

(viii)

etc. It also gives a brief overview of the current status of higher education sector in India.

Though this book is highly recommended for all Physiotherapy teachers. It is a must read for all Post-Graduate students of Physiotherapy. It can also be read by any person interested in the field of Pedagogy. Any suggestions from teachers and students will be highly appreciated.

I thank to Virender Kumar Arya and his team at AITBS Publishers, India, for their meticulous efforts in the direction of bringing out this book on time.

—C.S. Ram

Contents

Preface

(v)

1. Philosophy of Education and Emerging

Issues in Education 1-34

2. Concept of Teaching and Learning 35-57

3. Curriculum 58-66

4. Methods and Techniques of Teaching 67-82

5. Planning for Teaching 83-102

6. Teaching Aids 103-105

7. Measurement and Evaluation 106-156

8. Guidance and Counseling 157-178

9. Clinical Education 179-192

10. Current Issues and Trends in Higher Education 193-199

Index 200-204

Philosophy of Education

MEANING OF EDUCATION

The word "Education" is derived from root words in Latin language such as

Educare – Means to "bring up" or "to nourish"

Educare – Means to "draw out" or "bring forth"

Education – E implies a movement from inward to outward, *duco*-means developing or progressing.

Thus, education means to provide a nourishing environment that would facilitate or bring out and develop the potentialities of a person.

In India, there is a rich tradition of education dating back to the dawn of human civilization, where the "Gurukulas" and "Guru-Shishya parampara" or the "Teacher-disciple tradition" developed thousands of years ago. Ancient Indian education, through the Vedas propounded the doctrine of "Prajnanam Brahma", i.e., knowledge is the embodiment of God. Two prominent words in Sanskrit stand out as equivalents of the term "education". Those are "Shiksha" and 'Vidya'. The former has been derived from the root word 'Shas' meaning 'to discipline' or 'to control', The later, 'Vidya', is derived from the verbal root word 'Vid' meaning 'to know'. Ancient Indian education which

had a spiritual flavour, obviously it stressed "discipline" and 'knowing' as most important aspects of human personality. Indeed, discipline and knowledge have always proved to be the foundation stones for the development of superior individuals and superior social beings who have shaped perhaps, the earliest and the most beautiful of human civilizations.

'Education' is used to refer both to a process and to a product.

As a product, education is the sum total of what is received through learning, i.e., the knowledge, skills, ideas and values that are the outcomes of learning. As a process, it refers to the act of developing these in someone else or in oneself.

DEFINITIONS

Educators have defined education in so many ways as

- "Education is that process of development which consist the passage of human being from infancy to maturity, the process whereby he adopts himself gradually in various ways to his physical and Spiritual environment".

—T. Raymont

- "Education is that training which is given by suitable habits to the first instincts of virtue in children". —Plato
- "Education is a conscious and deliberate process in which one personality acts upon another in order to modify the development of the other by the communication and manipulation and knowledge". —Adams
- "Education is the influence of the environment upon the individual to produce a permanent change in the habits of behaviour of thought and of attitude". —Thomson
- "Education is the development of all those capacities in the individual which will enable to control his environment and fulfill his possibilities". —John Dewey
- "Education means all round drawing out of the best in child and man-body, mind and spirit". —Mahatma Gandhi

- "The highest education is that which does not merely give us information but makes our life in harmony with all existence". —Tagore
- "It means universal distribution of extent knowledge. —L.F. Ward

EDUCATION AS A CONTINUOUS PROCESS

Education is a process through which human personality develops. It is not a temporary process which begins at definite time and comes to an end at a particular point in the life of man.

In fact, education begins at the time of birth, not only this, according to some psychologist it begins even before birth.

There is no end to this process. We are learning something every year, every month, every day and every moment. It is also said that traits acquired in one birth by education are transferred naturally to the next birth.

According to J.S. Mackenzie, "Education is a process that goes on throughout life, and is promoted by almost every experience in life".

In the process of education, three important elements are prominent. These are: the "educator" or the child who is to be educated; the "educator" or the teacher who provides opportunities and organises learning experiences for child's education; and the "social setting" or sociocultural influences and forces in which the process of education is carried on. The relationship among these three elements have been illustrated in Fig. 1.1.

According to Educator Society

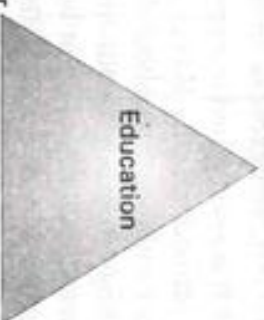


Fig. 1.1: Process of Education

can be considered a "tri-polar process", where the three elements, i.e., educand, the educator and the society are the three essential poles.

CONCEPTUAL DISTINCTIONS BETWEEN EDUCATION AND SCHOOLING, LEARNING, TRAINING, TEACHING AND INSTRUCTION

People sometimes confuse the concept of education with schooling, learning, training, teaching or instruction. Though these terms have close links with the process of education they are different from the term 'education'. Let us discuss the distinction between education and these terms.

Education in its wider sense is the process of development from birth to death or "from womb to tomb". In this sense, education is a life-long process and includes all knowledge, experience, skills and attitudes. Thus all experiences in life become educative in nature and the process of education continues in all personal and social situations. Education in this sense would certainly include all efforts for inculcation of values, attitudes and skills that the society desires to be imparted to children. In contrast to this broader notion, schooling is an act of consciously imparting values, knowledge and skills in accordance with the requirements in a formal situation. Schools also impart deliberate and systematic training in specialized subject areas that may not be otherwise gained through the process of living and experiencing by individuals. In its essence schooling is a limited educational exercise in terms of range of experiences provided. It is also limited to a specific period of human life, i.e., from childhood till one leaves school, while the process of education continues throughout the life. We learn most from our surroundings, from our friends and from other people who share our interests, and schooling at best, can only be a part of our education. We may also draw a distinction between learning and education.

LEARNING

Learning is a process which results in more or less permanent modification of behaviour as a result of practice or experience. Temporary states of the organism and the permanent behavioural changes resulting from physical or physiological maturation are excluded from the purview of learning. Thus any relatively permanent modification of behaviour in any aspect of human personality can be the result of learning. In contrast, education is concerned with harmonious development of human abilities and powers according to the needs of the individual and the society. While learning results in specific modification of behaviour, education seeks to mould the entire personality and takes a global view of an individual's abilities. Another distinction between learning and education is that while learning can be either positive or negative, education is always positive from the point of view of social values. Learning being a non-normative psychological term does not involve any value judgement. For example, learning may even result in such socially unacceptable behaviour patterns as stealing. But learning such negative behaviour can never be termed as education. Then there is a kind of 'master-worker' relationship between education and learning. Education employs and utilizes the learning process to serve its own broad goals of developing harmonious personalities.

TRAINING

Training is a systematic series of activities involving instruction, practice, etc. to produce desirable habits or behaviour manifestation in particular aspects of life or vocations, for example, teachers training, technical training etc. Thus, training aims at developing and promoting specific skills in a chosen area with a view to making the individual undergoing training an expert in the field or task concerned. Thus, training may be thought of as development of skills in particular aspects whereas education concerns the development of the whole individual.

Teaching and instruction are the means employed to effect desirable changes in human behaviour. Teaching and instruction involve communication of ideas, values, skills, information and knowledge to the educand or students. Teaching and instruction may also involve use of systematic and scientific methods for communication to be effective. Teaching and instruction aim at effecting learning in individuals with a view to educating them. Thus, teaching and instruction become instruments of educating individuals along with other educative experiences.

FUNCTIONS OF EDUCATION

1. **Education as Necessity of Life:** Biologically and physiologically humans are neither the strongest nor the biggest or the fastest of all the creatures; nor are they specifically suited to their environment. Yet not only have they ensured their survival but also made rapid progress as a race. Obviously, their intellectual abilities and sociocultural aspects have more than compensated for what they lacked biologically and physiologically. Locked in a permanent struggle against environmental conditions, the primitive man recognized the importance of group endeavour or society for his existence. Thus by co-existing in the form of families and tribes, he progressively acquired knowledge and experience, learned how to know and express his desires and aspirations and so defined and fashioned his intellectual faculties. These efforts necessarily imply the beginning of education in the human race. Thus, it is education that has played the most crucial role in the maintenance and advancement of intellectual and socio-cultural traditions of human life. With the advancement of human civilization the accumulated experience, knowledge and information increased tremendously. Consequently, the

need for better education also increased. The necessity of education in human life has assumed much greater significance in modern times. The modern man/woman needs more preparation through education for learning an effective adult life.

2. **Education as Social Function:** Education is regarded as a sub-system of society. The process of education takes place in social settings and society as a whole exercises great control over its process. Education in any society reflects the main features of that society – goals, values, needs and aspirations. Every society uses education as a means for promoting its own interests. Education performs a threefold social function by maintaining, transmitting and creating social values, ideals, beliefs and culture. Education provides a variety of skills to the budding human generation such as social interaction, emotional growth, physical awareness, aesthetic awareness and spiritual response. Education can influence minds through dissemination of new knowledge and ideas. It can also make individuals aware of social problems. Properly educated individual minds can then, consciously seek collective progress and improvement of the social order.

3. **Function of Education as Direction:** Education also guides energies and actions toward achievement of life goals. The direction provided by education can be in the form of coercion, persuasion or provision of models of behaviour: (1) Coercion involves the application of force (indoctrination), (2) Persuasion involves explanation, discussion and the use of logical argument to drive home a point and (3) Models of behaviour refer to presentation of ideal personalities, who become role models for emulation by members of the student community. These role models will be the teachers and the educational administrators, who will inspire the students with their

values, ideals and conduct. In most societies education uses a combination of all these methods in varying degrees for providing direction to students.

4. **Function of Education for Growth:** For every individual, education is the process of actualizing the inherent potentialities, the process of increasing his/her capabilities and the process of growing up.

AIMS OF EDUCATION

Classification of Aims of Education

Broadly aims of education are classified into two ways.

According to one classification, aims are:

- **Universal aims** are regarded as general aims. Character, knowledge, culture are regarded as universal aims.
- **Particular aims** are based on socio-economic conditions of the country. They are specific aims of education.

According to other classification, the aims are:

- **Individual aims:** Individualistic aim in education is an important. According to *Mum*, "Every good thing of the world is produced by free citizens; education is not an exception to it. Education of different individuals should be different because of difference in interests, ability and aptitude."

According to *Lask*, "The welfare of community is built upon the welfare of individuals."

- **Social aims:** In its simple form social aim means growth of social sense and co-operation among the individuals. Education is not confined to imparting of bookish knowledge only; it embraces in its scope the diverse activities of social life. Good citizenship, a spirit of tolerance etc. are the social aim of education.

The common agencies of realization of social aim which are political freedom, industrialization, mass communication, media, individual achievement and motivation.

SYNTHESIS BETWEEN SOCIAL AND INDIVIDUAL AIMS

Individual and Society are complementary to each other. While talking of proper synthesis between the Individual and Society. We imagine an ideal nation, where both are combined together, where the aim of one should not interfere with those of the other and where both should always be trying to prove beneficial to each other. Such a society will be helpful in the development of the individual.

Another fact is that the individual has ability to make the society prosperous. But the individual should be given economic freedom, he should have a feeling of sacrifice for society and should always be careful about the welfare of society. The education which cannot create these abilities in the individual is incomplete.

AIMS OF EDUCATION IN A DEMOCRATIC SET-UP

(i) *Vocational aim;* and

- (ii) *Character building aim.* The vocational aim would make every individual capable of earning a livelihood and in the process would contribute to productivity of the society. It would also ensure economic independence of the individual as well as the country. The National Policy on Education (1986) regards it as "the ultimate guarantee of national self-reliance". The character building aim seeks to develop strong moral personalities and good characters in the citizens.

A democratic country needs efficient citizens who participate actively in the democratic process. Creation of an informed and enlightened citizenry is of vital

importance for the continuation of a democratic social order.

TYPES OF EDUCATION

There are four classifications of type of education as following:

❖ The first classification is:

1. *Formal type*: Is imported to the individuals through deliberately planned process. It is planned before hand and its goals are decided before planning.
2. *Informal type*: Of education is received by imitation of elders in the society and through experience in different walks of life.

❖ Second classification consists of:

1. *Direct education*: Is generally personal education and is the result of direct contact between the teacher and the student.
2. *Indirect education*: Is a result of other media adopted by the teacher instead of direct teaching.

❖ Third classification includes:

1. *Individual education*: Is concerned only with one individual.
2. *Collective education*: Is concerned with several students being taught at the same time.

❖ The fourth classification consists of:

1. *General education/Liberal education*: which prepares the students for general life and trains their general intellect, having no specific goals.
2. *Specific education*: has specific vocation or definite activities.

FORMAL, INFORMAL AND NON-FORMAL EDUCATION

FORMAL EDUCATION

In this, the process of education is deliberately planned. Responsible persons of the society make some plans to educate the new generation. There is definite curriculum, with definite students and teachers of definite ability. Also the method of work is definite. The whole process is manipulated with a definite objective for the fulfillment of the need of society. The teaching method is also well planned. Place and time is also definite. There are some necessary rules to be followed by the teacher and the taught. School, colleges and universities are the source of formal education. These sources are regarded as the saviour of cultural traditions, secures culture and civilization and hands them over to next generation. These provide social efficiency and proper functioning of society.

INFORMAL EDUCATION

Is not imparted at a definite place and time. These are neither definite teacher nor students. We receive education in this way at all places and time. In this there are no definite methods or rules of imparting education. No definite curriculum is needed for this. Man learns something or the other from his environment. It is not imported to definite time. In fact it is received concomitantly and often unconsciously. Sources include family, society, state, religion, magazine and publications trip and excursions, television, radio, museums etc.

NON-FORMAL EDUCATION

Another educational alternative to formal education is being advocated now a days in the name of non-formal education. This approach in education first developed at the level of children's education. It took the form of extra-curricular activities to remedy

the deficiencies of the formal education and to supplement its inadequacies. The major characteristic of non-formal stream is a concentration on those who have not been well served either by previous development strategies or by formal system of education. It is concerned with the dropouts, left-out and failures. It is not haphazard or informal. It is free from the rigidities and constraints of formal education. It caters to the educational needs of the section of the population which does not take advantage of the existing facilities of education. Sources can be correspondence courses, distant learning programmes, national open schools, online degree and diploma courses.

Special Feature of Non-formal Education

1. A learner-centered approach with the instructor as a facilitator.
2. Emphasis on learning rather than teaching and for this purpose the capability of the children to learn from each other.
3. Organization of activities so as to enable learner to progress at their own pace.
4. Use of efficient techniques to ensure fast pace of learning and provision of necessary equipments.
5. Stress on continuous learner evaluation and establishment of evaluation centers and certification of learners.
6. Creation of participatory learning environment and treating the children with the regard they deserve as persons engaged in productive activities.
7. Organization of joyful extra-curricular activities including plays, skits, games, sports and excursions etc.
8. Ensuring that all facilities and incentives are provided.

AGENCIES OF EDUCATION

There are two classifications of agencies of education:

1. **One classification of agencies of education consists of:**
 - **Active agencies:** Try to control the social process and direct it to a definite goal. There is direct information between the educator and the educating and both of them influence each other. School, family, society, state and church etc. are known active agencies of education.
 - **Passive agencies:** Influence the learner but they in turn, are not influenced by them. Thus, it is one sided. Newspaper, films, television, radio, press are example of passive agencies.

This classification of agencies may be influenced by public opinion in long-run and not regarded as very strict.
2. **Another classification of agencies consist of:**
 - **Formal agencies of education** are those institutions and organizations which are systematically organized.
 - **Informal agencies of education** are from the surrounding environment including family, society, state, religion, magazine and publications trip and excursions, television, radio, museums etc.

PHILOSOPHY OF EDUCATION

The term philosophy has been derived from two Greek words: *Phileo* means love and *Sophia* means wisdom. Philosophy is a science through which we see or receive the knowledge of reality. According to Dr. S. Radhakrishnan, "It is a logical inquiry into the nature of reality and in large-sense, is the unseen foundation on

which the structure of civilization rests". It is the basis of all social movements, all sciences and all knowledge. According to *Prof. Shirk*, "Philosophy is the oldest science of the world." All purposive human action are guided and directed by a philosophy of life.

EDUCATION AND PHILOSOPHY ARE INTERDEPENDENT

The relationship between philosophy and education is not one sided. It is bilateral and both are required for progress of life. A philosopher gives some suggestions to make society progressive and wants to see life well progressed. He determines some principles for this. But mere principles are not sufficient. Education gives practical form to the speculative flight of philosophy otherwise philosophical principles would remain mere imagination. Thus education helps philosophy realize its dreams. According to *John Dewey*, "Philosophy explains principles but these principles are product of education". By education we determine some practical traditions and think over educational activities. This thinking gives birth to philosophy. Therefore, famous educationist *John Dewey*, admits education as the origin of philosophy not curiosity or wonder. According to him, "the function of philosophy is to think over the problem of education."

According to *Bertrand Russell*, "Philosophy is to be studied not for the sake of any definite answers to its questions – rather for the shake of questions themselves; because these questions enlarge our conception of what is possible, enrich our intellectual imagination and diminish the dogmatic assurance which close the mind against speculation, but above all because through the greatness of the universe which philosophy contemplates, the mind is also rendered great and becomes capable of that union with the universe which constitutes its highest good".

NEED FOR EDUCATION PHILOSOPHY

The inter-dependence of philosophy and education is clearly seen from the fact that the great philosophers of all times have also been great educators and their philosophy is reflected in their educational systems. This inter-dependence can be better understood by analysing the implications of philosophical principles in the field of education. Before analysing the educational implications of general philosophy, we should know the concept of "Philosophy" and "Education". Each one of us has a personal philosophy which we apply consciously and unconsciously in our daily life. Each philosophy reflects a unique view of what is good and what is important. In this sense, philosophy is the system of beliefs about life. The literal meaning of philosophy is the love of wisdom which is derived from the Greek word "Philos" (Love) and Sophia (Wisdom). Wisdom does not merely mean knowledge. It is a continuous seeking of insight into basic realities – the physical world, life, mind, society, knowledge and values. Education does not mean mere schooling. To become educated is to learn to become a person. Etymologically, 'education' is derived from "educare" which means 'to lead out' or 'to draw out'. In a broad sense, education refers to an act or experience that has a formative effect on the mind, character or physical ability of an individual. Education in this sense never ends, we truly learn from experience throughout our lives. Education and philosophy are inseparable because the ends of education are the ends of philosophy, i.e., wisdom and the means of philosophy is the means of education, i.e., inquiry, which alone can lead to wisdom.

Education involves both the world of ideas and the world of practical activity; good ideas can lead to good practice and good practices reinforce good ideas. In order to behave intelligently in the educational process, education needs direction and guidance which philosophy can provide. Hence philosophy is not only a professional tool for the educator but also a way of improving

the quality of life because it helps us to gain a wider and deeper perspective on human existence and the world around us.

The chief task of philosophy is to determine what constitutes good life whereas the main task of education is how to make life worth living. So, philosophy and education are mutually re-constructive. They give and take from each other. Philosophy deals with the goals and essentials of good life while education provides the means to achieve those goals of good life. In this sense, philosophy of education is a distinct but not a separate discipline.

It takes its contents from education and its methods from philosophy. The process of philosophizing about education requires an understanding of education and its problems.

Hence, we can say that philosophy of education is the application of philosophical ideas to educational problems. It is not only a way of looking at ideas but also of how to use them in the best way. Therefore, it can be said that philosophy is the theory while education is the practice. Practice unguided by theory is aimless, inconsistent and inefficient just as theory which is not ultimately translatable into practice is useless and confusing. In the words of Ross, "Philosophy is the contemplative side while education is the active side".

Philosophy deals with the ends while education deals with the means and techniques of achieving those means. Educational philosophy depends on formal philosophy because most of the major problems of education are in fact philosophical problems. Like general philosophy, educational philosophy is speculative, prescriptive, critical or analytic.

In the beginning, knowledge was not divided into various branches and all were philosophy at that time. Mathematics, first of all separated itself from philosophy as it has definiteness. It is based on the contemplation method of philosophy. Gradually other sciences also separated themselves from philosophy. All

theses sciences ultimately took support of mathematics, to see the relationship of the objects.

SOME MAJOR PHILOSOPHIES

Naturalism

Naturalism as a philosophy of education was developed in the 18th century. It is based on the assumption that nature represents the wholeness of reality. Nature itself, is a total system that contains and explains all existence including human beings and human nature. According to naturalists the material and the physical world is governed by certain laws, and man, who is the creator of the material world, must submit to it. It denies the existence of anything beyond nature, behind nature and other than nature such as supernaturalism.

Naturalism as a philosophy of education has exercised a great influence on the theory and practice of education. It decries all external restraint and it necessary formalities.

