Skinner's Theory

Skinner's Reinforcement Theory or Operant Conditioning

B.F skinner developed Reinforcement Theory of learning. Operant conditioning plays a major role in human beings. He thinks that the individual learns through the reinforcement of response does not necessarily take place due to stimulus-response relationship. In the words of Skinner, 'Operant conditioning is a process through which organism learn to repeat behaviours that yield the outcomes or permit them to avoid or escape from negative outcomes'.

Skinner's Experiment: Skinner developed a simple apparatus commonly known as skinner's box. A rat is placed in a small box covered by glass so that one can see what is happening inside in box when a button was pressed the rat used to get food. When the pressing of the button (the response) is done again and again, that is, when the pressing of the button even (the response) is reinforcement the rat continues the pressing of the button even after he gets the food. In this way, Skinner draws the inference that an individual learns through reinforcement of responses and not by understanding the relationship between

stimulus and response. Skinner classifies behaviors into two groups, namely, respondent and operant. The respondent behaviour depends upon known stimulus. The operant behaviour may not be related to known stimulus. The reinforcement and operant behaviors may depend upon two kinds of connections, which are S.R., i.e. stimulus response. Skinner believes that an individual learns through reinforcement of responses, that is through operant behaviour and not necessarily through known stimulus. In skinner's opinion it is the response which is important and not the stimulus. If an individual shows a response, again and again even when there is no stimulus he is likely to learn and, effect the desired improvement in his behaviour accordingly.

1.4.5.3.1 Consequential Operations in Operant Conditioning

Several operations are involved in the process of operant conditioning some of the important operations are shaping, chaining, Extinction, and the concept of reinforcement.

(1) Shaping: It is a technique in which closer and closer approximations to desired behavior are required for the delivery of the reinforcement. It has been reported by Skinner that by using this shaping technique, a hungry pigeon can usually be made to peck at the disc within a period of about three minutes. Let us understand shaping with the help of an example from human behaviour for training a child for toilet training. Simply putting the child on the toilet is not successful because as soon as the child is placed on the stool, he begins to cry. In order to shape his behaviour the child is given a chocolate whenever he is placed on the toilet. It has been observed that successful elimination follows

(2) Chaining: Chaining is a procedure that establishes a sequence of responses, which lead to a reward following the final response in the chain. In this, trainers establish a sequence or chain of responses the last of which leads to a reward trainer usually being chaining by first shaping the final response shaping and chaining obviously have important implications for human behavior. For example, when working with a beginning student, a skilled dance teacher may use shaping techniques to establish basic skills such as performing a establish basic step by praising simple accomplishments. As training progresses, the student may receive praise only when he or she successfully completes an entire sequence or chain of actions these both techniques can produce dramatic effects.

It has been experimentally proved that secondary reinforcers are more effective in shaping behavior than primary reinforcers

(3) Extinction: It consists simply of withholding of reinforcer when the appropriate response occurs. Withholding of reinforcer means extinction of previously established relationship. Suppose in the Skinner box the rat presses the bar but does not get pallet of food. If this is repeatedly done, the bar pressing behaviour of the rat will be extinguished.

(4) Reinforcement: Reinforcement is the strengthening of a new response by its repeated association with some stimulus. Such a stimulus is

called reinforcer (It may be either positive (pleasant) Negative (aversive). A reinforcer is defined by its effect. In other words, procedures that strengthen behaviour are formed as reinforcement and whereas those that suppress behaviour are formed as punishment.

(a) Positive reinforcers : A positive reinforcer serves to strengthen or maintain the response. Food is positive reinforcer for a hungry man. In positive reinforcer we do something done, by the organism. The positive primary reinforcers are based on drives as warmth, food and water, which are of prime importance for the survival of the organism. The positive secondary reinforces are based on socially derived motives such as money, prestige praise etc. whichare not necessary for the physical survival of the organism.

In the reinforcement the Premack principal is a powerful tool for changing behaviour, according to which preferred activities can also be used to reinforce behaviour e.g. you must clean your room before you watch T.V. or you must eat your vegetables before you get dessert.