In the naturalistic system of education there is no place for classrooms, textbooks, timetables, curriculum, formal lessons or examinations. The teacher has to play the role of acquainting children with their natural environment. External discipline is altogether out of place. The only discipline is the discipline of natural consequences. Naturalism believes that formal education is the invention of society which is artificial. Good education can be possible only through direct contact with nature. Naturalism in education has the following common themes:

1. Look to nature and to human nature, as part of the natural order, for the purposes of education.
2. The key to understanding nature is through the senses. Sensation is the basis of our knowledge of reality.
3. Because nature's processes are slow, gradual and evolutionary, our education also should be steady.

Naturalists emphasize the study of sciences dealing with nature – Physics, Chemistry, Biology, Zoology, Botany etc. They also give importance to the study of language and Mathematics.

Naturalism gives a very insignificant place to spiritualism in the curriculum.

Forms of Naturalism

Naturalism is of three types:

1. **Naturalism of Physical Science:** In this form, it is the study of the laws of external nature. It interprets the man just like the facts of physical world are interpreted. In it man's consciousness, innate nature, soul and his desires to meet the almighty become subsidiary.

2. **Mechanical Naturalism:** In this form, universe is considered as a lifeless huge machine, which gets its form through matter and motion. It ignores consciousness of the human. According to this thought, the mixture of matter and motion would be called man. He is a machine and according to behaviourists he is engaged only in reaction to external stimuli. Man's is purpose-fulness, activity and interpretation of his own qualities are not possible in this thought process. There is difference among the situations of animals, machine and man. Man is really different from machine and animals. This thought process can contribute nothing to education except behaviouristic psychology.

3. **Biological Naturalism:** This form of naturalism, believes in the theory of evolution. Darwin, Lamark and Herbert Spencer are the inceptors of this thought process, Darwin and Lamark both have agreed to the fact that man is the consequence of education.

- (i) The species of animals are changing according to Darwin. Some sudden changes take place in the germ cell which creates physical change also. According

to Lamark, it is external environment that creates physical changes.

- (ii) According to Darwin, only the changes, which are sudden, are transmitted according to the law of heredity. But according to Lamark changes are according to desire and need and traits changed by efforts may be transmitted.

- (iii) According to Darwin, organ is created first and used by activity afterwards. Whereas according to Lamark, creation or attraction of need or activity comes first and then organ is created for its fulfillment.

Role of the Teacher According to Naturalism

According to naturalists the teacher is the observer and facilitator of the child's development rather than a giver of information, ideas, ideals and will power or a moulder of character.

In the words of Ross, "Teacher in a naturalistic set up is only a setter of the stage, a supplier of materials and opportunities, a provider of an ideal environment, a creator of conditions under which natural development takes place. Teacher is only a non-interfering observer". Appreciating the educative role of the natural environment as an educative force the teacher does not interfere with nature, but rather cooperates with the ebb and flow of natural forces.

The teacher, first of all, is a person who is completely in tune with nature.

He has a profound faith in the original goodness of human nature. He believes that human beings have their own time-table for learning. So Rousseau in his didactic novel "Emile" organized education according to Emile's (a boy) stages of development. For each stage of development, the child, shows certain signs that he is ready to learn what is appropriate to that stage.

Like Rousseau, Tagore is also an individualist and a naturalist. He says that everyone is unique and every individual is different

from another. He believes that the natural teachers, i.e., the trees, the dawn, evening, the moonlight etc. –nourish the child's nature spontaneously. Nature inspires the human being differently at different stages of human development. He gives an important place to the teacher because according to him a real teacher humanises the learning process and activates the mind instead of stuffing it. It is the teacher who kindles independent thinking, imagination and judgement.

Rousseau opines that teacher should not be in a hurry to make the child learn. Instead he should be patient, permissive and non-intrusive. Demonstrating great patience the teacher can not allow himself to tell the student what the truth is but rather must stand back and encourage the learner's own self discovery. According to him, *the teacher is an invisible guide to learning*. While ever-present, he is never a taskmaster. Naturalists are of the view that teacher should not be one who stresses books, recitations and massing information in literary form, "rather he should give emphasis on activity, exploration, learning by doing".

IDEALISM

Idealism is the oldest system of philosophy known to man. Its origin goes back to ancient India in the East and to Plato in the West. Generally, idealists believe that ideas are the true reality. According to them, the human spirit is the most important element in life. All of reality is reducible to one fundamental substance-spirit. The universe is viewed as essentially non-material in its ultimate nature. Matter is not real, rather it is a notion, an abstraction of the mind. It is only the mind that is real. Therefore, all material things that seems to be real are reducible to mind or spirit.

For idealists, all knowledge is independent of sense experience. The act of knowing takes place within the mind. The mind is active and contains innate capabilities for organizing and

synthesizing the data derived through sensations. They advocate the use of intuition for knowing the ultimate. Man can know intuitively, that is to say, he can apprehend immediately some truth without utilizing any of his senses. Man can also know truth through the acts of reason by which an individual examines the logical consistency of his ideas. Idealist like Plato believe that the spirit of man is eternal. Whatever he knows is already contained within his spirit.

In idealist value theory, values are more than mere human preferences; they really exist and are inherent intrinsically in the structure of the universe. Value experience is essentially an imitation of the Good, which is present in the absolute universal realm of ideas. According to them values are eternal. They believe in three spiritual values. They are: 'The Truth', 'The Beauty' and 'The Goodness'. The Truth is an intellectual value, The Beauty an aesthetic value and the Good a moral value.

The purpose of education according to idealism is the development of the mind and self of the pupil. They like to educate the child for mainly two reasons. Firstly, education is a spiritual necessity and secondly education is also a social necessity. So, the school should emphasize intellectual activities, moral judgement, aesthetic judgement, self-realization, individual freedom, individual responsibility and self-control in order to achieve this development.

In essence, idealists advocate that:

- Education is a process of unfolding and developing that which is a potential in the human person. It is unfolding of what is already entolded.
- Learning is a discovery process in which the learner is stimulated to recall the truth present within mind.
- The teacher should, be a moral and cultural exemplar or model of values that represent the highest and best expression of personal and humane development.

IDEALISM AND CURRICULUM

Idealism emphasizes the spiritual side of man. So, for the idealists curriculum is based upon the idea or assumption of the spiritual nature of man. They are of the view that the curriculum is a body of intellectual or learned disciplines that are basically ideational or conceptual. They arrange their curriculum in the form of a hierarchy in which the general discipline occupies the top most position and gradually it comes down to particular subjects in their relationship to general discipline.

Plato, a great exponent of idealism, conceives of the curriculum from the point of ideas.

He believes that the highest idea of life is the attainment of the highest good or God; hence curriculum ought to impart inherent values in order to enable the educand to attain his highest good. The spiritual values, according to him are truth, beauty and goodness. These three values which determine three types of activities intellectual, aesthetic and moral. Each type of activity is represented by different subjects and should form a part of the curriculum! Intellectual activities are represented by subjects such as language, literature, science, mathematics, history and geography; aesthetic activities will be possible through the study of art and poetry and moral activities through the study of religion, ethics and metaphysics.

Ross talks of two types of activities, i.e., *physical activities* and *spiritual activities* to be included in an idealistic curriculum. Physical activities include subjects such as health and hygiene which foster bodily skills viz. gymnastics and athletics that lead to good health and fitness and thus make the pursuit of spiritual values possible. Spiritual pursuits imply Philosophical Basis of Education the intellectual, aesthetic, moral and religious studies. Hence such subjects as history, geography, language, fine arts, morality, ethics, religion, science, mathematics and others should be included in the curriculum.

ROLE OF THE TEACHER ACCORDING TO IDEALISM

Idealism believes in the maxim that pupils catch fire from a teacher who is himself a flame.

Idealists have high expectations of the teacher. To them the teacher must be ideal in order to serve as an example for the student both intellectually and morally. They believe that the teacher is an important ingredient in the education of the child. The teacher should not only understand the stages of learning but also maintain constant concern about the ultimate purpose of learning. Some idealists emphasize the importance of emulation in learning for which they feel the teacher should be the kind of person we want our children to become.

Secretes has been used by idealists not only as prototype of learning but also as a model for emulation. In this connection, *Dr. Radhakrishnan* opines "The type of education which we may give to our youth, depends on the fact that what type of teachers we get." According to him *the teachers have a special place in the formation of the mind and heart of the youth.*

Besides knowledge and scholarships, the teacher should have devotion to teaching. It is the teacher who has to provide the right environment in the school. He must be himself an ideal person in order to exercise wholesome influences on the young ones. It is the teacher's forceful personality, his effective methods, his sense of dedication to the work which encourages the child to perceive him as exemplary. The teacher must also exercise great creative skill in providing opportunities for the pupils' mind to discover, analyze, unify, synthesize and create applications of knowledge to life and behaviour. The teacher should respect the learner and assist the learner to realize the fullness of his or her own personality.

To the idealist "the school is a garden, the educand is a tender plant and the educator the careful gardener". In the words of Ross, "the educator constitutes the special environmental factor

whose function is to lead the child nearer to reality, to guide him towards his utmost possible perfection".

1. *Donald Butler* has identified some of the desired qualities of the good teacher. According to him the teacher should:

1. Personify culture and reality for the student
2. Be a specialist in the knowledge of the pupils
3. Be a kind of person who commands the respect of the pupil by virtue of what he himself is
4. Be a personal friend of the individual student
5. Awaken students' desires to learn
6. Be a master of art of living
7. Be one who capably communicates his subject
8. Appreciate the subject he teaches
9. Aid in the cultural rebirth of generations.

IDEALISM, INTEREST AND DISCIPLINE

Interest and discipline are interconnected devices of education. The concept of interest and discipline can be better understood with the help of another concept called effort. By interest we mean the totally positive attraction of the child for the work in his hand, without any conscious or voluntary exertion and also very minimum persistence on the part of the teacher. Effort is the conscious and voluntary exertion by the student for doing the work without my self-interest. By discipline we mean some extraneous action by the teacher to stimulate the pupil to complete the task in hand.

As for the discipline, Gentle finds sheer discipline which is separated from the constructive teaching process as undesirable. According to him, discipline should be considered as an end product instead of an input and at the same time is a part of the teaching process and should band in the personality of the teacher. One should achieve discipline through freedom not

conversely. But today education has by-passed this concept by beginning with discipline and moving toward freedom. Idealists do not favour rigid discipline. In fact, their theory of discipline is based on their concept of freedom. Freedom does not mean waywardness, it implies responsibility. It should be regulated, guided and restrained freedom. Gandhiji also believes that real freedom comes through self-discipline – discipline that arises spontaneously from the inner spring of life rather than that which is imposed from without.

His concept of discipline is a synthesis of both freedom and external control. Idealists believe that human behaviour should have internal control rather than external control. For them authority begins by being external, but should end in becoming internal through habit formation and self-control.

Some Domains and Subjects According to Idealism

Intellectual	Moral	Aesthetic	Religious	Spiritual
↓	↓	↓	↓	↓
Literature	Ethics	Fine arts	Theology	Soul
Language			Scriptures	Metaphysics
Geography				
History				
Mathematics				

PRAGMATISM

Pragmatism is popularly regarded as an indigenous American philosophy. But its roots can be traced to ancient Greek philosophy. The term 'Pragmatism' is derived from the Greek word 'Pragma' which means work. Heraclitus and Sophist of ancient Greece are considered to be pragmatic in their approach to life. There were other contemporaries such as Protagoras and Gorgias. The background of pragmatism is associated with the works of Francis Bacon, John Locke, Jean Jacques Rousseau and

Charles Darwin. But the philosophical elements that give pragmatism a consistency and system as a philosophy in its own right are primarily the contributions of Charles Sanders Pierce, William James and John Dewey though they differ considerably in their methods and conclusions. Pierce's view of pragmatism is oriented towards physics and mathematics and Dewey's towards social science and biology. James's philosophy on the other hand, is personal and psychological, and is motivated by religious considerations.

Pragmatists reject metaphysics as a legitimate area of philosophical inquiry. Reality, they opine, is determined by an individual's sense experience. Man can know nothing beyond his experience. So questions relating to the ultimate nature of man and the universe simply cannot be answered because these problems transcend one's experience. For example, there is no way for any living being to determine whether there is life after death, because one cannot experience life after death while living. Any conclusion we make about life after death is merely conjecture or guess. They believe that reality is in constant flux. There is nothing in the world which is static, permanent or eternal.

According to pragmatism, knowledge based on experience is genuine and worthy of acquisition. Since the phenomena are constantly changing, so knowledge and truth must change accordingly. The knowledge which is helpful in solving present-day problems is most preferred. They emphasize functional knowledge and understanding.

Pragmatism does not believe in standard, permanent and eternal values. According to this philosophy, values derive from the human condition. Because man is a part of the society, so the consequences of his actions are either good or bad according to their results. If the consequences are worthwhile, then the value of the action is proven to be good. Thus, values in ethics and aesthetics depend upon the relative circumstances of the situation as it arises. Ultimate values cannot exist. Pragmatism, being a practical and utilitarian school of philosophy, has influenced

education to the maximum extent. It considers activity as the basis of all teaching and prefers self-activity in the context of co-operative activity. It creates optimistic men, who are the architects of their own fate by the process of their efforts. They want that education should be according to one's aptitudes and abilities.

Individual must be respected and education should be planned to cater to his inclinations and capacities. But individual development must take place in social context. The aim of education, according to pragmatism, is to teach one how to think so that one can adjust to an ever changing society.

In order to produce creative, resourceful and adaptable children we should have conditions in the school which are conducive to the creation of these qualities of mind. The children should not be asked to work according to predetermined goals. They should determine their goals according to their needs and interests and in conformity with the demands of the activities that they have undertaken. For them the teaching-learning process is a social process where the sharing of experiences between the teacher and taught takes place.

PRAGMATISM AND CURRICULUM

According to pragmatists the main focus of education is not social heritage of the past, but the good life in the present and in the future. The standard of social good is constantly changing, so it should be tested and verified through changing experience. Life does not stand still and there is a constant need for improvement. John Dewey, however, is of the view that acquaintance with the past experience is very important for effective handling of the present as well as the future.

Pragmatists are of the opinion that the curriculum at the school should reflect the society.

They have rejected the traditional approach to the subject matter of curriculum which is associated with formal schooling,

where knowledge is separated from child's own interests, needs and experiences and is fragmented or compartmentalized. They emphasize the needs and interests.

Understanding Education of the children. This does not mean letting children do anything they want. Interests and needs do not necessarily mean the dictates of whim. Dewey opines that all learning should be particular and contextual to a given time, place and circumstances. For example, history is traditionally taught to the student without considering its relevance to the everyday experience. So what is the use of studying history? Whatever may be the subject matter it should liberate and enrich personal life by furnishing context, background and outlook.

Dewey in his book "Democracy and Education" recommended three levels of curricular organization: (1) making and doing; (2) history and geography; and (3) organized sciences.

At the first curricular level, making and doing, should engage students in activities and projects based on their experiences. This idea is similar to that of Mahatma Gandhi who is considered as an idealist, a naturalist as well as a pragmatist. He believes in the principle of learning by doing.

Forms of Pragmatism

- (i) **Humanistic Pragmatism:** Means that every act should be for the benefit of mankind. According to it, truth is only that which may fulfill the needs of mankind.
- (ii) **Experimental Pragmatism:** This is the practical aspect of pragmatism, believe in truth proved by experiment and changes according to environment. Dewey advocates that the progress of understanding of the universe is based on truth proved by experiment.
- (iii) **Biological Pragmatism:** This is again practical aspect of pragmatism. It is found in function of thought or in adapting the human organisms.

Pragmatists believe in a broad and diversified curriculum. They endorse a more general education as opposed to narrow specialization.

Pragmatic curriculum is composed of both process and content. When we consider what a child learns as fixed and ready-made, attention is directed too much upon outcome and too little upon process. Pragmatists focus some attention on process, because ends should not be divorced from means. So they assert that the means, used to accomplish something dictate what the actual ends and outcomes really are.

ROLE OF THE TEACHER ACCORDING TO PRAGMATISM

Pragmatism neither treats the teacher merely as a spectator as naturalist does, nor regard him as indispensable as idealism does. According to pragmatism, *the teacher is not a dictator or task master but a leader of group activities*. The chief function of a pragmatic teacher is to suggest problems to his pupils and to stimulate them to find solutions. Teachers ought not to try and pour information and knowledge into the pupil, because what pupil learns depends upon his own personal needs, interests and problems. Dewey views the teacher as a resource person who guides rather than directs learning. The teacher's role is primarily that of guiding learners who need advice or assistance. Direction comes from the requirements of solving the particular problem. Educational aims belong to the learner rather than the teacher.

Since pragmatists are concerned with teaching children how to solve problems, they should select real life situations which encourage the problem-solving ability among the children.

For a problem to be solved correctly, the learner with the help of teacher's guidance needs to establish a correct procedural sequence to solve a particular problem.

A pragmatist teacher needs to be patient, friendly, enthusiastic and co-operative. Although coercion might force the students to achieve immediate results, it is likely to limit the flexibility needed

for the future problem-solving. The teacher's control of the learning situation is ideally indirect rather than direct. Direct control, coercion or external discipline generally fails to enlarge the learners internal disposition and does not in any way contribute to the learner to become a self-corrected person.

As a resource person, the pragmatic teacher needs to be non-interfering or what Dewey refers to as 'permissive' and allow students to make errors and to experience the consequences of their actions. In this way, he/she helps the students to become self-directed persons. For Dewey, permissiveness does not mean that children's whims should dictate the curriculum.

But rather, the teacher as a mature person should exercise professional judgement and expertise, so that the consequences of action do not become dangerous to the students themselves or to their classmates.

The pragmatic teacher should constantly be aware of the motivation factor. Dewey opined that children are naturally motivated and the teacher should capture and use the motivation that is already there. He also pointed out that the teacher should pay respect to the principle of individual differences and treat them accordingly. A pragmatic teacher wants his pupils to think and act for themselves, to do rather than to know and to originate rather than repeat. The pragmatic teacher is a pragmatist first and a teacher afterwards.

PRAGMATISM AND DISCIPLINE

Pragmatism does not believe in the traditional maxim "work while you work and play while you play". Rather it advocates a discipline that can be maintained through play as work. According to the pragmatists, it is the mental attitude which converts a work into play and play into work. For example, a football game becomes a work if it is played due to some external pressure and difficult algebraic sum becomes play if it is solved

out of zeal. Pragmatism does not believe in external discipline enforced by the superior authority of the teacher. It supplements discipline with greater freedom of activity. They feel that discipline which is based on the principles of child's activities and need is beneficial. They want that the interest of the child should be aroused, sustained and satisfied. The pragmatists believe that the learner's freedom is not anarchy or allowing the child to do anything without considering the consequences. Rather they believe in the purposeful co-operative activities carried on in a free and happy environment. Control comes from the co-operative context of shared activity, which involves working with the fellow mates. In pragmatism there is no place for rewards and punishments as every activity is to be pursued in a social setting where teacher should come down to the level of children, mix with them, and share their interests, and participate in their activities.

Differences between the three Philosophies of Education

Naturalism	Pragmatism	Idealism
Fundamental Principles		
1. Nature alone is entire reality, it is readymade.	Reality lies in the process, it is still in making, not readymade.	Mind and thought are real.
2. The outlook of the naturalist is materialist.	The outlook of a pragmatist is social.	The outlook of a idealist is spiritual.
3. They do not believe in existence of God.	Pragmatist believes in the existence of God to an extent.	Believe in the existence of God.
4. Ultimate reality is physical.	Ultimate reality is utility.	Ultimate reality is spiritual.
5. Universe is natural creation.	Universe has been created by man.	Universe has been created by God.
6. They do not believe in value, soul, God, religion and divine spirit.	According to them, values are changeable and are created by men. It is relative to time, place and circumstance.	Eternal spiritual values never change. Truth, goodness and beauty are eternal values.
7. Physical and natural laws are universal.	No laws is universal.	Spiritual laws are universal.

Naturalism	Pragmatism	Idealism
Educational Principles		
1. Nature is the base. "Follow nature" is the slogan.	Society is the base. Emphasis is on physical and social environment.	Spirituality is the base. Emphasis is on the spiritual and moral environment.
Aims of Education		
1. The aim of education according to naturalism is self-expression.	The aim of education according to pragmatism is dynamic in nature.	The aim of education according to idealism is self-realization.
2. It emphasizes the autonomous development of the individuality.	It aims at social efficiency.	It aims at spiritual development.
3. Adjustment to environment.	Adjustment with present and to change the present.	Presentation and enrichment of cultural environment.
Curriculum		
1. Emphasis in on sciences.	Emphasis is on practical utilitarian subjects.	Emphasis is on ethics and study of humanities.
2. Curriculum is based on need, ability, aptitude, and on the nature of the child.	Based on the principle of utility, integration and child's natural interests and experience.	Based on moral, spiritual and intellectual values.

Naturalism	Pragmatism	Idealism
Discipline		
1. Uncontrolled freedom, discipline through natural consequences.	Restricted freedom and social discipline.	Emphasis on regulated freedom and self-discipline.
Teacher's Role		
1. Teacher's role is from behind the scene.	Teacher occupies an important place in education.	Teacher's position is very high. They have high expectations of the teacher.
2. Teacher is not to interfere in the child's activities.	Teacher puts the pupil in the position of a discoverer or experimenter.	Teacher guides, directs, suggests and controls the situation.



CHAPTER

2

Concept of Teaching and Learning

PSYCHOLOGY

Word psychology, has its origin from the two Greek word – *Psyche* and *Logos*.

The word 'Logos' stands for a rationale discourse or a study. However, the meaning of the word 'Psyche' have been in a state of change from time to time, leading to the subsequent changes in the ways of defining the term psychology as:

- (i) By taking the meaning of the word psyche as a soul, Psychology was first defined as the "study of the soul".
- (ii) The philosopher and psychologist tried to define Psychology as the "study of the mind", by giving a new meaning to word psyche in the shape of 'mind'.
- (iii) The criticism and unacceptability for the word Psyche as a soul or mind led to new definition.
According to psychologists *William James* and *Edward B.*, "The description and explanation of the state of consciousness is the task of psychology which is usually done by introspection."
- (iv) An American Professor in 1911 gave the behavioral definition of term psychology as "a science of human behaviour".

In 1961, N.L. Munn summarized as "Psychology today concern itself with the scientific investigation of behaviour".

METHOD OF STUDY IN EDUCATIONAL PSYCHOLOGY

- **Introspection method:** It means "to look within". This method was developed by W. Wunt. It includes mental process of thinking, feeling and motives. It is subjective method and is easy and simple method. The main disadvantage is that reported self-observation cannot be qualified and on the basis of introspection of an individual, formulation can be made.
- **Observation method:** It means, "to employ listening and seeing about the situation or an individual behavior" (P.V. Young). It employs own experiences and establishes cause effect relationship. It is an objective technique of data collection and getting direct information. It is both a qualitative and quantitative technique.
It has limited scope, as based on the memory of the observer which play significant role in recording the observations. It is very time consuming and overt behaviour can only be observed.
- **Experimental method:** It is a scientific and objective method of psychology. It helps in understanding the behavior occurrence in a controlled situation. It advances precise knowledge and helps in formulating new theories, law and problems.
The experimental study is time consuming and the results are influenced by sampling error.
- **Survey method:** This method describes and interprets the existing state of trends which are developing.
The survey method is helpful in planning various educational programmes that have universal application.

It is not concerned with the characteristics of an individual.

- **Case study method:** It is also known as clinical, study. It is the intensive investigation of an individual.
According to P.V. Young, "Case study is the method of exploring and analyzing the life of an individual". The purpose of this method is clinical diagnosis.
- **Psycho-analytic method:** Is the method for studying the unconsciousness.
- **Differential method:** It means studying various relationship and associations between two variables being used. Basic ways are co-relational, longitudinal and cross sectional.
- **Clinical method:** This method uses diagnosis and remedial or treatment measures. This method aims at going into the depth of nature of problem, cause and then suggests the possible remedy or treatment for helping the sufferer from getting rid of problem.
- **Questionnaire method:** This, in general is referred as a device or instrument consisting of some systematically planned questions in the shape of a form which the respondents fill in themselves for providing answers to the questions asked.
- **Biographical method:** It includes observation of the growth at various stages or levels of development.
- **Psychodrama or Role playing technique:** Role playing is a method where real life situations are simulated by group members/participants. This provides new insight, intuitions, skills and understanding of opposing viewpoints.
- **Sociometric technique:** The purpose of this technique is to study the nature of social relationship of individual

within a group. It offers an opportunity to identify personality problems, especially in isolates and the rejects.

- **Rating Method:** In this method, the individual or group is studied and rated with reference to a rating scale which places the subjects in certain ranks or orders.
- **Projective Method:** Projective methods focus on a composite picture of the personality as a whole. This method is called projective because the individual is stimulated to project his personality into the test exercises. The stimuli used in projective techniques attempt to arouse responses that are a projection of the inner self or motives and personality traits that are usually hidden and often even unsuspected by the individual himself.

MEANING AND SCOPE OF EDUCATIONAL PSYCHOLOGY

Education Psychology has areas of study in both education and psychology. It is a result of interdisciplinary approach of education.

Definitions

"Educational psychology deals with the behaviour of human being in educational situation. It is concerned with the study of human behaviour or personality its growth, development and guidance under the social process of education." —C.E. Skinner

"Educational a psychology describes and explains the learning experiences of an individual from birth through old age".

—Crow and Crow

"The major concern of educational psychology is with learning. It is that field which is primarily concerned with the scientific investigations in the psychological aspects of education".

—Sauray and Telfere

"It is a science by its own rights and thoughts. It draws its materials from general psychology and applies it to teaching learning process".

—H.R. Bhattacha

Following are the Scope of Study of Educational Psychology:

- To co-ordinate the teaching in accordance with the interest and aptitude of the child and try to develop it.
- To study the natural aptitudes, instinct, capabilities, interest and special abilities of the children and make effort to develop them.
- To find out the cause of the abnormal behaviour and to remove those abnormalities.
- To find out the rules and regulations governing the physical, intellectual, emotional and social development of the children and try to educate them in accordance with these traits.
- To conduct objective tests and try to standardized them. This has to be done in order to test the success of educational programme.
- To throw light on psychological defects of the teacher and other defects of the art of teaching and to find out ways and means for their removal.
- To provide educational guidance to the students.
- It has find out ways and means for activating the knowledge of students reading in school.
- To discover and find out new programmes and projects for developing experiences of the children.
- To analyze the emotional difficulties and find out their cause. Effort is also made to help and make the student acquire health habits.
- An attempt is made to make teaching and education conform to the innate tendencies of the children and remove their difficulties.
- To provide proper education, advice and minute study of heredity and environment of the child if necessary.

OBJECTIVES OF EDUCATIONAL PSYCHOLOGY

- To understand development characteristics at different stages.
- To develop effective teaching methods and techniques.
- To identify individual differences among students.
- To understand the nature of classroom teaching learning process.
- To identify the needs and problems of children.
- To provide knowledge of mental health.
- To understand the principles of curriculum construction.
- To develop knowledge and skills of measuring learning outcome.
- To provide guidance to the children.
- To develop positive attitude among children.
- To understand the group dynamics of classroom students.
- To develop understanding and skill for the techniques of motivation and reinforcement.
- To understand learning theories and learning conditions.
- To develop knowledge of A-V aids and use in classroom teaching.
- To develop competencies for administration, preparing time-table and organizing co-curricular activities.

MEANING OF TEACHING AND LEARNING**LEARNING**

Situations are most natural and common in life and everyone of us is learning one thing or the other although he may not necessarily be aware of it. An individual starts learning immediately after his birth.

"The term learning covers every modification in behaviour to meet environmental requirements".

—Gardner Murphy

"Any activity can be called learning so far as it develops the individual and makes him alter behaviour and experiences different from what that would otherwise have been".

—Woodworth

"Learning is the acquisition of habits, knowledge and attitude. It involves new way of doing things and it operates on an individual's attempts to overcome obstacles or to adjust to new situations. It represents progress in behaviour. It enables him to satisfy interests to attain a goal".

—Crow and Crow

"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 or temporary state of the organism".

—Hilgard

Following are the basic conditions of Learning:

- Continuity
- Practice
- Reinforcement or motivation
- Generalization
- Discrimination

Following are the Characteristics of Learning

- Learning is the change in behavior.
- Change in behaviour caused by learning is relatively enduring or permanent.
- It is a continuous life long process.
- Learning is a universal process.
- It is purposive and good directed.
- Learning involves reconstruction of experiences.
- Learning is the product of activity and environment.
- It is transferable from one situation to another.
- It does not necessarily imply improvement.

- It does not necessarily imply the development in right direction.
- Learning helps in bringing desirable changes in behaviour.
- Helps in the attainment of teaching learning objectives.
- Helps in proper growth and development.
- Helps in balanced development of personality.
- Helps in proper adjustment.
- Helps in realization of the goals of life.
- Learning is a very comprehensive process, possessing a wide scope.

TEACHING

Teaching is a social phenomenon, whereas learning is a psychological phenomenon. It is difficult to define the term teaching as a series of acts based on the model of behaviour, are appropriate to different kind of situations.

Definitions

"Teaching as an intimate contact between a mature personality and a less mature, which is designed to further the education of the latter?"
—H.C. Morrison

"Teaching as an interactive process, primarily involving classroom talk, which takes place between teacher and pupil and occurs during definable activities."
—Edmund Amidon

N.L. Gage defined according to the democratic model of behaviour, "Teaching as a form of interpersonal influence aimed at changing the behavior potential of another person."

B.O. Smith has defined the term teaching universally. Teaching is a system of action intends to induce learning through interpersonal relationship of teacher and taught".

Following are the Characteristics of Teaching:

- Teaching is a social and professional activity.
- Teaching is observable through teacher behaviour or pupil teacher interaction.
- It is measurable and quantifiable by observational techniques.
- It is modifiable by the use of mechanism or feedback device.
- It can be analyzed in the following ways:
 - Types of teacher-activities.
 - Types of educational objectives.
 - Types of learning conditions or structures.
 - Types of learning components.
- It is a linguistic process.
- It is a therapy for learners.
- It is a prescription to the students.
- It has telling, showing and doing functions.
- It involves encouraging, harmonizing, expressing and balancing functions.
- It is continuum from conditioning to indoctrinations through training and instruction.

STEPS OF TEACHING AND LEARNING

1. Planning of teaching:

- Task analyses
- Identification of teaching objectives and fulfilling them.

2. Organizing teaching:

- Selecting appropriate teaching tactics.
- Selecting appropriate teaching aid.
- Selecting appropriate communication strategies.

3. Learning the teaching – means to give the way:

- Harnessing student's motivation.
- Selecting appropriate motivational strategies.
- Ability of students involved in the test.

4. Controlling of teaching:

- Measurement and evaluation through examinations including long questions, short questions and objective type.

RELATIONSHIP BETWEEN TEACHING AND LEARNING

Both are inter-related and are two sides of the coin. Teaching becomes complete when learning is added to it. There are two parts of teaching:

1. Teacher
2. Learner

According to *Smith* (1961), "Learning does not necessarily issue of teaching that teaching is one thing and learning is quite another". It enables us to analyze the concept of teaching without referring the process and conditions of learning.

While *Clark* suggests a definition of teaching activities that are designed and performed to produce change in student-behaviour.

Bloom (1965) states that teaching activities: Lecture, question-answer, discussion, discovery and assignments to achieve cognitive, affective and psychomotor goals.

N.L. Gage considers process of teaching and learning must be adapted to each other so as to make whatever combination of procedure pays off best. We should conceive teaching-learning as process for effective learning. These definitions indicate that learning is essential for teaching and the learning structure should be considered for effective teaching.

Burton (1958) made an attempt to investigate that relationship between teaching and learning and gave the following reasons and influencing factors:

- Teaching can be made effective by relating it to learning.
- Teaching objectives can be identified in behavioural terms and appropriate learning situation may be created to realize these objectives.
- The appropriate teaching conditions and structures may be generated for effective learning.
- Effective teaching aids may be selected for creating learning situations.
- The knowledge of the relationship will be helpful for teacher-education to produce effective teachers.

THEORIES OF LEARNING

These represent broad principles and techniques of learning. The set of rules and the laws of learning, having wide applicability, are drawn from these theories.

Modern learning theories may be classified into two broad types, viz;

(a) Stimulus response association's type: These interpret learning in terms of change in behaviour of the learner brought about by association of the response to a series of stimuli.

The chief exponents of this type of theories are:

- Edward L. Thorndike
- John B. Watson
- Evan Petrovich Pavlov
- B.F. Skinner.

While the ideas and system propagated by Thorndike is called 'connectionism' the system presented by Watson and Pavlov is known as 'classical conditioning' and the system given by skinner is called 'operant conditioning'.

(b) **Gestalt field or field cognition type:** These look upon learning as the change in the field consisting of the learner and his environment and the learner's perception of field. These theories emphasize the role of purpose, insight and understanding in the process of learning. The chief exponents are:

- Max Wertheimer
- Kurt Koffka
- W. Kohler
- Kurt Lewin.

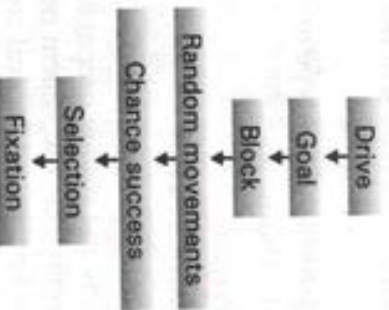
1. Thorndike's Connectionism or Trial and Error Learning:

Thorndike propagated his theory with the help of experiments. With this, he tried to evolve certain laws and generate a theory.

Example of one of his experiments:

He put a hungry cat in a puzzle box. There was only one door for exit which could be opened by correctly manipulating a latch. A fish was placed outside the box. Consequently, the cat made every possible effort to come out. It made a number of random movements, by chance, the latch was manipulated. The cat came out and got its reward. Now it was able to open the door without any error.

The experiment sums up the following stages in the process of learning:



Thorndike maintained that the learning is nothing but the stamping in of correct responses and stamping out of incorrect ones through trial and error. He called it, "Learning by selecting and connecting" as it provides an opportunity for the selection of the proper responses and correct them with adequate stimuli.

2. Watson's and Pavlov's Classical Conditioning: After

performing various experiments upon the subjects psychologists like Watson and Pavlov generated a new theory of learning known as Conditioned Response Theory or simply learning by conditioning.

Illustration of one of his experiment:

Pavlov kept a dog hungry for the night and tied it to the experimental table which was fitted with certain mechanically controlled devices. Every time the food was presented before the dog, a bell was rung. There was a automatic secretion of saliva from the mouth of dog. The activity of presenting the food accompanied with a ringing of bell was repeated several times. After several trials, the bell was rung but dog was not presented food. It was found that even in the absence of natural stimuli, an artificial stimulus caused the natural response. It considers the learning as a habit formation.

The conditioning theory of learning put forward by these two psychologists involves the conditioning of the respondent behaviour through process of stimulus association and substitution.

3. Skinner's Operant Conditioning: Skinner revolved

against 'no stimuli, no response', mechanism in the evolution of behaviour. He argued that in practical situations in our life we cannot always wait for things to happen in the environment. Therefore, it is not always essential that there must be some known stimuli or cause of evoking a response.

Operant conditioning refers to a kind of learning process whereby a response is made more probable or more frequent by reinforcement. It helps in learning of operant behaviour, the behaviour that is not necessarily associated with a known stimulus.

Skinner, in one of his experiments, placed a hungry rat in the special apparatus known as Skinner's box. In this experiment pressing of the bar in a desirable way by the rat could result in production of a click sound and presence of food pallet. The click sound acted as a cue indicating that if it responds by going to the food cup, it will be rewarded. The rat was rewarded for each of his proper attempt for pressing the lever. In this way, the rat learned the art of pressing the lever as desired by the experimenter.

The important thing in the mechanism of operant conditioning is the emitting of a desired response and its proper management through suitable reinforcement and thus learns the desired act.

4. Kohler's Gestalt or Insightful Learning: Gestalt

Psychologist tried to interpret learning as a purposive, exploratory and creative enterprise instead of trial and error or simple stimulus-response mechanism. Learner, while learning, always perceives the situation as a whole and after seeing and evaluating the different relationships takes proper decision in an intelligent way.

Gestalt psychology used the term 'insight' to describe the perception of the whole situation by the learner and his intelligence in responding to the proper relationships.

In one experiment, Kohler put the chimpanzee, sultan inside a cage and a banana was hung from the roof of the cage. A box and a stick were placed inside the cage. The chimpanzee tried to reach banana by jumping but failed. Suddenly he got an idea and used box as a jumping

platform and made wise use of stick to get the hanging banana.

With such experiments, Kohler concluded that to solve a problem, blind, trial and error mechanism cannot be used. Insight requires the following criteria:

- The situation as a whole is perceived by learner.
- Learner tries to see and judge the relationship between various factors involved in the situation.
- As a result, the learner is helped in the sudden grasping of the solution of the problem.

Insight depends upon the following factors:

- (a) Experience (Post)
- (b) Intelligence
- (c) Learning situation
- (d) Initial efforts
- (e) Repetition and Generalization.

INDIVIDUAL DIFFERENCES

"No two individuals of the same race are quite alike, we may compare millions of faces and each will be distinct".

—Charles Darwin

DEFINITION

The difference among individuals, that distinguish or separate them from one another and makes one as a unique individual in oneself, may be termed as individual differences.

There is a citation of two different explanations given for individual difference in the "Dictionary of Education" by Carter B. Good.

- Individual difference stand for, "the variations among individuals in regard to a single characteristic or a number of characteristics".

- Individual difference stands for, "those differences which is their totality, distinguish one individual from another."

Being alike in some aspects we are definitely different in so many ways. We, inspire of belonging to common species known as "human beings" have our own individuality which contributes towards the variance and differences found in ourselves. It is these differences in human beings that are entitled as individual differences in the language of sociology and psychology.

The individuals not only differ from one another, but also each individual differs from one ability to another within his own self.

The problem of individual differences, therefore can be viewed from two sides:

1. Differences in abilities from individual to individual.
2. Differences in abilities within the same individual.

CAUSES OF INDIVIDUAL DIFFERENCES

There is no definite measure of the extent of the individual differences. It has been found that there is a continuous graduation from one extreme to the other.

Thorndike discusses the causes of individual differences under five main heads as:

1. **Sex:** It has been discovered that girls are more superior to boys' in test of memory. Also superiority of females over males has been found in linguistic ability. Small differences have been found in favours of males in reasoning, computation, mathematical ability and number concepts.

According to these differences there has been found marked differences in interests, preferences, educational and vocational emphasis.

2. **Race or Remote Ancestry:** There is no evidence of any national superiority in mental abilities. The fact should be subjected to the general principle that the degree and

form of mental development is the result of interaction between inherited abilities and the environmental influences.

3. **Maturity:** Individual differences of mental growth are found in infancy. The rate of growth is not the same at all the stages. It differs from stage to stage. Not only rate but the character of growth differs from one age level to another as maturation marches on.

Late in life, persons suffer from a decline in mental abilities. The decline proceeds gradually first, then increases with age.

4. **Heredity:** The importance of heredity is now fairly accepted. In fact, all the traits that an individual has physically and mentally are determined largely by his inheritance. The general principle of heredity is that children resemble their parents. Also heredity is said to move towards the average. This is called regression and traits when passing from parents to children tend to move towards average. The genius son of a genius father is a very rare thing.

The heredity of a child is not solely determined by his immediate parents. He inherits from his entire fore father and ancestors also or from the same stock their parents have inherited.

Thus, heredity unquestionably has a considerable influence on individual differences.

5. **Environment:** The nature of the human being is shaped through the interaction which takes place between the human organism and the environment. Our environment is our habitation in the fullest sense. Not only our physical surroundings but also the people around us, social customs and traditions, culture, education and training, all constitute our environment.

KINDS OF INDIVIDUAL DIFFERENCES

- **Inter and Intra differences:** Inter between two individuals. It may be possible that two persons differ in their intelligence, attitudes and interest.
On the other hand, Intra is within an individual. A person may have variability in intelligence, interest, attitudes etc. It may be possible that an individual has high intelligence but other traits are lower than that.
- **Physical and Physiological differences:** Individual according to their structure of body may be found differing in regards of height, weight, physique and colour etc. But physiological differences indicate differences which refers biological functioning.
- **Differences in ability:** This has become an established fact that individuals differ widely as regards to their 'IQ's'. Various intelligence tests have been used to test IQ and the results so obtained go to assert that individuals vary greatly on the scale of mental ability.
- **Differences in aptitudes:** Person's aptitudes refer to his potentialities. They vary from individual to individual. Aptitude of a person is one's ability to carry on a task to maximum success. It refers to one's special abilities. It is a common experience that all people cannot perform a particular activity with the same amount of ease and perfection.
- **Differences in personality:** Personality is not one single entity. It is a blend of a number of traits and abilities. But these traits and abilities and their integration and the process of their blending differ greatly from one individual to another. Therefore, we find differences in individual personalities.
Individual differences in intelligence, morality, sociality, temperament etc. results into differences in individual personalities.

- **Emotional differences:** Some individuals are very sensitive while some have normal level of emotionality. In the same way the ego of some persons are highly developed. As regards temperament of the individual is concerned there are differences likewise in ego.

INDIVIDUALIZING EDUCATIONAL PROGRAMMES

If the teacher recognizes and accepts the fact of individual differences his approach to pupils will be more positive. All that the teacher can do is to provide opportunities for learning and practice. Understanding individual differences the teacher will be able to devise such remedial programmes of instruction as will help slow learners to achieve better results. In attempting to meet the varying needs, interests and abilities of pupil and enable each pupil to grow and develop at his own rate several teaching procedures and types of pupil classification and promotion are being extensively used in schools.