(b) Negative reinforcers : In negative reinforcement the rate of behaviour is weakened or decreased because the behaviour is linked to the loss of potential reinforcements. Negative reinforcers are those unpleasant stimuli, which the learner will readily terminate if given the opportunity to do so e.g. social disapproval or condemnation by peer group.

1.4.5.3.2 Educational Implications of Operant Conditioning

Skinner believes that many of the responses of students in the classroom may be explained through his theory of reinforcement skinner advocated the use of mechanized programmed instruction or learning through machines. The teaching machine is so devised that the student gets reinforcement automatically by getting the correct answer through the machines. In programmed learning an information to be learnt is broken into small sequential units of frames to each of these the learner makes a response if the material is properly organized, learner will make the correct response and will be immediately informed of its correctness.

1. Helpful in creating healthy atmosphere : The whole atmosphere of our schools is dominated by fear and unpleasant experiences. The schools can use the principles of operant conditioning to eliminate the element of fear from school atmosphere by using positive reinforcement.
2. Desirable behaviour can be reinforced : The desirable behaviour of learner can be immediately reinforced to get good results in the class. When the large size classes do not provide ample opportunities to provide individual students reinforcement to individual, programmed instructions show the path to it. The teacher can plan his work in advance, specify the terminal behavior and survey al the conditions of school environment, which can provide reinforcement to the students.

   The teacher may plan contingencies of reinforcement to provide reinforcement at the most appropriate time to the learners. He may involve the students in teachings - learning process so that student's interest may be maintained in learning activities.
3. In programmed instruction objections are defined in observable and measurable ways help of operant conditioning.

1.4.6 Summary :

Learning is an endless and continuous process from birth till death. It takes place as a result of the total individuals attempt to satisfy the multiple motives and purposes which affect him. It depends on ability to learn and maturation. Motivation or desire and intention to learn, previous experience, mood and mental set etc. are different factors in learning which are necessary for efficient learning.

In Bandura's social learning theory, We learn what we observe in society. It is model learning and we try to follow the same pattern of learning. It has various steps which help us to learn.

In Gagne's hierarchical theory, he divided learning into eight types in a hierarchy. He describes eight phases of an act of learning. This theory has implications for the teachers too.

1.4.7 Key Concept

1. Concept and nature of leaning
2. Learning and its theories
3. Learning process

1.4.8 Self-check Exercise

Short Answer Type Questions:

1. Name the theory given by Bandura.
2. Enlist the steps include in the process of learning.
3. In how many categories the factors influencing learning can be classified?
4. How Peel defines learning?

Answers:

1. Bandura's Social Learning theory.
2. (a) Motivation or drive, (b) Goal, (c) Readiness, (d) Block.
3. Psychological, Physiological, Environmental, Methodology of teaching learning.
4. Learning is a change in individual following upon change in his environment.

1.4.9 SUGGESTED QUESTIONS

Q.1. How we learn by observation? Discuss Bandura's social learning theory.

Q.2. What do you understand by hierarchical theory of Gagne?

1.4.10 SUGGESTED BOOKS & WEB SOURCES

1. Mathur, S.S. Educational Psychology
2. Dash, Murlidhr Educational Psychology
3. Chauhan, S.S. Advanced Educational Psychology
4. Bhatnagar, A.B. Advanced Educational Psychology
5. K.P. Pandey Advanced Educational Psychology
6. Aggarwal, J.C. Advanced Educational Psychology
7. Mangal, S.K. Advanced Educational Psychology
8. Crow & Crow Educational Psychology
9. Sharma & Nanda Educational Psychology
10. B.C. Rai Educational Psychology

11. Chauhan S.S. Advanced Educational Psychology
12. Kakkar S.B. Advanced Educational Psychology
Oxford and IBH, New Delhi
13. Dutt N.K. Psychological Foundations of Education

Web Sources:

1. www.learningtheories.com
2. tip.psychology.org
3. en.wikipedia.org

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Mandatory Student Feedback Form

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