- (a) **Individual Instructions:** Individual instruction is considered as a ready solution of the problem of individual differences. Individualized instruction helps to concentrate attention on the work of individual rather than on the average work of the class and the teacher can acquire intimate knowledge of each pupil's interests and vocational tendencies. The slow pupil is allowed to work at his own rate and shows more satisfactory results. The teacher gets an opportunity to develop diagnostic skills in discovering how different pupils respond to a task or a problem. Thus, individual instruction seeks to meet individual differences through a degree of variable instruction.

- (b) **Group Instructions:** Individual instruction misses the social value of group work and therefore, group instruction is advocated. It saves the teacher from duplicate preparation and explanation and simplifies the

problem of individual management. Group work provides for the social value of education, a desire to win the good opinion of others and acquire strong motivation.

- (c) **Project Method:** In this problems are given to students to solve on their own behalf. A project has its own purpose and is activity oriented. A pupil is free to select work of his own choice and capabilities. He works in his own way from planning till execution of the projects. He is completely free to do his work in accordance with his need, interests and potentialities.

- (d) **Activity Programme:** In this method the different subjects are taught with activity as centre of each subject. A child can select any activity according to his interests, aptitudes etc. The whole learning process becomes child-centered instead of teacher-centered. Thus, students plan, organize, evaluate and draw results of project independently with great success and effectiveness.

- (e) **Programmed Instruction:** Programmed instruction is a method in which a pupil learns according to his speed and capacity. A topic is divided further in to many sub-topics. It is used for the purpose of self study. Individual differences are laid proper attention in this programme. Simultaneously his progress is also assessed. Thus, in programmed instruction a pupil follows the entire programme with keen zest and enthusiasm.

- (f) **Grouping according to ability:** The general practice of grouping pupil for purpose of instruction is pupil ability. The basis of the classification may be age differences, mental age, IQ, achievements, teacher's rating, physical or social maturity etc. But, such grouping has been strongly criticized as harmful socially and psychologically.

In practice the same class is divided into three section of bright, average and slow pupil. These three sections cover the same course of study but at different rates of speed.

- (g) **Diagnostic and Remedial Teaching:** There are some children whose abilities are rather irregular owing to genetic or physical factors habits interest purpose or environmental background. Ideally, then it is the school's responsibility to observe child's general intellectual level but to discover his special abilities or weakness by teacher's educational tests. In brief, diagnostic tests point out individual's difficulties in a particular subject, while remedial teaching suggests remedy or provisions to overcome these difficulties.

- (h) **Acceleration:** Here, brighter pupils are allowed to skip classes and double promotions are permitted to pupil who have done exceptionally well. This method of acceleration suits to junior classes but is not desired for higher classes, as it may create some emotional problems to them.

- (i) **Enrichment of Curriculum:** Provision for individual differences does not end with differentiated curriculum. Hence, fostering creativity in children and provision of co-curricular activities will do great in this regard.

INDIVIDUAL ACCOUNTABILITY

Individual accountability is an obligation and responsibility of an individual to perform assigned duties to the best of his ability, capacity and efforts according to the direction of his executive.

Components of individual accountability are as follows:

- Commitment to his profession or his job.
- Completing his responsibilities with devotion.
- Review of performance of teacher or principal.
- Quality of work or quality of his profession.
- Positive attitude towards own profession.
- Interest and belief in roles.
- Exercising authority and right properly.

PROFESSIONAL DEVELOPMENT OF TEACHER

Major objectives of the programmes for the professional growth of teachers are follows:

- To enable teachers to understand the needs, interests and behaviour, patterns of students.
- To develop teaching skill that would help the teacher to improve his teaching effectiveness, in addition to employ several teaching techniques to cater to the needs of students at large, medium and small groups.
- To help the teacher improve his ability to communicate effectively in the classroom and is to ensure better student participation in the teaching learning situation.
- To enable the teacher to provide guidance to his students in their learning problems and in developing the all round personality of the students.
- To understand that the problem that arise in management of the students in the classes and workout strategies to solve them.

Some of the common types of programmes for professional growth of teachers:

- **Content courses** – are conducted to upgrade the teachers in their specialization in terms of knowledge of the latest developments, current issues and trends, their application and their relevance to teaching.
- **Refresher courses** – are generally organized to give an opportunity to teachers to refresh and improve their knowledge of the subjects they teach and widen their experience in the methodology of teaching. These courses enable the teacher to keep abreast of progress in educational theories and practices.
- **Summer programmes** – can be on one specific topic or area, covering invariably all aspects of teaching learning

- process such as content, methodology, educational technology and evaluation. Summer programmes sponsored by U.G.C. are most popular. Other agencies are ICSSR, (Indian Council of Social Sciences Research), ICMR (Indian Council of Medical Research) etc. that also provide financial assistance to conduct summer programmes.
- **Short term courses** – could be for orientation purpose of upgrading of subject or improving pedagogical skills.
 - **Workshop and Seminars** – in this, there is considerable output from the participants in a workshop. The major concern is to provide opportunities that are to be challenged by one's peers. The essential features are the intensive consideration of practical problems of teaching, informal working conditions, sharing of the experiences and the availability of a range of resources. The core of workshop is in the area of group thinking and joint planning. Evaluation is a co-operative process during workshop/seminar.



Curriculum

INTRODUCTION

The term curriculum is of Latin origin and it implies an athletic ground, thus indicating that curriculum is the ground through which the educand has to pass in order to reach a definite goal.

In the past, this term was taken as a collection of knowledge and skill and did not imply educand's needs.

According to the modern interpretation, "Curriculum is the organized form of subject matter, specially prepared for experiences and activities which provide the student with the knowledge and skills he will require in facing the various situations of real life".

In the words of *Munroe*, "Curriculum embodies all the experiences which are utilized by the school to attain the aims of education. The curriculum includes all the learner's experiences in or outside school that are included in a programme which has been devised to help him develop mentally, physically, emotionally, socially, spiritually and morally".

According to *Cunningham*, "Curriculum is the tool in the hands of the artist (the teacher) to mould his material (the pupil) according to his ideal (objective) in his studio (the school)".

According to *Castwell*, "The curriculum is all that goes on in the lives of the children, their parents and the teachers. The curriculum is made up of everything that surrounds the learner in all his working hours". In fact this has been described as "the environment in motion".

According to *H.H. Horne*, "The curriculum is that which the pupil is taught. It involves more than the acts of learning and quiet study, it involves occupations, production, achievements, exercise and activity".

OBJECTIVES OF CURRICULUM DEVELOPMENT

- Curriculum should provide the means of all-round development of a student. Teaching should be organized with the help of curriculum.
- It must involve the human experiences, cultures and civilizations which are to be transferred to new generation.
- It should be the means to develop the moral character, discipline, honesty, co-operation, friendship and sympathy with others.
- It should help in developing the ability of thinking, wisdom and reasoning.
- It should consider stages of growth and development of the child for development of interests, values, attitudes and creative ability.
- It should provide awareness and understanding of physical and social environment and its components.
- It should develop right type of feeling and beliefs towards religions, new values and traditions.
- It should integrate knowledge of various teaching subjects in view of their future life.

- It should determine the mode of interaction between the teacher and the students in schools. The mode of teaching is decided by the nature of curriculum.

BASES OF CURRICULUM

In order to develop a need-based and up-dated curriculum, it should have a strong base.

Following are Five Bases of Curriculum:

1. **Social demand**
 2. **Availability of resources**
 3. **Human development**
 4. **Nature of learning**
 5. **Nature of knowledge and cognition**
1. **Social demand:** Education is an instrument of social change and college a sub-system of a society. The society has great influence on education and therefore, the society as a whole has certain expectations from its younger generation who are the future builders of the society. These social expectations determine the agenda of education. A well designed curriculum must include and reflect upon the social agenda to help in the shaping of the future society, e.g., the social demand of physiotherapy education is from the expectation that younger generation will take up the profession for the benefit of society.
 2. **Availability of resources:** Education of a country is influenced by its economic stability. The curriculum should be designed in such a way that exploits optimally the physical and human resources available in a country. In other words, available resources available in the country should be taken into consideration while designing a curriculum, e.g., the physiotherapy curriculum in our

country has to be adapted according to the physical and human resources available in the country.

3. **Human development:** Human resource development draws our attention to think a fresh about children, their development stages, their learning processes, their attitudes, needs and interests. Psychologists' study of issues related to human development: and the influence of knowledge on human development will help in designing effective and efficient curriculum.

4. **Nature of learning:** The process of learning also influences curriculum development. In other words, the curriculum should be designed in such a way that it facilitates learning of the student and cannot ignore the role of theories of learning.

5. **Nature of knowledge and cognitions:** Students collect information and transform the information into knowledge. Also the thought process skills and the cognitive process skills and their relation should be kept in mind. Each learner has his/her own style of information collection and transformation. Thus, a good curriculum must provide alternative paths to suit the different learning styles of the learners.

PROCESS OF CURRICULUM DEVELOPMENT

Process of curriculum development can be divided into following seven stages:

1. **Assessment of educational needs:** India is a nation of multi-cultures. Since the background of students differs from culture to culture, place to place, and time to time, it is important to assess the needs of the learner.

As a first step, the curriculum planners should make a job analysis of different categories of learners. The job

analysis involves a detailed description of activities and the requirement of a job.

After the job analysis of different categories of students, an assessment of their educational needs is undertaken. Educational needs are felt when a student has requisite knowledge, skills or attitudes.

The following techniques can be used for the assessment of educational needs of the learners:

- Diagnostic tests
 - Questionnaires
 - Focus group discussions
 - Observation of learner's classroom behaviors
 - Staff assessment
 - Analysis of pupil's answer scripts
 - Periodic assessment report.
1. Knowledge, skills, attitudes which an individual possesses
 2. Knowledge, skills, attitudes which an individual requires to do a job efficiently
 3. Performance deficiency
 4. The need

$$1 - 2 + 3 = 4$$

2. Formulation of objectives: This includes the trans-formation of needs of the learners into objectives, which can be short-term, mediatory and long-term. While formulating objectives, following factors are taken into consideration.

- The objectives should be grouped in terms of three domains – cognitive, affective and psychomotor – proper grouping of objectives will help in planning

and developing a meaningful curriculum in terms of suitability and relevance of its content and evaluation.

- For each need of the learner, there should be corresponding objectives. Each educational objective will suggest a series and a variety of learning experiences.
- Objectives will be most functional if they are stated in terms of behavioural changes in the students.
- Attainment of objectives should lead the learner to attain the overall goals of education.
- Objectives should be modified, changed, updated and eliminated according to the changing needs of the society as this would help maintaining quality of education.

3. Selection of learning experiences: Learning experiences include physical, mental and emotional experiences or their integrations. These experiences bring desirable changes in behaviour of the learner. Following is a criteria for selection of learning experiences by Wood (1963):

- A learning experience should satisfy recognized need by the learner.
- It should be appropriate to the maturity and understanding of the learner.
- It should build towards consistent, continuing and dynamic goals.
- It should be based on social values.
- Preferably should be positive.
- It should be realistic.
- Should be efficient.
- It should not be limited by artificial barriers such as the four walls of classroom, subject matter, class bells and other impediments.

- It should involve total behaviour.
- Should be feasible for accomplishment.

4. **Determination of the content:** Content refers to the subject matter or the compendium of facts, concepts, generalization, principles and theories. All these contribute to the growth and development of a secular, democratic and socialist society. Following are the characteristics of the content:

- The content should help the learner become self-reliant and self-sufficient.
- It should be significant in contributing basic ideas, concepts etc.
- Selected content should be valid to fulfill the objectives and goals of education.
- It should suit to the personality and intellectual capabilities of the students.
- It should be useful in the job situation of learner.
- It should be feasible in terms of time, costs and contemporary social climate.

5. **Preparation of learning materials/activities:** This is a complex task. It demands a thorough understanding of the teaching-training processes. Following are the five criteria of selection of learning material by Wood:

- All learning material should make a definite contribution to the satisfaction of a recognized need on the part of the learner.
- There should be a variety of learning materials to provide for the individual differences.
- Learning materials should be as authentic as possible. This will tend to increase the objectivity of analysis and accuracy of conclusions drawn.

- Learning materials should be adapted to the maturity of the pupils.
- Learning material should be selected on the basis of efficiency.

6. **Implementation:** This is the stage of actual teaching-learning or transaction of curriculum. Following are the major factors leading to implementation:

- Adequate preparation of the teachers by the university and departments for meeting the needs of the curriculum.
- Sufficient supply of teaching aids and equipment needed for the implementation.
- Receptivity of the community to the new curriculum.
- Adequate preparedness of the students to accept the curriculum with its additional requirement of money, energy and time.
- Adequate supervisory and guidance facilities for effective implementation.

7. **Evaluation:** The primary purpose of evaluation is to ensure quality control and for suitable modifications. It may be 'qualitative' and 'quantitative'. It may be done at both 'formative' and 'summative' stage. Evaluation determines the worth of curriculum whether it fulfills its purpose for which it is planned.

CURRICULUM EVALUATION

1. Criteria for evaluation:

- (a) Subject-content.
- (b) Experiences.
- (c) Skills.

2. Types of Evaluation: Three types of curriculum evaluation:

- (a) **Formative:** Formal assessment is made in a situation when the curriculum is answerable to the public. In such situation, it must ensure:
 - Objectivity
 - Credibility
 - Relevance.
- (b) **Summative:** Assessment aims at certifying and grading the attainment of the learner in the end of a given course.
 - Test, for formative assessments are given at regular and frequent intervals during a course, while the test for summative assessments are given at the end of a course or a term.
 - The level of generalization sought by the items of a summative test must be higher as compared to that sought by the items of a formative test.
 - Formative assessment includes tests and other forms of measurements intended to give a measure of the parts of a curriculum. While, summative assessment includes such forms of measurement that would give a measure of success of the course as a whole.
- (c) **Development assessment:** It refers to the evaluation of the preliminary version of curriculum with representative sample of learners. It is generally treated as a part of the curriculum development schedule. This assessment help the activities of maintenance and revision of curriculum already developed.

CHAPTER

4

Methods and Techniques of Teaching

The various methods and techniques of teaching can be classified as:

- | | |
|---|----------------------|
| 1. Lecture Method | 2. Story Telling |
| 3. Demonstration | 4. Team Teaching |
| 5. Role Play | 6. Project Method |
| 7. Case Study | 8. Seminar |
| 9. Conference | 10. Workshop |
| 11. Symposium | 12. Discussion |
| 13. Brainstorming | 14. Panel Discussion |
| 15. Buzz Group or Buzz Session | |
| 16. Quiz Session | 17. Debate |
| 18. Assignments | |
| 19. Programmed Learning or Instruction | |
| 20. Teaching Practice | |
| 21. Problem Based Learning Method | |
| 22. Committee Method | |
| 23. Real Life Experience (Placement Method or Internship) | |
| 24. Field Trip or Excursion | |
| 25. Simulation | |



LECTURE METHOD*— one way*

Lecture, as every one of us knows, is one of the oldest, most basic, most commonly and widely used method of teaching and training. When a teacher takes the help of a lengthy short explanation in order to clarify his ideas or some fact, that explanation is termed as Lecture or Lecture method. It is a method in which a qualified speaker or teacher delivers a speech to an audience.

Merits

- It is easy to communicate facts, ideas, opinions straight a way without any distortion.
- The communicator can reach a large number of audience in a short span of time.
- There is no difficulty in making arrangements in general nor is preparation necessary on the part of listeners.
- On a typical or current subject, the lecture method is bound to create interest.
- A group of well experienced and knowledgeable participants can have an opportunity to get to know many things within a short time.
- If the subject is not controversial or there is no scope for a discussion, the lecture method is quite appropriate for a large group.

Demerits

- It is a one-way process. There is no feedback either to the teacher or to the trainees.
- If the lecture is not interesting it becomes matter of boredom.
- The average attention span being very short, the listeners may not pay full attention.
- The level of retention is low.

- The audience tend to be passive listeners. There is no opportunity to check the information through questions.

STORY TELLING*— close ended - climax told
— open ended - left to students*

Story-telling is another popular method for teaching or training in education. It helps to pass on the information and depict real life situations. The story can be close-ended or open-ended. In an open-ended story, two points of view are presented through two characters and the students or participants are made to decide what they would do in that situation. The teacher initiates discussion and helps them to draw conclusions. In a close-ended story, the situation is narrated with the climax and conclusion so as to help the students to have a full grasp of the situation.

DEMONSTRATION*— method or process - best.*

Demonstration is defined as:

- (i) The method or process of presenting or establishing facts; and
- (ii) The procedure of doing something in the presence of others either as a means of showing them how to do it themselves or in order to illustrate a principle.

Demonstration is a method of training in which the trainer gives an oral presentation of the subject matter while showing objects, sections and occurrences to which the subject matter refers.

Merits

- It attracts attention of the trainees.
- It convinces hesitant participants.
- It provides factual data and local leadership.

Demerit

The main demerit is non-availability of the required materials and equipment.

TEAM TEACHING*- many teachers → same pupils*

Team teaching is a type of instruction in which two or more teachers are given responsibility of working together for all or the same group of students.

ROLE PLAY*- Drama & no script*

Role play is a drama without a written script. A situation is given and each person is given his "role", but he is not told what to say. He says whatever seems natural and acts accordingly. Other people also say what comes naturally, and one is continually presented with situations in which he must make spontaneous "in role" responses. In role playing the real events are played out largely for the purpose of providing controlled experience to the trainees. Role play provides the experiences of real life, characters or situations familiar to the participants.

PROJECT METHOD*- Investigate*

Projects provide ample opportunities for learning by doing and investigating. They are also a way for the individuals to learn within the group, and for the group to learn from the community. In this process, trainees are expected to venture out into the community or to people or to an industry or an institute or an organization, seek their assistance in the task, collect from the local people the raw material or data or information which is to be systematized into learning content.

A project involves participants in work according to their own capacities and pace of work, and thus, makes use of their skills and experiences for the benefit of the group. The trainees learn more by project method and get the feeling of themselves being involved. In order to build their confidence, it is also essential to ensure that the project is successfully carried out by trainees, and that it has the good will and support of the host community and the institution. This can be used as an effective method to

train the functionaries who need exposure to the grassroots level experience in the field or to those involved in monitoring, feedback, evaluation and research.

Phases

- Selection
- Preparing on outline
- Execution of programme
- Evaluation.

Merits

- It requires lot of mental and physical work.
- It is a psychological method.
- It is also a step for learning by doing.
- The acquired knowledge is permanent.

Demerits

- It is time taking.
- Teacher has to put in more labour.
- Knowledge is not sequential.
- Balanced learning is not possible always of all students.
- Relation to real life is sometimes difficult.
- Economical cost is high.
- Co-relation to learnings is sometimes difficult.
- Character building is not possible.
- Correct use of time training for democratic way of life is difficult.

CASE STUDIES*- real life situation*

A case is a factual description of a real life situation. However, it does not include views and comments. It is a collection of bare facts, and provides for a learning situation to discuss, interpret and find a solution through critical thinking of a group of

students, which reflects co-operation and cohesiveness. Case studies fall under two broad categories:

- (i) Those in which the students diagnose the causes of a particular problem.
- (ii) Those in which the students act out to solve a particular problem.

SEMINAR

- *Subject of choice*

The seminar, as the word is commonly understood, means that the organizers, select a particular subject of interest to the participants, that the working papers in the subject are carefully prepared bringing out the different issues under the subject, but circulated to them in writing in advance as a short course or otherwise. Unlike group discussion, for a seminar papers are prepared and preferably circulated well in advance so that participants do not waste seminar time in reading the papers, and more so they can critically go through the paper(s) and come well prepared for discussion on every paper. At the end of the discussion in the general session, there is a summing up by the Director of the Seminar or by any other person presiding over the general session.

Merits

- It offers enough opportunities for the participation of the member participants.
- The absorption and retention of the seminar subject by the participants will be high.
- It enables shy participants to open up more easily.
- In small groups, it is also possible to pay greater individual attention to the participants, taking note of their varied backgrounds and levels of education.
- It provides each participant the opportunity for self-expression.

- When there is active participation of all the participants the discussion can be extremely interesting.
- Participants can attend seminars for a considerable period of time without feeling tired and bored.
- It is also a useful and effective method for finding out solutions to certain problems like problems of organisation and administration, etc.

Demerits

It does not permit the systematic presentation and understanding of a subject by the participants as the subject is split into various parts, and the big group is divided into a few groups which meet in parallel sessions and the discussion takes place on different parts simultaneously.

The participants might not get an idea of the whole subject in piece-meal discussions held in parallel sessions.

CONFERENCE

- *experience, opinion, qualifications*

A conference can be described as a pooling of experiences and opinions among a group of people who have special qualifications in the area. It is a meeting for discussion, especially a regular one held by an association or organization.

WORKSHOP

- *creative learning*

Workshop method is one among many techniques available to educators. As the name itself implies, all members of the group are engaged in the process of creative learning. Moreover, the participants are treated at par and every body has a significant contribution to make in bringing out the final product which may be in the form of booklets, study material, pamphlets, visuals, projects, syllabi, scheme on further course of action, etc.

SYMPOSIUM

→ Series of talks → 2-3 sessions
 sample - sub p/bm

A group or a series of talks, short speeches or lectures by several individuals or experts which are delivered in various phases of a single subject-problem and which requires to be studied in varied manner.

Merits

It may be more interesting than the lecture method in the sense that speakers change in each speaking for a short time bringing in a variety of faces and voices with a variety in their talk as well.

Demerits

Some times, poor speakers may cause boredom for the audience, good speakers may be disappointed with insufficient time, organizers may feel it difficult to coordinate the time and the speakers as well.

DISCUSSION

→ Group Education

According to Lee, "Discussion is a group education". In this the students discuss a problem together. A topic is taken and teacher encourages students to discuss. Teacher develops the lesson with the help of answers, reactions and positive response. If also need, the teacher helps the pupil in solving the problem. This is an active oral method in which opportunities of interaction between student and teacher arises. It is result in a change in the attitude, feeling of motivation for course along with the acquisition of knowledge.

Merits

- Gives space for interaction.
- Students are given freedom of expression.

Demerits

Some time hot discussions disrupt the new points.

Types:

- **Formal discussion:** Adopted to gain pre-determined objectives.
- **Informal discussion:** There is no need to follow any principle to participate in informal discussion. It is evident that class room discussion is an informal type.

BRAINSTORMING

Brainstorming is a type of small group interaction designed to encourage free introduction of ideas on an unrestricted basis and without any limitations as to the feasibility of ideas. Brainstorming makes it possible for a group to consider alternative solutions to problems unhampered by organisational, institutional, or financial restrictions or by a limitation of skills and abilities. All ideas are accepted without challenge, except when they may conflict with any ground rules previously laid down.

Merits

No matter how workable or outrageous the ideas may seem to be at first sight, they are not criticised or examined rationally until the end of the exercise, by which time it is hoped that a host of exciting possibilities will have emerged that might otherwise have remained hidden by inhibitions.

PANEL DISCUSSION

A panel is a group of three to six persons having a purposeful conversation (without making prepared speeches) on an assigned topic with or without active participation by the audience. The panel is usually seated at a table in full view of the audience. Here, we find two groups, one (the panel) actively participating in discussion which is seen and heard by the other group (the audience). Actually, there is no chairman but one of the panel members acts as a moderator who initiates the discussion and

sets the tone. But, in practice, often, a person who is not a member of the panel may act as a moderator. Though altogether different view-points could be presented, the moderator intervenes so that the panelists do not assume the role of debaters.

Merits

- It provides very rich experience to the participants.
- It creates and sustains interest of the participants.
- The change of voice lessens boredom.

Demerits

- The whole process is one-way unless panel discussion is later on converted into a forum for audience questioning.
- The members holding views contrary to each other make it difficult for the moderator to proceed to any accurate summary.
- There is a tendency on the part of the panel members to make speeches.
- Time limit is a problem.
- The panel members often wander away from the topic.
- Unless the moderator and members co-operate with each other the discussion is likely to be abruptly concluded.

BUZZ GROUP OR BUZZ SESSION

- divides the small group

Buzz group or session is "dividing the group into small segments for a relatively brief period of time to engage them in a task relevant to the topic or problem". A presentation on a topic or problem will first be made to a big group, which will then be divided into small groups called buzz groups or sessions but without any agenda given to each group (unlike in workshop, where specific task is assigned), the groups will have informal, fruitful discussions where every one will get a chance to participate in the discussion, come out with a product or with

concrete written suggestions and each small group will present the suggestion to the larger group at the end for wider consideration.

Merits

We can observe that it is an improved method over discussion where only a few persons may dominate all through, while shy members may not participate in the discussion at all.

Quiz Session

- Impromptu

In this the students, students or participants are divided into competitive groups and an equal number of questions with equal level of difficulty are put to the groups. This method evokes a competitive spirit and it works well when the students are knowledgeable. The whole group may not be able to participate and lack of knowledge of the group may not benefit the students of the group.

DEBATE

A debate is the:

- Discussion or consideration of opposing reasons; arguments about or deliberation on a question.
- A formal contest of skills in reasoned argument, with two teams taking opposite sides of a specified question.

Merits

- This method is extremely useful when a subject has two clear sides.
- It provides ample opportunity to learn presentation of logical arguments, and pleading for one's side.
- The debate enables the participants to correct, confirm, modify, accept, oppose, differ, agree or disagree during discussions and make the debate as one of the most interesting techniques.

Demerits

- Debate deals with highly controversial subjects having only two sides but there is always dearth of such subjects as a third solution is sometimes better.
- There is a chance for repetition.
- Sometimes personal criticism cannot be avoided.
- The speaker as well as audience have preconceived notions and voting pattern, if any, or decision of the judges emerges out of this instead of from arguments presented by the two sides.
- The audience cannot get an opportunity to put questions to speakers for clarification and there is an absence of fruitful interaction.

ASSIGNMENT

It is to systematise, reflect and reinforce learning of each theme in each Unit of programme. Generally assignments are written only, but it is not necessary that the assignment should be in writing only. There can be reading assignments as well or a combination of both writing and reading assignments. It all depends on what group of students are you catering to and for what purpose. For example, to reinforce literary skills of students there should be both written and reading assignments. There could be individual assignments and/or group assignments, to promote their individual and group learning skills. This is essential because their reading and writing abilities and confidence levels are not the same and hence they need to be reinforced differently. These assignments are evaluated by the concerned or teacher or instructor and further assignments are given to them till they acquire particular level of skills and competencies.

PROGRAMMED LEARNING OR INSTRUCTION

It is a method whereby the student teaches himself by working through a series of steps all leading to carefully defined goals or "objectives". He cannot go on to the next step until he has mastered the preceding one and so on to the end. To ensure that he is really learning the information in each step, he must answer "questions" correctly. He has immediate knowledge of results at each step (after he has replied) so that he can check to see how he is doing.

TEACHING PRACTICE

Teaching practice is viewed as a process of initiation in which the master teacher's teaching skills, performance, personality and attitudes are acquired by the student through observation, imitation and practice. Teaching practice is also viewed as providing opportunities to display, recognise and refine the abilities that are latent in the student. Teaching behaviour is modifiable by feedback to the student teacher.

PROBLEM BASED LEARNING METHOD

Problem-based learning (PBL) is a student-centered pedagogy in which students learn about a subject through the experience of problem solving. Working in groups, students identify what they already know, what they need to know, and how and where to access new information that may lead to resolution of the problem. The role of the instructor (known as the tutor in PBL) to facilitate learning by supporting, guiding, and monitoring the learning process. The tutor must build students' confidence to take on the problem, and encourage the students, while also stretching their understanding. The main features of PBL are:

1. Student Centred Learning.
2. Learning is done in Small Student Groups, ideally 6-10 people.

3. Facilitators or Tutors guide the students rather than teach.
4. A Problem forms the basis for the organized focus of the group and stimulates learning.
5. The problem is a vehicle for the development of problem solving skills. It stimulates the cognitive process.
6. New knowledge is obtained through Self-Directed Learning (SDL).

COMMITTEE METHOD

A committee is as a body of persons appointed for a specific function by and usually out of a larger body. The committee method can be very useful if it is designed as a training technique to train individuals by organizing them in a fact gathering or study project, or in working with others in the process of performing a specific task, or solving a problem and in preparing a report with conclusions and recommendations. It may be helpful in many other instances, provided the time barrier is not a real problem and the committee focuses on a few specific matters. This is an effective method in training of students by involving them in different committees related to a particular event or process in education.

REAL LIFE EXPERIENCE (PLACEMENT OR INTERNSHIP)

The students are placed in a community or workplace to get first hand knowledge of the conditions under which persons are working. The students are enabled to experience real life situations since they themselves observe them as participants and learn from their participation. It may be called internship or placement method or summer training or by any other name.

FIELD TRIP OR EXCURSION

Field trip is 'a trip arranged by a teacher or other official and undertaken for educational purposes'; the transportation of

pupils to places where the materials of instruction may be observed and studied directly in their functional setting.

SIMULATION

well like experience

Simulation simply is a contrived or planned learning experience which is similar to real life situation. It provides the learner with an opportunity to become more involved in the learning process. This is done by presenting him with a short and some what simplified situation of a larger and similar situation in real life. The more realistic the simulation is, the more effective it will be. By taking part in the simulation the learner gets an opportunity to experience some of the problems he might expect to meet on the job, to apply skills or techniques appropriate for solving the problems and to review and discuss the results with others. An important pre-condition for simulation is that the situation should be prepared very carefully after studying the actual situation, problems and groups.

Merits

- Students may become aware of the consequences of their decisions without suffering the real consequences.
- Students can be exposed to many more experiences in a brief period.
- It is more helpful in minimizing the expenditure and risk, or in maximizing the use of manpower, money, material and time.

Demerits

- Planning and executing it is a time consuming process.
- It is likely that both the teacher and students may not be familiar with the method or the real situation.

The factors that determine the selection of appropriate method and techniques are:

- The nature and objectives of the training programme.

- The situations in which teaching-learning interaction is to take place.
- The quantity and quality of students.
- The role the student is expected to play in the training process.
- The extent of support available in terms of the learning materials and facilities.
- The content or skills to be imparted.
- The availability of adequate number of teachers and their level of familiarity and mastery of various methods on the part of the teacher.
- The needs and interests of students.
- The nature and over all characteristics and strength of motivation of students.
- The extent and nature of previous education of students.
- The availability of resources and time with the institution, the resource persons and the students.

In addition to the above, in the context of application of advanced communication and information technologies for training and teaching, factors such as availability, accessibility, affordability and ability of the teachers to use these would also determine their effectiveness in a given situation.



CHAPTER

5

Planning for Teaching

INSTRUCTIONAL OBJECTIVES

DEFINITION

Instructional objectives describe the skills, knowledge, abilities or attitudes students should possess or demonstrate after they complete the training. The starting point for designing a course of study should include these instructional objectives; the objectives determine the intended outcomes of the training. Good instructional objectives describe an observable performance, one that can be observed and measured by an instructor or teacher. In a nutshell, instructional objectives:

- Describe a skill that students are expected to possess after instruction.
- Describe a measurable performance.
- Describe the performance conditions.

LEARNING OBJECTIVES

Instructional Objectives (also called **Learning Objectives**) are not just brief descriptions of lesson content or descriptions of student activities. Each question on a test should link to a specific learning objective.

Objectives vs. Activities

To help distinguish Instructional Objectives from instructional activities, consider these two examples sentences:

1. The student will view a demonstration of manual muscle testing.
2. The student will list at least three manual muscle testings.

The first statement does not meet the definition of an objective because it describes an "activity," not a skill. In contrast, the second statement describes a skill (create a list), asking for information taught in a course or a textbook.

LEARNING OUTCOMES

Well-written learning objectives describe what the student will be able to do after the training; these objectives represent the intended learning outcomes from the training. It is a good practice to write Instructional Objectives before or while writing the course outline. That way, the course can "teach to the objectives." Then when the Instructional Designer writes the test, they will be able to test how well the course taught the objectives and how well the students learned them. In this way, Learning Objectives and Learning Outcomes are directly related.

MEASURABLE PERFORMANCE

A good learning objective describes a measurable performance. Instructional objectives should ask students to perform a task that is observable and measurable. Thus, objectives should:

- Include a verb that describes a student performance that can be observed.
- Include a list of criteria to be used to measure student performance.

The verb in a learning objective plays a key role in determining whether the objective is measurable or observable. Verbs like

"know" and "understand" should be avoided because whether or not a student "knows" or "understands" something cannot be measured.

Common Ambiguous Terms – Not Measurable	Good Performance Words – Measurable
Know	Select (or choose)
Understand	Identify (or define)
Appreciate	Solve
Grasp the significance of	Assemble
Become familiar with	Adjust (or align)
Become aware of	Name
Learn	Demonstrate

These are some examples of poorly-written learning objectives:

- Students will be able to recognize the effect of exercises on low back pain.
- Students will understand the use of electro-therapeutic modalities.
- Teachers will demonstrate positive habits of the mind.

Note that these learning outcomes could only be measured "subjectively," and not objectively.

BLOOM'S TAXONOMY OF LEARNING OBJECTIVES

Bloom's Taxonomy is a classification of learning objectives within education proposed in 1956 by a committee of educators chaired by Benjamin Bloom who also edited the first volume of the standard text, *Taxonomy of educational objectives: the classification of educational goals* (referred to as simply "the Handbook" below). Although named after Bloom, the publication followed a series of conferences from 1949 to 1953, which were designed to

improve communication between educators on the design of curricula and examinations.

It refers to a classification of the different objectives that educators set for students (learning objectives). Bloom's Taxonomy divides educational objectives into three "domains": Cognitive, Affective, and Psychomotor (sometimes loosely described as *knowing/heart, feeling/heart and doing/hands* respectively). Within the domains, learning at the higher levels is dependent on having attained prerequisite knowledge and skills at lower levels. A goal of Bloom's Taxonomy is to motivate educators to focus on all three domains, creating a more holistic form of education.

A revised version of the taxonomy was created in 2000.

Bloom's Taxonomy is considered to be a foundational and essential element within the education community.

A mythology has grown around the taxonomy, possibly due to many people learning about the taxonomy through second hand information. Bloom himself considered the Handbook, "One of the most widely cited yet least read books in American education."

COGNITIVE DOMAIN

Higher Order Thinking Skills
Creating
Evaluating
Analysing
Applying
Understanding
Remembering
Lower Order Thinking Skills

Skills in the **cognitive domain** revolve around knowledge, comprehension, and critical thinking of a particular topic. Traditional education tends to emphasize the skills in this domain, particularly the lower-order objectives.

There are six levels in the taxonomy, moving through the lowest order processes to the highest:

Knowledge

Exhibit memory of previously learned materials by recalling facts, terms, basic concepts and answers:

- Knowledge of specifics – terminology, specific facts.
- Knowledge of ways and means of dealing with specifics – conventions, trends and sequences, classifications and categories, criteria, methodology.
- Knowledge of the universals and abstractions in a field – principles and generalizations, theories and structures.

Questions like: What are the health benefits of doing exercises?

Comprehension

Demonstrative understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.

- Translation
- Interpretation
- Extrapolation.

Questions like: Compare the health benefits of doing exercises vs. passive exercise?

Application

Using new knowledge. Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.

Questions like: Which kinds of exercises are best for low back pain, frozen shoulder, tennis elbow?

Analysis

Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations:

- Analysis of elements
- Analysis of relationships
- Analysis of organizational principles.

Questions like: List four ways of doing exercises with active exercises and explain which ones have the highest health benefits. Provide references to support your statements.

Synthesis

Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions:

- Production of a unique communication.
- Production of a plan, or proposed set of operations.
- Derivation of a set of abstract relations.

Questions like: Convert an "unhealthy" exercise for low back pain to a "healthy" exercise by replacing your choice of exercise. Explain the health benefits of using the exercises you chose vs. the original ones.

Evaluation

Present and defend opinions by making judgements about information, validity of ideas or quality of work based on a set of criteria:

- Judgments in terms of internal evidence.
- Judgments in terms of external criteria.

Questions like: Do you feel that doing exercise for low back pain after an disc operation is healthy? Why or why not?

AFFECTIVE DOMAIN

Skills in the **affective domain** describe the way people react emotionally and their ability to feel another living thing's pain or joy. Affective objectives typically target the awareness and growth in attitudes, emotion and feelings.

There are five levels in the affective domain moving through the lowest order processes to the highest:

Receiving

The lowest level; the student passively pays attention. Without this level no learning can occur, e.g., student listens to a lecture on mobilization.

Responding

The student actively participates in the learning process, not only attends to a stimulus; the student also reacts in some way, e.g., student asks questions on mobilization.

Valuing

The student attaches a value to an object, phenomenon or piece of information, e.g., student asks for notes or books to be read further on the topic of mobilization.

Organizing

The student can put together different values, information, and ideas and accommodate them within his/her own schema; comparing, relating and elaborating on what has been learned, e.g., student collects information from internet, books on mobilization.

Characterizing

The student holds a particular value or belief that now exerts influence on his/her behaviour so that it becomes a characteristic, e.g., students practises mobilization as a therapeutic technique.

PSYCHOMOTOR

Skills in the psychomotor domain describe the ability to physically manipulate a tool or instrument like a hand or a hammer. Psychomotor objectives usually focus on change and/or development in behaviour and/or skills.

Bloom and his colleagues never created subcategories for skills in the psychomotor domain, but since then other educators have created their own psychomotor taxonomies. Simpson (1972) among other contributors, such as Harrow (1972) and Dave (1967), created a Psychomotor Taxonomy that helps to explain the behaviour of typical learners or high performance athletes. The proposed levels are:

Perception

The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.

Examples: Detects non-verbal communication cues. Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat of stove to correct temperature by smell and taste of food. Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet. In physiotherapy the therapist adjusts the intensity of a current by looking at the patient's reaction/face/muscle.

Key Words: Chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects.

Set

Readiness to act. It includes mental, physical and emotional sets. *These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).*

Examples: Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations. Shows desire to learn a new process (motivation).

Note: This subdivision of psychomotor is closely related with the "Responding to Psychomotors" subdivision of the Affective domain.

Key Words: Begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers, e.g., a student shows the sequence of steps involved in setting up an electrotherapy machine on a patient.

Guided Response

The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.

Examples: Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift.

Key Words: Copies, traces, follows, react, reproduce, responds, e.g., performs spinal mobilization technique through trial and error method.

Mechanism

This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.

Examples: Use a personal computer. Repair a leaking faucet. Drive a car, e.g., performs spinal mobilization on a patient without trial and error.

Key Words: Assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.

Complex Overt Response

The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation and automatic performance. For example, players will often utter

sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce, e.g., uses minimum effort to perform spinal mobilization on a patient and know that he/she performed correctly.

Examples: Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano.

Key Words: Assembles, builds, calibrates, constructs, disassembles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches.

Note: The Key Words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc.

Adaptation

Skills are well developed and the individual can modify movement patterns to fit special requirements.

Examples: Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task).

Key Words: Adapts, alters, changes, rearranges, reorganizes, revises, varies, e.g., modifies the spinal mobilization technique to suit it a patient with low back pain after a sports event.

Origination

Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.

Examples: Constructs a new theory. Develops a new and comprehensive training programming, e.g., develops a new technique of spinal mobilization. Creates a new gymnastic routine.

Key Words: Arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates.

BLOOM'S REVISED TAXONOMY

Lorin Anderson, a former student of Bloom, revisited the cognitive domain in the learning taxonomy in the mid-nineties and made some changes, with perhaps the two most prominent ones being: (1) changing the names in the six categories from noun to verb forms and (2) slightly rearranging them (Pohl, 2000).

This new taxonomy reflects a more active form of thinking and is perhaps more accurate:

Original Domain		New Domain
• Evaluation	✗	• Creating
• Synthesis		• Evaluating
• Analysis	⇒	• Analyzing
• Application	⇒	• Applying
• Comprehension	⇒	• Understanding
• Knowledge	⇒	• Remembering

UNIT AND LESSON PLANNING

INTRODUCTION

In the previous unit, we studied about the instructional objectives and how to develop instructional strategies. Instructional strategies are generally implemented through unit plan and topic or lesson plan. In this unit, we will discuss how to prepare a unit plan and a lesson plan.

LEARNING OUTCOMES

After going through this unit, you will be able to:

- Define a unit plan and a lesson/topic plan.

- Differentiate between a unit plan and a lesson plan.
- Prepare a unit plan and a lesson/topic plan in your subject of study.

UNIT PLAN

Before the start of an academic session, every teacher is assigned a course which he/she has to teach. The course is more popularly known as a syllabus for a particular subject. Such a course or a syllabus comprises of a number of chapters or units which have to be taught topicwise. The teacher-student interaction in the classes have to be such that this area of knowledge is transferred to students. The manner in which a teacher transfers this knowledge is called as the "art of teaching". Thus, a teacher has to plan in advance the kind of methods to be used or which is called as teaching methodology. Further the teacher has to decide the "learning materials" to be used to provide certain "learning experiences".

A course normally consists of a few units. A unit consists of a few sub-units. Each sub-unit further consists of a few topics. The teacher is expected to cover a few topics in the form of a lesson. Each lesson may again comprise a number of learning experiences.

Let us examine the Fig. 5.1 in order to know the differences amongst unit plan, sub-unit and lesson plan.

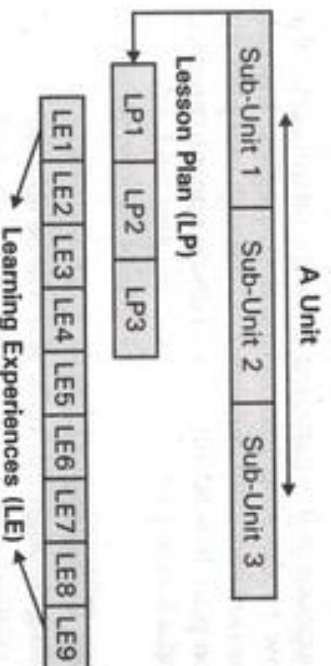


Fig. 5.1

LP = Lesson Plan

LE = Learning Experiences

Therefore, when we plan for a unit, we generally plan for sub-units which are in that unit.

A unit plan has five sections, namely, introduction, objectives, contents, hints for teachers and evaluation. The format and an example of a unit plan is given in Table 5.1.

Table 5.1: Format or a Unit Plan

Subject/Course:	Unit:	Class:	
• Previous knowledge/Entry behaviour of Students • Major objectives of the unit • Overview of the theme of the unit:			
1 Sub-units teaching topics no. of periods	2 Major teaching points under each topic	3 Specific objectives of each teaching point	4 Methods/medial approach adopted by teachers' and pupils' activities learning resources
• Reference of pupils • References for teachers • Evaluation/Assignment			

EXAMPLE OF A UNIT PLAN

Course: MPT I

Subject: RESEARCH METHOLOGY

Class: MPT

Faculty Name: Dr. C.S. Ram

PART -I

PREVIOUS KNOWLEDGE/ENTRY BEHAVIOUR OF THE STUDENTS

Students should have knowledge of bio-statistics.

MAJOR LEARNING OBJECTIVE

The purpose of this unit is to furnish students with a general understanding of concepts of research methodology. The student is encouraged to have a basic understanding of research methodology required in physiotherapy research. Further students will explore a number of research methodology concepts and techniques of hypothesis.

OVERVIEW OF THE THEME OF THE UNIT

The module will introduce the students to concepts of research design, data collection, formulation of questionnaires, scaling techniques, software packages and report writing.

Learning Outcomes: It is expected that after completion of the course the student would be able to understand:

- About research methodology.
- Data collection.
- Designing research report.
- Research methodology orientations and approaches.
- Formulation of questionnaires.
- Techniques of hypothesis.
- Scaling techniques.
- Strategies for software packages.

SUB-UNITS/TEACHING TOPICS AND**MAJOR TEACHING POINTS UNDER EACH TOPIC**

Unit-I: Nature and Scope of Research Methodology, Formulation of Research Problem, Statement of Research Objectives, Research Hypothesis.

Unit-II: Research Process, Research Design: Exploratory, Descriptive and Experimental Research Design, Sampling Design.

Unit-III: Methods of Data Collection: Observation Design, Interviewing for Research and Formulation of Questionnaires, Scaling Techniques and Techniques of Data Analysis.

Unit-IV: Awareness of Software Packages Relevant to Management Researches, Interpretation of Data and Drawing Inferences, Research Report Writing, Research Publication.

Unit-V: Application of Statistical Tools and Techniques: T-test, Chi-square Test, Correlation and Regression Analysis.

Method/Medium

- Lecture method
- LCD
- Power Point presentation.

Reference for Pupils and Reference for Teachers

1. Management Research: Bennet, Roger.
2. Statistical Methods: Gupta, S.P.
3. Research Methodology: Kothari, C.R.
4. Survey Methods: Fowler, Floyd, J. Jr.

Evaluation Criteria:

- Internal Test: 15 Marks
- Attendance: 5 marks
- Assignment: 5 marks
- University External Examination: 75 Marks

This sample format can be adapted according to the aims of the teachers and institutions.

Topic	Session No.	References
UNIT-1		
Concept, Nature, and Characteristics of Research Methodology	01	Kothari, C.R Gupta, S.P. Bennet, Roger
Relevance, Significance, Characteristics, Categories of Research	02	
Overview of Research Methodology, Introduction to Business Research	03	
Types of Research, Research Problems	04	
Research Formulation	05	
Statement of Research Objectives	06	
Research Objectives, Research Sources, Research Identification, Criteria of Selection	07	
Case Study and Review Questions	08	
UNIT-2		
Distribution of Work Book	09	Kothari, C.R Gupta, S.P. Bennet, Roger
Research Process: Nature, Scope, Objectives and Significance	10	
Research Design: Nature, Scope, Objectives	11	
Submission of Workbook	12	
Classification of Research Design	13	
Exploratory, Descriptive and Experimental Research Design, Sampling Design	14	
Class Presentations and Review Questions	15	

UNIT-3		
Data collection: Methods of Data Collection	16	Kothari, C.R Gupta, S.P. Bennet, Roger
Observation Design, Interviewing for Research	17	
Formulation of Questionnaires	18	
Library Assignment	19	
Scaling Techniques	20	
Techniques of Data Analysis	21	
Case Study and Review Questions	22	
UNIT-4		
Software packages: Awareness of Software Packages Relevant to Management Researches	23	Kothari, C.R Gupta, S.P. Bennet, Roger
Interpretation of Data	24	
Library Assignment	25	
Drawing Inferences	26	
Research Report Writing	27	
Research Publication	28	
Class Presentations and Review Questions	29	
Unit-5		
Statistical Tools: Application of Statistical Tools and Techniques	30	Kothari, C.R Gupta, S.P. Bennet, Roger
t-test	31	
Chi-square Test	32	
Correlation Analysis	33	
Regression Analysis	34	
Case Study and Review Questions	35	

LESSON PLAN

The daily lesson plan consists of the following:

- (i) Lesson objectives
- (ii) Introduction section
- (iii) Development section
- (iv) Closing section.

Table 5.2: Format of a Lesson/Topic

Subject:	Target Group:			
Topic:				
1. Entry behaviour 2. General objectives of the topic 3. Methods and Media 4. Introduction 5. Presentation				
Teaching points in sequence	Specific objectives in behavioural terms	Learning Experience		Partial Evaluation
		Teacher's Activities	Pupils' Activities	
6. Recapitulation/revision/evaluation 7. Home assignment 8. Blackboard work plan				

Statement of General and Specific Objectives

The teacher has to give an idea of the long-term goals and observable end behaviour of learners.

Introduction or Opener

It should generally consist of introductory questions such as

"What did we learn yesterday?"

"Who remembers what we learned yesterday?"

Ideally the questions should generate learners' interest.

Presentation or Development Section

It is in this section that the teaching learning experience takes place. The selection of material a teacher intends to use should be governed by the following criteria:

- Information should be conveyed in a clear-cut and direct manner.
- It should meet the learners' needs in terms of their level of skills.
- It should provide for reasonable reconstruction of the concept it represents.
- A presentation should not be judged by whether it is read, heard or viewed but by how purposefully it is used by the teacher, whether it engages the students in desired thought processes to achieve the stated behavioural outcomes.

Recapitulation/Closing Section

The final part of the lesson plan should address the following questions:

- How well did the students meet the objectives of the lesson?
- Did all the students meet the objective, why not?
- What can be done in subsequent classes to ensure greater success?
- In what way can opening of the lecture, the presentation section or the closing section be improved?
- If all the students met the objectives, is there any part of the lesson that could be improved to provide better transitions from one part of the lesson to the other?

Home Assignment

After completion of the closing section, the teacher should extend the learning process by asking the students to submit a home assignment. The assignment should allow the student to reflect upon the lesson taught, its learning objectives and the desired outcomes in terms of skills or knowledge acquired.



CHAPTER

6

Teaching Aids

Teacher is himself an audio-visual aid because he makes the lesson easy and tries to explain its property but he is not complete. The use of aids are not only desirable but are necessary.

Aids are those tools and devices by which communication of ideas between persons and group in various teaching training situations is helped.

TYPES OF TEACHING AIDS

- Audio
- Video/Visual
- Audiovisual.

TYPES OF AUDIO AIDS

- Radio
- Audio player
- Phone
- Headphone
- Mobile.

TYPES OF VISUAL AIDS

- Models:
 - Static
 - Dynamic

- Pictures
- Postures
- Blackboard
- Real objects
- Sketches
- Diagrams/Maps/Albums
- Scrapbook/graph/charts/improvised apparatus
- Film strips
- Textbooks
- Bulletin boards
- Tours
- Themes
- Mobile
- Computer
- Overhead projector
- LCD Projectors
- Science kits.

Types of Audio and Visual Aids

- Movies
- T.V.
- DVD/ VCD
- Mobiles.

PRINCIPLES OF SELECTING AIDS

- To create the interest of students toward lesson.
- Imparting factual knowledge in an interesting manner.
- Improving the power of retention.

- Making student more active
- Impart education to the dull and intelligent students.
- To make teaching material clear, easy and understandable.
- To develop the power of observation of students.
- It reduces the time spent on talking.
- Gives flow to thought.
- Develop scientific attitudes.
- Curiosity towards exploration of various subjects.
- Learn the method of use of apparatus.
- Helps if sense of perception is impaired.
- Uses principle of clarity.

Preparation of aids: There are two types of aids for preparation:

- Custom made project aids, e.g., charts, pictures, model, improvised apparatus.
- Projected aids, e.g., film strips, films, transparencies on OHP, preparing slides on computer (PPPT) or CAL.

BENEFITS OF A-V Aids

- Mainly beneficial for retention.
- Printing of facts on mind with out cramming.
- Helping and improvement of weak students.
- Making teaching easy and interesting.
- Students get first hand knowledge.
- Observation power of students is developed.
- Natural instincts are developed.



Measurement and Evaluation

NATURE OF EDUCATIONAL MEASUREMENT

TEST

An instrument or activity used to accumulate data on a person's ability to perform a specified task. The content of these tests are usually either cognitive, psychomotor (skill) or affective.

Use of Tests:

1. Measure achievement
2. Measure improvement
3. Diagnosis of strengths and weaknesses
4. Provide remedial prescription
5. Grading of students
6. Classification of students into skill-specific groups
7. Prediction of success or failure.

MEASUREMENT

Is quantification (quantifying abstract mass). It requires two conditions:

- A tool
- A standard.

The systematic assignment of numerical values (quantitative) or verbal descriptors (qualitative) to the characteristics of objects or individuals.

EVALUATION

Is collecting data on a certain phenomenon; Quantifying the data; Passing judgements; Modifying the weak points in the phenomenon.

The process of passing judgements about the results of measurement.

FUNCTIONS OF MEASUREMENT

1. **Prognosis function:** Any test tells us about differences among student's performances at a moment. The I.Q. test administered to students in school predict their academic performance. The prognosis has administrative function such as classification, selection, promotion and gradation of students. At the college level the counselor can guide a student in choosing the best curriculum or job.
2. **Diagnosis function:** It identifies the weakness of the student learning. The remedial instruction can be prepared on the basis of the diagnosis. Instructional objectives can be improved with help of this knowledge.
3. **Research function:** Measurement serves the research function as a completely valid measure of certain human characteristics. Valid generalizations can be made on the basis of accurate measurements.

LEVELS OF MEASUREMENT

There are four basic levels of measurement of a variable:

1. Nominal Scale
2. Ordinal or Rank Scale

3. Equal Interval Scale

4. Ratio Scale.

Nominal Scale

The nominal scale is the least precise and crude among the four basic scales of measurement. It implies the classification of an item in two or more categories, e.g., boy or girl, pass or fail, rural or urban. There is no magnitude assigned to the variable. This scale of measurement also does not provide the order or rank of the variable. The frequency of the numbers (e.g., number of students pass or fail) can be used to determine the percentages in each category. Classroom observations such as recitation tests/viva can be assessed using this scale of measurement.

Ordinal Scale

The ordinal scale is more informative than nominal scale. It allows the teacher to assign students to relative ranks by giving values to observations, e.g., poor, fair, good, excellent. In asking the questions, teacher considers the place of a student in class. However no value is assigned to the distance between the positions. This scale is frequently used in schools for prize distribution and provide motivation.

Equal/Interval Scale

This scale is more informative than the nominal or ordinal scale. It has all the characteristics of ordinal scale besides the distance between any two values on the scale are known, e.g., positions in a race could be first, second, third and the difference in the first position and third position is one position. Measurement in education is usually done on interval scale. It has greater use in teaching learning situations. However this scale does not have a absolute zero point (e.g., even the last position in the class is not the absolute zero point.)

Ratio Scale

The ratio scale is the most informative and refined among the four scales. It has all the characteristics of interval scale and

in addition it has a absolute zero point representing the complete absence of a property. It is generally not applicable in educational field. It is generally used in physical sciences. Ratio scale is used to measure psychomotor objectives.

The characteristic of a good measuring instrument may be summarized as follows:

1. It should be objective
2. It should be reliable
3. It should be valid
4. It should be comprehensive and precise
5. It should be usable and practicable.

Before we proceed further we need to understand the differences between Test, Assessment, Evaluation and Measurement.

The definitions for each are:

Test

A method to determine a student's ability to complete certain tasks or demonstrate mastery of a skill or knowledge of content. Some types would be multiple choice tests or a weekly spelling test. While it is commonly used interchangeably with assessment or even evaluation, it can be distinguished by the fact that a test is one form of an assessment.

Assessment

The process of gathering information to monitor progress and make educational decisions if necessary. As noted in my definition of test, an assessment may include a test, but also includes methods such as observations, interviews, behaviour monitoring, etc.

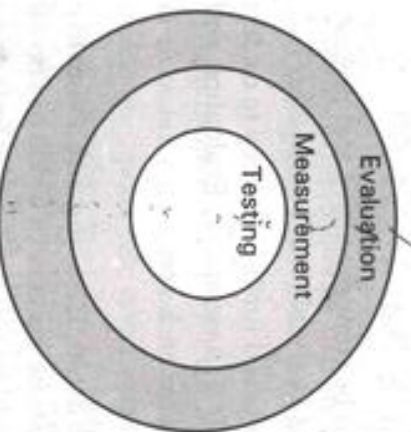
Evaluation

Procedures used to determine whether the subject (i.e., student) meets a preset criteria, such as qualifying for special education services. This uses assessment (remember that an

assessment may be a test) to make a determination of qualification in accordance with a predetermined criteria.

Measurement

Beyond its general definition, refers to the set of procedures and the principles for how to use the procedures in educational tests and assessments. Some of the basic principles of measurement in educational evaluations would be raw scores, percentile ranks, derived scores, standard scores, etc.



Tests are tools of measurements and measurements guide us in evaluation.

TYPES OF TESTS

There are three approaches to testing of a student:

1. Purpose specific
2. Mode specific
3. Process specific.

Purpose specific test category includes tests designed to achieve a specific purpose of evaluation. Generally four test types are identified in this category.

- (a) **Diagnostic tests:** Help us to identify the areas of learning in which the learner needs a remedial course. They give

us a profile of what the learner knows and does not know, needs to know in a given battery of a number of sub-tests each covering one area fairly enough.

- (b) **Aptitude tests:** These tests serve a predictive function.

They help us identify potential talents. They identify the prerequisite characteristics which are essential for one to be competent to perform given task. These tests identify those who can do well in a field of study or a profession and those who cannot. These tests consist of items on sub-skills which may eventually be developed into expert complex skills. These tests are generally used while selecting people for special course/careers.

- (c) **Achievement tests:** These tests aim to measure the extent to which the objectives of a course have been achieved. The scope of these tests is governed by the objectives of the given course and they cover only the areas of learning demarcated by the given syllabus.

- (d) **Proficiency tests:** These tests aim to assess the general ability of a person at a given time. Its scope is governed by a reasonable expectation of what abilities learners of a given status should possess. It is not restricted by considerations of the areas covered in any specific course objectives or syllabus as in case of achievement tests. While the usual end of course examinations in a school or college may be taken as a typical example of an achievement test, a national level selection or admission test for candidates coming from different states and/or university jurisdictions can be taken as a typical example of a proficiency test.

WHAT IS ASSESSMENT?

To many teachers (and students), "assessment" simply means giving students tests and assigning them grades. This conception

of assessment is not only limited, but also limiting. It fails to take into account both the utility of assessment and its importance in the teaching/learning process.

In the most general sense, *assessment* is the process of making a judgement or measurement of worth of an entity (e.g., person, process or programme).

Educational assessment involves gathering and evaluating data evolving from planned learning activities or programmes. This form of assessment is often referred to as *evaluation*. *Learner assessment* represents a particular type of educational assessment normally conducted by teachers and designed to serve several related purpose. These purpose include:

- Motivating and directing learning
- Providing feedback to student on their performance
- Providing feedback on instruction and/or the curriculum
- Ensuring standards of progression are met.

Learner assessment is best conceived as a form of two-way communication in which feedback on the educational process or product is provided to its key stakeholders.

Specifically, learner assessment involves communication to teachers (feedback on teaching); students (feedback on learning); curriculum designers (feedback on curriculum) and administrators (feedback on use of resources).

For teachers and curriculum/course designers, carefully constructed learner assessment techniques can help determining whether or not the stated goals are being achieved.

Classroom assessment can help teachers answer the following specific questions:

- To what extent are my students achieving the stated goals?
- How should I allocate class time for the current topic?
- Can I teach this topic in a more efficient or effective way?

- What parts of this course/unit are my students finding most valuable?
- How will I change this course/unit the next time I teach it?
- Which grades do I assign my students?

For students, learner assessment answers a different set of questions:

- Do I know what my instructor thinks is most important?
- Am I mastering the course content?
- How can I improve the way I study in this course?
- What grade am I earning in this course?

WHY ASSESSMENT IS IMPORTANT

First and foremost, *assessment is important because it drives students learning*. Whether we like it or not, most students tend to focus their energies on the best or most expeditious way to pass their 'tests.' Based on this knowledge, we can use our assessment strategies to manipulate the kinds of learning that takes place. For example, assessment strategies that focus predominantly on recall of knowledge will likely promote superficial learning. On the other hand, if we choose assessment strategies that demand critical thinking or creative problem-solving, we are likely to realize a higher level of student performance or achievement. In addition, good assessment can help students become more effective self-directed learners.

TYPES OF ASSESSMENT

1. **Formal Assessment vs. Informal Assessment:** Formal assessment is applicable to a situation where a body answerable to public is holding a test for a selection or an award. Assessment in such a situation has to ensure objectivity, credibility and relevance. To ensure these, it will

have to follow the set standardized norms/procedures of test construction administration and interpretation, e.g., a written examination or OSCE. Informal assessment is applicable to situations where an individual or a voluntary body is holding a test to obtain some information to fulfill some personal requirements. The informal assessment also needs to be objective and reliable, but the evaluator is not bound to satisfy the public of these qualities of his assessment. Hence the process of assessment need not follow very strictly the set procedures of evaluation, e.g., lecturer feedback on the answer to a question or preceptor feedback provided while performing a bedside procedure.

2. Formative Assessment vs. Summative Assessment:

Formative assessment is concerned with identifying learner weaknesses in attainment with a view to help the learner and the teacher overcome/remedy those, while summative aims at certifying and grading the attainment of the learner at the end of a given course. Tests for formative assessment are given at regular and frequent intervals during a course, while tests for summative assessment are given at the end of a course or fairly at the end of a long period, say a term or a semester or a year. Levels of generalizations sought by the items of a summative test will be much higher compared to that sought by the items of a formative test. Formative assessment is most appropriate where the results are to be used internally by those involved in the learning process (students, teachers, curriculum developers). In addition to providing the basis for grade assignment, summative assessment is used to communicate students' abilities to external stakeholders, e.g., administrators and employers.

3. Continuous Assessment vs. Terminal Assessment: Con-

tinuous assessment seeks to spread the basis of grading on a number of tests with regular even intervals instead of placing it on one end of the course. Continuous assessment thus allows for more intense accommodation of the learning-content in the test process than the terminal assessment normally does. Scores on a series of continuous assessment test, taken together can serve for summative assessment.

4. Course Work vs. Examination: Learner assessment can

be based on course work/s performed by him during or at the end of a course or, it may be based on examination taken by him during or at the end of the course. Evaluation of course work or examination at different points of time during a course can be compiled at the end of a course to serve the purpose of summative evaluation.

5. Process vs. Product Assessment: The basis of evaluation

may be either the final product or the result of a given task or the performance at different stages leading to the accomplishment of the task (as in research work). While evaluating a learner, one may look for the correct solution to a given problem or may take into consideration the correctness of the successive stages followed to solve the given problem (as in problem solving tasks). If we do the former, we are supposed to be engaged in product assessment, if we do the later, we are supposed to make a process assessment.

6. Internal Assessment vs. External Assessment: The mode

of assessment is external when the evaluation of a learner ability is made by an outsider a person who is not related with the actual process of teaching. The evaluator and the learner are anonymous to each other in this case. When the assessment is made by a person, responsible for effecting the learning being measured, it becomes internal assessment.

It is possible to practically combine two or more of these types of assessment into one assessment. For example, one may include both course work and examination as the basis of learner assessment and these two may constitute the units of continuous assessment.

PROCESS SPECIFIC TESTS

Sometimes test types are identified on the basis of the process test construction.

Teacher Made Test vs. Standardized Test: Standardized tests are commercially produced tests adhering meticulously to certain procedures to meet the demands of objectivity and accuracy. Teacher made tests on the other hand are not governed rigidly by such processes. The teacher who makes the tests uses his direction in matters of the scope of the test area and choice of task types and items. While a teacher made test is designed to operate within the restricted situation of a given classroom in terms of test purpose, construction and use, a standardized test is designed for a larger operational situation crossing barriers of a classroom an institution and even a region. A standardized test may be chosen by different teachers/institutions in different classrooms, on different occasions and in different regions.

Norm-referenced Tests vs. Criterion Referenced Tests: In a norm-referenced test (NRT) the purpose is to discriminate between the high-achievers and the low-achievers. Its focus is not on what one has learnt or how much one has learnt of a given chunk of learning. Its focus is on where one stands in relation to the others of his caliber. It assesses the ability of one against the standard norm of achievement of one's fellow testees. The purpose of criterion referenced test is to assess the objectives. It is the objective based test. The objective type test is objective centered. The objectives are assessed in terms of behavioural changes among the students. It assesses the ability of the student against the criterion behaviour of the learners.

Divergent vs. Convergent Assessment: Divergent assessments are those for which a range of answers or solutions might be considered correct. Examples include essay tests, and solutions to the typical types of indeterminate problems posed in problem based learning. Divergent assessments tend to be more authentic and most appropriate in evaluating higher cognitive skills. However, these types of assessment are often time consuming to evaluate and the resulting judgements often exhibit poor reliability. A convergent assessment has only one correct response (per item). Objective test items are the best example and demonstrate the value of this approach in assessing knowledge. Obviously, convergent assessments are easier to evaluate or score than divergent assessments. Unfortunately, this "ease of use" often leads to their widespread application of this approach even when contrary to good assessment practices.

In terms of why and how the measurements are made, the following table compares and contrasts assessment and evaluation on several important dimension, some of which were previously defined.

Dimension	Assessment	Evaluation
Timing	Formative	Summative
Focus of measurement	Process-oriented	Product-oriented
Relationship between administrator and recipient	Reflective	Prescriptive
Findings and uses	Diagnostic	Judgemental
Modifiability of criteria, measures	Absolute (individual)	Comparative
Relation between objects of Assessment evaluation	Co-operative	Competitive

Source: Apple, D.K. and Krumisieg, K. (1998). Process Education Teaching Institute Handbook Pacific Crest.

ACHIEVEMENT TESTS

Achievement tests are either norm-referenced or criterion-referenced. Norm-referenced tests emphasize individual differences, how students compare with each other; criterion-referenced tests highlight how examinees' performance compares to a specific standard or level of mastery, logically or empirically determined. Identification of this standard is sometimes difficult to accomplish, especially at the more complex learning levels.

PURPOSE OF ACHIEVEMENT TESTS

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

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

CONSTRUCTION OF ACHIEVEMENT TESTS

There are several steps involved in the construction of Achievement Tests. We will now discuss these in detail one by one.

1. Instructional Objectives

The first and the most important step in planning a test is to identify the instructional objectives. Each subject has a different set of instructional objectives. In the subjects of Science, Social Sciences and Mathematics, the major objectives are categorised

as knowledge, understanding, application and skill, while in languages the major objectives are categorised as knowledge, comprehension and expression. Knowledge objective is considered to be the lowest level of learning whereas understanding, application of knowledge in sciences or behavioural sciences are considered as higher levels of learning.

2. Design

The second step in planning a test is to make the "Design". The Design specifies weightages to different (a) instructional objectives, (b) types (or forms) of questions, (c) units and sub-units of the course content, (d) levels of difficulty. It also indicates as to whether there are any options in the question paper, and if so, what their nature is.

The design, in fact, is termed as an instrument which reflects major policy decisions of the examining agency, whether it is a Board or an individual. A sample format for presenting design of a test is given on the following pages.

3. Blueprint

The third step is to prepare the "Blueprint". The policy decisions, as reflected in the design of the question paper, are translated into action through the Blueprint. It is at this stage that the paper setter decides as to how many questions are to be set for different objectives. Further he/she decides under which unit/topic a particular question is to be set. Further more, he/she picks up various forms of questions. Thereafter, the paper setter decides how all the questions are to be distributed over different objectives and content areas so as to obtain the weightages, decided in the design. The three dimensions of the blueprint consist of content areas in horizontal rows and objectives and forms of questions in vertical columns.

To construct a test blueprint, first list the important course content, which are reflected in the syllabus and lesson plans. These will be listed on the far left column (see Fig. 7.1) Next, determine the cognitive levels of understanding students should

achieve for each of the content areas. Bloom's Taxonomy of Educational Objectives and Cognitive Domain (1956) or a similar hierarchy, is typically used to specify the depth of learning expected.

Higher Order Thinking Skills
Creating
Evaluating
Analysing
Applying
Understanding
Remembering
Lower Order Thinking Skills

Fig. 7.1: Bloom's Taxonomy Cognitive domain

How thoroughly should students understand the material? Should they be able to recognize an appropriate step in a process (knowledge), explain a concept in their own words (comprehension), apply a principle or process to a new set of circumstances (application), compare and contrast components of stances (analysis) or create a plan to solve a problem (synthesis)? Knowledge, the foundation of Bloom's hierarchy, represents remembering or recognizing facts, followed by comprehension, the basic level of understanding. At the application level, a learner uses the content, skill or concept learned in a situation not encountered in class, the readings or assignments. Analysis, the fourth level, requires a person to divide the material, a concept or process, into its component parts, to interrelate, compare, and contrast the parts. The fifth level, synthesis, involves the combination of components into a whole product, plan or procedure. In the highest cognitive level, evaluation, a person judges a product or process based upon a specific set of criteria. (See Bloom's Taxonomy; Fig. 7.1) The cognitive levels provide headings for

the next columns. Typically, the highest cognitive levels are grouped into a single heading.

After the content and cognitive levels have been specified and placed on the table, determine the percentage of items to be assigned to each of the content areas and cognitive levels. These percentages are based upon the importance of the content, the emphasis given to the content in the course or programme, the potential it has to increase the retention and transfer of learning and the cognitive levels fostered in classroom assignments. Calculate the number of items to accompany the percentages based upon the total number of test items. When deciding upon the total number of test items, keep in mind that all students should have adequate time to finish the exam, but reliability is usually strengthened with well-written items. Also, allow at least one minute for each item written above the knowledge level.

Consideration of several other factors should help produce valid test results.

There should be no surprises on the test. If only facts were presented in class and in the assignments, do not include analysis-type questions. Similarly, if concepts were analyzed, write an appropriate number of items requiring analysis, which could be short essay-type items. If the test blueprint is reflective of the content and cognitive levels, and is followed carefully when writing the items, a reliable assessment of students' achievement should result.

To summarize the steps for constructing a test blueprint to achieve a valid achievement test:

1. List important course content or topics.
2. Identify appropriate cognitive levels using Bloom's Taxonomy of Educational Objectives for each of the course objectives.
3. Determine the number of items for:
 - (a) the entire test
 - (b) each cell, i.e., course content by cognitive level.

Once the blueprint is prepared, the paper setter can write/select the items and prepare the question paper. A sample format of Blueprint is given below:

DESIGN

Subject:

Class

The weightage of the distribution of marks over the different dimensions of the question paper is/shall be as follows:

1. Weightage to instructional objectives/learning outcomes

S.No.	Objectives	Marks	%age of Marks
1.	Knowledge		
2.	Understanding		
3.	Application		
4.	Skill		
Total			

2. Weightage to content/subject units:

S.No.	Units and their sub-units	Marks	Units and their sub-units	Marks
1.				
2.				
3.				
4.				
5.				
6.				

3. Weightage to types/forms of questions

S.No.	Forms of questions	Marks for each	Number of questions	Total marks
1.	L.A.			
2.	S.A.			
3.	V.S.A.			

Note: The expected length of the answers of different types of questions would be as follows:

This is only an approximation. The actual length, however, may vary. As the total time is calculated on the basis of the number of questions required to be answered and the length of their anticipated answers. It would, therefore, be advisable, to budget time properly by cutting out the superfluous length and be within the expected limited.

S.No.	Type/forms of questions	Marks	Expected length (No. of words/sentences)	Expected time for each question (minutes)
1.	L.A.			
2.	S.A.			
3.	V.S.A.			

L.A. = Long Answer Difficulty Level: Easy
 S.A. = Short Answer (Give Average
 V.S.A. = Very Short Answer Percentage) Difficult

Note: Internal options in L.A. questions only.

BLUE PRINT

Exam. :
 Subject :
 Unit :
 Maximum Marks :

Paper :
 Class :
 Time :

Objective Forms of question/ content unit	Knowledge			Understanding			Application			Skill			Total		
	E	SA	VSA	E	SA	VSA	E	SA	VSA	E	SA	VSA	E	SA	VSA
1.															
2.															
3.															
4.															
5.															
6.															
Sub Total															
Total															

Note: Please put the number of question within brackets and the marks outside the brackets.

Summary

Easy or Long Answer

(LA)

Marks:

Short Answer

(SA)

Marks:

Very Short Answer

(VS)

Marks:

Scheme of Options:

Scheme of Sections:

Delete whichever is not applicable

4. Writing of Questions

The next step after the finalization of the blueprint is writing appropriate questions in accordance with the broad parameters set out in the blueprint. One should take one small block of the blueprint at a time and write out the required questions. Thus, for each block of blueprint which is filled in, questions have got to be written one by one. Once it is done, we have all the questions meeting the necessary requirements laid down in the blueprint. While selecting each small block for writing a question, you can proceed in several ways.

- Either writing all questions (one by one) belonging to one objective at a time, i.e., knowledge or understanding or application followed by other objectives or
- By taking up questions according to their form or type, i.e., Essay Type followed by Short Answer and Very Short Answer Type or in any other order or
- By writing questions for one unit of the syllabus or portion to be covered by the test at a time.

Each approach has its advantages and disadvantages, too. Irrespective of the method followed, the questions then have to be arranged in a logical sequence.

5. Marking Scheme

The fifth step is to prepare the "Marking Scheme". The marking scheme helps prevent inconsistency in judgement. In

the marking scheme, possible responses to items in the test are structured. The various value points for response are graded and the marks allowed to each value point indicated. The marking scheme ensures objectivity in judgement and eliminates differences in score which may be due to idiosyncrasies of the evaluator. The marking scheme, of course, includes the scoring key, which is prepared in respect of objective type questions. Let us discuss this in detail.

Apart from the quality of the question paper, reliability of assessment, to a great extent, depends on the degree of consistency of scores assigned to the students by different examiners or by the same examiner on two different occasions. Thus, variation can occur because of any one of two different reasons:

- (i) Due to inconsistency of the same examiner when he/she examines different answer scripts adopting different standards.
- (ii) Due to different examiners using different standards of judgement.

If an answer script is awarded the same grade or marks on repeated exposure to the same examiner, the examiner is said to be consistent in awarding the marks. As such, the assessment done by him/her could be said to be more reliable and consistent than the other examiner in whose case variation in award of marks is higher.

The factor contributing to variations in the standards of assessment, both at the intra- and the inter-examiner levels, can be controlled by supplying a detailed scheme of marking along with the expected answers so that every examiner may interpret the questions in the same way and attain the same standard of marking without being too lenient or strict or varying in his/her assessment. Subjectivity, is thus minimized and it is believed to give a more reliable picture of the students' performance.

Highlights of a Good Marking Scheme

- It is a three column statement showing serial number of the questions, their expected outline answers and the marks allotted to each value point under them.
- In respect of long answer or essay type questions, the expected outline answers should:
 - (i) be complete and cover all possible or major areas as demanded by the questions.
 - (ii) clearly indicate each expected point or the parts under the outlined major areas.
 - (iii) provide direction as to whether all points will count towards a complete or correct answer or a set of points will be adequate enough for full credit (all this should be clearly reflected).
 - (iv) indicate marks for each expected point. Marks so distributed over expected points or their sets should be equal to the total marks assigned for a question.
- In respect of short answer questions a complete answer may be provided with its break-ups where ever necessary along with the break-up of marks.
- Out of the total marks assigned for a question, each point so enumerated/explained may be assigned marks according to their significance in the answer.
- In some situations, apart from the content, other qualities of answer may also matter significantly, particularly in long answer or essay type questions. These could be logical approach, coherence, lucidity of expression, the style of presentation etc. Some marks may also be set apart for such overall quality of answer which cannot be usually covered in enumeration of the content points.
- The scheme of marking needs to be comprehensive enough not to leave any point unexpected and thus

- should provide clear guidelines in respect of the break-up of marks over different points or parts of the answer.
- If a question entails some other points beyond one's expectation, a provision may also be made to take them into account and suitably reward them.

6. Question-wise Analysis

The sixth and the last step is that of question-wise analysis. Such an exercise helps the paper setter to ensure that there is no imbalance in the question paper. During question-wise analysis, the paper setter analyses each question on various parameters stated in the blueprint.

Some important points regarding achievement tests to sum up:

1. **The purpose of the marking scheme is to :**
 - (a) Avoid inconsistency in judgement
 - (b) Ensure objectivity in assessment
 - (c) Eliminate differences in score
 - (d) Make results more reliable
 - (e) Reduce variations in marks – both intra-examiner as well as inter-examiner.
2. **Objective type tests are better than others because:**
 - (a) They can be marked easily and very fast
 - (b) Marking does not need any special skill
 - (c) Marking can be done by anyone
 - (d) The whole syllabus can be covered, at least sampled
 - (e) Well written objective tests can be highly valid and reliable for testing knowledge and recall of content
 - (f) Marking does not vary and so is objective and free from bias.
3. **Objective type tests are not preferred because:**
 - (a) It is difficult to write good objective items

- (b) Guess work can be resorted to while answering them
- (c) Badly written objective tests are highly invalid and unreliable
- (d) They cannot test higher order skills, at least it is very difficult to construct objective tests for higher order skills
- (e) They are not appropriate for all occasions
- (f) They can never test written expression or ability to think or argue in one's own words.

4. While scoring a test, remember:

- (a) The order of scoring
 - (b) It is worthwhile to re-check and rescore to avoid mistakes or at least a sample should be re-checked.
- The important factors in interpreting the scores of a test are:
- Differences in cultural background
 - Variations in the kind of experiences pupils have
 - Differences in language background
 - Richness of home resources
 - Intensity of the desire for an education
 - Varying emphasis on different aspects of the college curriculum.
5. **The two kinds of grading are:**
 - (a) Absolute
 - (b) Relative or Comparative
 - Comparative grading should be preferred because:
 - It is based on rank ordering or percentiles
 - It provides better comparability of scores irrespective of whether a subject is scoring or non-scoring.

- The gaps between subjects (Scoring or Non-Scoring) can be done away with since grading is based on rank or percentiles and not on absolute marks
- They provide a more meaningful profile of the achievement of a student or a group.

Hopkins, Stanley and Hopkins (1990) maintain that all good achievement tests should be based on either explicit or implicit objectives or topics reflected in a table of item specifications. This implies that there is a great deal of overlap between the two types of tests and the development of each type begins similarly. The differences pertain mostly to the presentation and interpretation of the results.

A well-constructed test blueprint, also referred to as a table of item specifications, provides the necessary structure to foster validity. [Tables 2-5 are examples of test blueprints (see Page no. 114, 115, 116)]. Thus, to measure achievement of a unit's, course's or programme's objectives, the test blueprint must be an accurate representation of the content and cognitive levels taught.

Example of Construction of an Achievement Test

First method: Behavioral Objectives method

There are four steps to build *achievement test*

1. Identify aims
2. Translate that aim into observable and measurable behavioural objectives.
3. Reviewing the behavioural objective by experts.
4. Identify the content.
5. Set up the items according to behavioural objective.

Example:

Aim: Student acquires the concept of a "group".

Behavioural objectives: We Hope; After the lesson ; The student can.

1. Define "group".
2. Identify the symbol of "group".
3. Gives an example for a group.
4. Deduce the basic feature of "group".
5. Compare between a group and non-group.

Content: "Group"

Items:

1. Define the "group".
2. The symbol of a group is
3. Give the basic features of a group.
4. Which of the following gatherings is a group?

(a) Water

(b) Air

(c) Student of second year.

Second method: There are ten steps to build achievement test:

1. Identify aims
2. Translate that aim into observable and measurable behavioral objectives.
3. Identify the content.
4. Identify the weigh of the content.
5. Identify the weigh of the aims.
6. Design: The table of specifications.
7. Setup the items according to the test map.
8. Distributing the items according to bloom taxonomy.
9. Arrange the items according to difficulty and simplicity.
10. Set up information of the test.

I will explain the identifying the weighing of the aim.

First method: Experts method

In the first method the aim must be given to three experts in the area (of the knowledge). They will scale the aim according to

(1;2;3). The average of these three values will represent the weight of the aim.

Example:

Expert 1 gives the value 2

Expert 2 gives the value 3

Expert 3 gives the value 2

Then; the average will be $2 + 3 + 2/3 = 2.33$ it is the weight of aim.

Second method: The weight of aim can found by the following equations:

$$W.A. = (\text{The number of its B.O./the total B.O.}) \times 100$$

B.O. stands for behavioural objective.

Weight of the content: The weight of content can be found by the following equation.

First method

$$W.C. = (\text{The number of its pages/the total}) \times 100.$$

Second method: The content could be given to some experts and they are asked to suggest the number of required hours for teaching of that content.

The mean of the suggested value will represent the weight of the content.

Example: Suppose that:

Expert 1 gives 2 hours

Expert 2 gives 3 hours

Expert 3 gives 4 hours

Then; the average will be $= 2 + 3 + 4/3 = 3$

The weight of content = 3

Test map: It is a two dimension matrix showing the relationship between the content and the outcomes. Horizontal dimension includes the aim of the topic (outcomes) while the vertical dimension represent content.

The merit of the test map is to satisfy the test validity.

Sample of a test map:

Aim/content	W.A./W.C	Aims	Number of Items
Group	2	2	$2 \times 2 = 4$
Sum			4

Distribute the items according bloom taxonomy. The weight of remember can be found be the following equation:

$$\text{The weight of remember} = (\text{The number of its B.O./the total}) \times 100$$

STANDARDIZED TESTS

Standardized tests are created by a team – usually test experts from a commercial testing company who consult classroom teachers and university faculty – and are administered in standardized ways. Students not only respond to the same questions they also receive the same directions and have the same time limits. Explicit scoring criteria are used. Standardized tests are designed to be taken by many students within a state, province or nation and sometimes across nations. Teachers help administer some standardized tests and test manuals are provided that contain explicit details about the administration and scoring. For example, teachers may have to remove all the posters and charts from the classroom walls, read directions out loud to students using a script and respond to student questions in a specific manner.

An example of a standardized test is NPTE (National Physical Therapy Examination) which is conducted throughout U.S.A. for testing of physical therapy knowledge. The students on successful completion of this test apply for licensure in starts they wish to practice.

Criterion referenced: Standardized tests measure student performance against a specific standard or criterion. For example, in BPT IInd year, the students appearing in electrotherapy practical have to demonstrate successfully that they can identify the motorpoints of various muscles through electrical stimulation. Criterion-referenced tests currently used in colleges are often tied to University content standards and provide information about what students can and cannot do. For example, one of the content standards for BPT IIIrd year neurology may be "Students will identify and describe the characteristics of LMNL, UMNL spasticity or alaxia" and so a report on an individual student would indicate if the student can accomplish this skill. The report may state that number or percentage of items that were successfully completed (e.g., 15 out of 20, i.e., 75%) or include descriptions such as basic, proficient or advanced which are based on decisions made about the percent of mastery necessary to be classified into these categories.

Norm-referenced: Standardized tests report students' performance relative to others. For example, if a student scores on the 72 percentile in GATE (Graduate Aptitude Test Examination) it means she outperforms 72 percent of the students who were included in the test's norm group. A norm group is a representative sample of students who completed the standardized test while it was being developed. For State tests the norm group is drawn from the state whereas for national tests the sample is drawn from the nation. Information about the norm groups is provided in a technical test manual.

Reports from criterion and norm referenced tests provide different information. Imagine a nationalized physiotherapy test designed to basic test skills in 2nd year BPT. If this test is norm referenced, and Alisha receives a report indicating that she scored in the 85th percentile this indicates that she scored better than 85% of the students in the norm group who took the test previously. If this test is criterion-referenced Alisha's report may

state that she mastered 65% of the problems designed for her grade level. The relative percentage reported from the norm-referenced test provides information about Alisha's performance compared to other students whereas the criterion referenced test attempts to describe what Alisha or any student can or cannot do with respect to whatever the test is designed to measure. When planning classroom instruction teachers need to know what students can and cannot do so criterion referenced tests are typically more useful. The use of standardized norm referenced tests in schools has diminished and is largely limited to diagnosis and placement of children with specific cognitive disabilities or exceptional abilities.

Some recent standardized tests can incorporate both criterion-referenced and norm referenced elements into the same test. That is, the test results not only provide information on mastery of a content standard but also the percentage of students who attained that level of mastery.

Standardized tests can sometimes be **high stakes**, meaning that performance on the test has important consequences of some sort. The consequences can be for students, e.g., like passing the NET, i.e., National Eligibility Test is mandatory for applying for the post of lectureship or Junior Research fellow in various disciplines. Sometimes, the standardized tests have low stakes e.g., a National Talent Several Examination. The test results may not accurately reflect what students know because the students may not try hard when the tests have low stakes for them.

USES OF STANDARDIZED TESTS

Standardized tests are used for a variety of reasons and the same test is sometimes used for multiple purposes. The uses include:

1. **Assessing Students' Progress in a Wider Context:** Well-designed teacher assessments provide crucial information about each student's achievement in the classroom.

However, teachers vary in the types of assessment they use so teacher assessments do not usually provide information on how students' achievement compares to externally established criteria.

There are many reasons that students' performance on teacher assessments and standardized assessments may differ. Students may perform lower on the standardized assessment because their teachers have easy grading criteria, e.g., the students may pass internal examination in BPT but fail the final University Exams, or there is poor alignment between the content they were taught and that on the standardized test or they are unfamiliar with the type of items on the standardized tests or they have test anxiety or they were sick on the day of the test. Students may perform higher on the standardized test than on classroom assessments because their teachers have hard grading criteria or the student does not work consistently in class (e.g., does not turn in assignments) but will focus on a standardized test or the student is adept at the multiple choice items on the standardized tests but not at the variety of constructed response and performance items the teacher uses, e.g., the student is able to clear MPT Entrance Test best. We should always be very cautious about drawing inferences from one kind of assessment.

In some cases, standardized achievement tests are required for home schooled students in order to provide parents and state officials information about the students' achievement in a wider context. For example, in NIOS (National Institute of Open Schooling) home schooled students must take an approved standardized test every other year in grades 4-8 and every year in grades 9-12. These tests must be administered in a standardized manner.

2. Diagnosing Student's Strengths and Weaknesses:

Standardized tests, along with interviews, classroom observations, medical examinations, and college records are used to help diagnose students' strengths and weaknesses. It would also be important to determine if the students has recently migrated from a different state, e.g., students who come to BPT 1st year from Hindi medium teaching states find it difficult to adjust or learn. The administration of at least two types of standardized tests – an aptitude test to assess general cognitive functioning and an achievement test to assess knowledge of specific content areas.

3. Selecting Students for Specific Programmes:

Standardized tests are often used to select students for specific programmes. For example, the GRE (Graduate Record Examination) is a norm referenced test used to help determine if undergraduate students are admitted to selective colleges. Norm referenced standardized tests are also used, among other criteria, to determine if students are eligible for special education or gifted and talented programmes. Criterion referenced tests are used to determine which students are eligible for promotion to the next class. When standardized tests are used as an essential criteria for placement they are obviously high stakes for students.

4. Assisting Teachers' Planning:

Norm referenced and criterion referenced standardized tests, among other sources of information about students, can help teachers make decisions about their instruction. For example, if a teacher learns that most of the students did very well on a norm referenced test administered early in the year he may adapt his instruction and use additional primary sources. A teacher after reviewing the poor end-of-the year criterion referenced standardized test results may

decide that next year she will modify the techniques she uses. A teacher may decide that she needs to spend more time on a section as her students scored poorly on that section of the standardized criterion referenced test. These are examples of assessment for learning which involves data based decision making. It can be difficult for beginning teachers to learn use standardized test information appropriately, understanding that test scores are important information but also remembering that there are multiple reasons for students' performance on a test.

5. **Promoting Accountability:** Standardized tests results are increasingly used to hold teachers and administrators accountable for students' learning, e.g., students passing out from courses like BSc. Biotechnology have to appear in entrance exams conducted to reputed Govt. Colleges offering Msc. Biotechnology. Teachers in the colleges are thus required to prepare the undergraduate students for higher studies. Thus, public accountability of teachers has been increasing and this increased accountability impacts the public perception and work of *all* teachers including those teaching in subjects or grade levels not being tested in the entrance examination.

Some Types of Standardized Tests

- (a) General Tests
- (b) Subject Tests.

General Tests

Standardized achievement tests are used as one criterion for obtaining a license in a variety of professions including nursing, physical therapy, and social work, accounting, and law, e.g., in USA all students need to pass a standardized test such as National Physical Therapy Examination in order to obtain a license to practise.

Subject Assessments that test general and subject-specific teaching skills and knowledge. They include both multiple-choice and constructed-response test items.

Diagnostic Tests (Profiling Skills and Abilities): Some standardized tests are designed to diagnose strengths and weaknesses in skills, typically reading or mathematics skills.

Diagnostic tests are often administered individually by school psychologists, following standardized procedures. The examiner typically records not only the results on each question but also observations of the child's behaviour such as distractibility or frustration. The results from the diagnostic standardized tests are used in conjunction with classroom observations, school and medical records, as well as interviews with teachers, parents and students to produce a profile of the student's skills and abilities and where appropriate diagnose a learning disability.

Aptitude Tests (Predicting the Future): Aptitude tests, like achievement tests, measure what student have learned but rather than focusing on specific subject matter learned in school (e.g., Math, Science, English or Social Studies) the test items focus on verbal, quantitative, problem solving abilities that are learned in school or in the general culture. These tests are typically shorter than achievement tests and can be useful in predicting general school achievement.

Tests designed to assess general learning ability have traditionally been called *intelligence tests*, but are now often called *learning ability tests*, *cognitive ability tests*, *scholastic aptitude tests* or *school ability tests*. The shift in terminology reflects the extensive controversy over the meaning of the term intelligence and that its traditional use was associated with inherited capacity.

INTELLIGENCE

What is intelligence?

The concept of intelligence is very important in education but it is quite controversial and often misunderstood. Intelligence is a key construct employed to know how individuals differ from one another. It also provides an understanding of how people adapt their behaviour according to the environment in which they live.

Intelligence is the ability of an individual to cope with his environment. It may be thought out as a composite of organization or an organization of activities to learn, to grasp broad and subtle facts especially abstract facts with alertness and accuracy to exercise mental control and to display flexibility in seeking the solutions of problems (see Box # 1 for definitions). Intelligence characterizes the whole behaviour of an individual and is sum of her/his abilities which are quantitatively differentiable. Intelligence is the product of heredity and environment. The opportunities to learn vary widely, yet the inherited capacity as modified by maturation accounts for a greater part of the individual variability. In order to understand concept of intelligence, we have to know its theories.

Box #1: Definitions of Intelligence

- Intelligence is the ability to judge well, reason well and act well (Binet).
- Intelligence is the global or aggregate capacity of an individual to think rationally, act purposefully, and to deal effectively with her/his environment (Wechsler).
- Intelligence is the capacity to learn and adjust to relatively new and changing conditions (Magnon).
- Intelligence is the ability to adapt, to shape and select environment to accomplish one's goals and those of one's society and culture (Sternberg).

- Intelligence is the capacity to do something useful in the society in which we live. Intelligence is the ability to respond successfully to new situations and the capacity to learn from one's past experiences (Gardner).
- Intelligence is the ability or abilities to acquire and use knowledge for solving problems and adapting to the world (Woolfolk).

Uni or One Factor Theory

Some psychologists believe intelligence is a basic ability that affects performance on all cognitively oriented tasks. An intelligent person will do well in computing mathematical problems, analyzing poetry, taking history essay examinations, and solving riddles.

Two-factor Theory

Spearman suggested that intelligence consisted of a general factor (*g-factor*) and some specific factors (*s-factors*). The *g-factor* includes mental operations which are primary and common to all performances. In addition to the *g-factor*, he said that there are also many specific abilities. These are contained in what he called the *s-factor*. Excellent singers, architects, scientists, and athletes may be high on *g-factor*, but in addition to this, they have specific abilities which allow them to excel in their respective domains.

Multiple Theory of Intelligence

According to Gardner, all human beings possess at least eight intelligences (see Box #2). Thus, intelligence is not a single entity; rather distinct types of intelligences exist. Each type of intelligence is independent one. It means, if a person exhibits one type of intelligence, it does not necessarily indicate being high or low on other types of intelligences. Gardner also put forth that different types of intelligences interact and work together to find a solution to a problem.

Box #2: Eight Types of Intelligence (Gardner)

- **Linguistic** (skills involved in the production and use of language): It is the capacity to use language fluently and flexibly to express one's thinking and understand others.
- **Logical-Mathematical** (skills in scientific thinking and problem solving): It is the ability to think logically and critically.
- **Spatial** (skills in forming visual images and patterns): It refers to the abilities involved in forming, using and transforming mental images.
- **Musical** (sensitivity to musical rhythms and patterns): It is the capacity to produce, create and manipulate musical patterns.
- **Bodily-Kinaesthetic** (using whole or portions of the body flexibly and creatively): This consists of the use of the whole body or portions of it for display or construction of products and problem solving.
- **Naturalistic** (sensitivity to the features of the natural world): This involves complete awareness of our relationship with the natural world.
- **Interpersonal** (sensitivity to subtle aspects of others' behaviours): This is the skill of understanding the motives, feelings and behaviours of other people so as to bond into a comfortable relationship with others.
- **Intrapersonal** (awareness of one's own feelings, motives, and desires): This refers to the knowledge of one's internal strengths and limitations and using that knowledge to effectively relate to others.

INTELLIGENCE AS A PROCESS

Sternberg's triarchic theory suggests that intelligent behaviour is the product of applying thinking strategies, handling new problems creatively and quickly, and adapting to contexts by selecting and reshaping our environment. Sternberg believes that intelligence is comprised of three separate, though interrelated abilities: analytical, creative and practical (see Box #3).

Box #3: Sternberg's View of Intelligence

- **Componential (analytical) Intelligence**: It is the ability to think abstractly, process information and determine what needs to be done. This intelligence has three components, each serving a different function. First is the knowledge acquisition component, which is responsible for learning and acquisition of the ways of doing things. The second is the Meta or a higher order component, which involves planning concerning what to do and how to do. The third is the performance component, which involves actually doing things.
- **Experiential (creative) Intelligence**: It is the ability to formulate new ideas and combine unrelated facts. It is involved in using past experiences creatively to solve novel problems. It is reflected in creative performance. Persons high on this aspect integrate different experiences in an original way to make new discoveries and inventions.
- **Contextual (practical) Intelligence**: It is the ability to adapt to a changing environment and to shape one's world to optimize opportunities. It may be called 'street smarts' or 'business sense'.

Concept of Intelligence Quotient (IQ)

In 1912, William Stern, a German psychologist, devised the concept of Intelligence Quotient (IQ). The IQ is the ratio between the individual's mental age and her/his chronological age. In order to avoid fractions, the ratio is multiplied by 100.

$$IQ = \frac{MA}{CA} \times 100$$

Mental Age (MA): It is a measure of a person's intellectual development relative to people of her/his age group. A mental age of 12 means that a student's performance on an intelligence test equals the average performance level of a group of 12 year olds.

Chronological Age (CA): It is the biological age or actual age in year from birth. A bright student's MA is more than her/his CA; for a dull student, MA is below the CA.

According to formula, a student with mental age of 10 and chronological age of eight should have IQ of 125. The level of intelligence may be indicated as follows:

S. No.	Category	Level of IQ
1.	Idiot	0-25
2.	Imbecile	25-50
3.	Moron	50-70
4.	Below Normal	70-90
5.	Normal	90-110
6.	Superior	110-120
7.	Very superior	120-140
8.	Genius	140 and above

IQ: Facts

- IQ value varies at least within a period of three years.
- IQ changes as result of change in environment.
- IQ does not rise all of a sudden, it goes up slowly.
- There is no relationship between success and IQ.
- There is some relationship between the intelligence of the child and father's occupation.

THE ORIGIN OF INTELLIGENCE TEST

Intelligence tests had their beginning in the schools, in the early 1900s in France when a compulsory education programme was initiated. Alfred Binet (1857-1911) and his colleague Theodore Simon (1873-1961) had been attempting to develop a measure of

intelligence for some years and were commissioned by the French government to develop a test that could predict academic performance accurately. The result of their efforts was the first Binet-Simon Scale released in 1905. This test contained problems arranged in the order of their difficulty and assessing a wide range of abilities. The test contained some sensory-perceptual tests, but the emphasis was on verbal items assessing comprehension, reasoning and judgement. Subsequent revisions of the Binet-Simon Scale were released in 1908 and 1911. These scales gained wide acceptance in France and were soon translated and standardized in the United States by Louis Terman (d. 1959) at Stanford University. Terman's work resulted in the Stanford-Binet Intelligence Test (1916), which has been revised numerous times and continues to be a prominent intelligence test used in the early 2000s.

The introduction of the Stanford Binet intelligence scales in the United States by Terman occurred in close proximity to World War I. Seeing the success of this approach to measuring mental ability, the U.S. Army set about to devise a means of evaluating recruits. A group of psychologists headed by Robert Yerkes (1876-1956) subsequently developed the Army Alpha and Army Beta examinations, which quickly became the most widely used group intelligence tests in the world. This widespread use also had the effect of familiarizing literally millions of individuals with the concept of intelligence testing and made it an acceptable enterprise. Not long afterward, the College Entrance Examination Board began development and employment of what became the SAT, a conglomerated measure of achievement and intelligence.

The development and success of the Binet-Simon Scale, and subsequently the Stanford-Binet Intelligence Test and the U.S. Army testing programmes, ushered in the era of widespread intelligence testing in the United States. Following the model of the Stanford-Binet Intelligence Test, other assessment experts developed and released their own intelligence tests. Some of the

tests were designed for individual administration (such as the Stanford-Binet Intelligence Test) while others were designed for group administration. Some of these tests placed more emphasis on verbal and quantitative abilities while others placed more emphasis on visual-spatial and/or abstract problem-solving abilities. As a general rule, research has shown with considerable consistency that contemporary intelligence tests are good predictors of academic success. This correlation is to be expected considering this was the precise purpose for which they were initially developed over 100 years earlier. In addition to being good predictors of school performance, research showed that IQs are fairly stable over time. Nevertheless, these tests became controversial as a result of the often-emotional debate over the meaning of intelligence. To try and avoid this association and possible misinterpretations, many test publishers adopted more neutral names such as "academic potential," "scholastic ability," "school ability," "mental ability," or simply "ability" to designate essentially the same construct to which the term intelligence referred.

THE USE OF APTITUDE AND INTELLIGENCE TESTS IN SCHOOLS

Clearly, aptitude and intelligence tests have a long history of use in the schools. Their widespread use continues in the early 2000s, with major applications including the following:

- Providing alternative measures of cognitive abilities that reflect information not captured by standard achievement tests or school grades.
- Providing objective evaluations of ability that do not reflect the subjective judgement of observers or others who may be influenced by irrelevant factors.
- Helping teachers tailor instruction to meet a student's unique pattern of cognitive strengths and weaknesses.

- Assessing how well students are prepared to profit from school experiences.
- Identifying students who are underachieving and may need further assessment to rule-out learning disabilities or other cognitive disorders, including mental retardation or intellectual disability.
- Identifying students for gifted and talented programmes.
- Helping guide parents and students with educational and vocational planning.

While this list identifies the most common uses of aptitude/intelligence tests in the schools, the list is not exhaustive. Classroom teachers and school administrators are involved to varying degrees with these applications. For example, teachers are frequently called on to administer and interpret many of the group aptitude tests for their own students. School psychologists or others professionals with specific training in administering and interpreting clinical and diagnostic tests typically administer and interpret the individual intelligence and aptitude tests.

Common Individually Administered Tests of Intelligence

As with achievement tests, group and individual intelligence tests are commonly used in schools. Whereas teachers are often asked to help administer and interpret the group aptitude tests, school psychologists and other professionals with special training in administering and interpreting clinical and diagnostic tests usually administer and interpret the individual tests. The most frequently employed individually administered intelligence tests are reviewed briefly below.

1. **Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV):** The WISC-IV is as of 2007 the most popular individual test of intellectual ability for children. Empirical surveys of school psychologists and other assessment personnel have consistently shown that the Wechsler scales are the most popular individual

intelligence test used in clinical and school settings with children. The WISC-IV, as is true of virtually all individually administered intelligence tests, must be administered by professionals with extensive training in psychological assessment. The WISC-IV is one of the longest of such intellectual assessments and takes approximately 2 to 3 hours to administer and score. Below are brief descriptions of the subtests.

- **Arithmetic**—The student is presented a set of arithmetic problems that they solve mentally (i.e., no pencil and paper) and answer orally. This subtest involves numerical reasoning ability, mental manipulation, concentration and auditory memory.
- **Block Design**—The student reproduces a series of geometric patterns using red and white blocks. This subtest measures the ability to analyze and synthesize abstract visual stimuli, nonverbal concept formation, and perceptual organization.
- **Cancellation**—The student scans sequences of visual stimuli and marks target forms. This subtest involves processing speed, visual attention and vigilance.
- **Coding**—The student matches and copies symbols that are associated with either objects (i.e., Coding A) or numbers (Coding B). This subtest is a measure of processing speed, short-term visual memory, mental flexibility, attention and motivation.
- **Comprehension**—The student responds to questions that are presented orally involving everyday problems or social situations. This subtest is a measure of verbal comprehension and reasoning as well as the ability to apply practical information.
- **Digit Span**—The student is presented orally sequences of numbers that they repeat verbatim (i.e.,

Digits Forward) or in reverse order (i.e., Digits Backwards). This subtest involves short-term auditory memory, attention, and on Digits Backwards, mental manipulation.

- **Information**—The student responds to questions that are presented orally involving a broad range of knowledge (e.g., science, history and geography). This subtest measures the student's general fund of knowledge.
- **Letter-Number Sequencing**—The student reads a list of letters and numbers and then recalls the letters in alphabetical order and the numbers in numerical order. This subtest involves short-term memory, sequencing, mental manipulation and attention.
- **Matrix Reasoning**—The student examines an incomplete matrix and then selects the item that correctly completes the matrix. This subtest is a measure of fluid intelligence and is considered a largely language-free and culture-fair measure of intelligence.
- **Picture Completion**—The student is presented a set of pictures and must identify what important part is missing. This subtest measures visual scanning and organization as well as attention to essential details.
- **Picture Concepts**—The student examines rows of objects and then selects objects that go together based on an underlying concept. This subtest involves non-verbal abstract reasoning and categorization.
- **Similarities**—Two words are presented orally to the student and the student must identify how they are similar. This subtest measures verbal comprehension, reasoning and concept formation.
- **Symbol Search**—The student scans groups of symbols and indicates if a target symbol is present. This

subtest is a measure of processing speed, visual scanning and concentration.

- **Vocabulary**—The student is presented orally a series of words that the student must define. This subtest is primarily a measure of word knowledge and verbal conceptualization.
- **Word Reasoning**—%he student must identify the underlying or common concept that is implied by a series of clues. This subtest involves verbal comprehension, abstraction and reasoning.
- **Information, Word Reasoning, Picture Completion, Arithmetic and Cancellation** are supplemental subtests while the other subtests are core subtests. The administration of supplemental subtests is not mandatory, but they may be used to substitute for a core subtest if the core subtest is seen as being inappropriate for a particular student (e.g., due to physical limitation). A supplemental subtest may also be used if a core subtest is invalidated for some reason (e.g., its administration is interrupted).
- The WISC-IV produces four Index Scores. Below are brief descriptions of the Index Scores (Wechsler, 2003).
 - **Verbal Comprehension Index (VCI)** is a composite of Similarities, Vocabulary and Comprehension. Information and Word Reasoning are supplemental VCI subtests. The VCI reflects verbal reasoning, verbal conceptualization and knowledge of facts.
 - **Perceptual Reasoning Index (PRI)** is a composite of Block Design, Picture Concepts and Matrix Reasoning. Picture Completion is a supplemental PRI subtest. The PRI reflects perceptual and nonverbal reasoning, spatial processing abilities, and visual-spatial-motor integration.

- **Working Memory Index (WMI)** is a composite of Digit Span and Letter-Number Sequencing. Arithmetic is a supplemental WMI subtest. The WMI reflects the student's working memory capacity that includes attention, concentration and mental control.
- **Processing Speed (PSI)** is a composite of Coding and Symbol Search. Cancellation is a supplemental PSI subtest. The PSI reflects the student's ability to quickly process nonverbal material as well as attention and visual-motor coordination.

The WISC-IV and its predecessors are designed for use with children between the ages of 6 and 16 years of age. For early childhood assessment the Wechsler Preschool and Primary Scale of Intelligence, Third Edition (WPPSI-III) is available and is appropriate for children between 2 years 6 months to 7 years 3 months. The Wechsler Adult Intelligence Scale, Third Edition (WAIS-III) is appropriate for individuals between the ages of 16 and 89 years of age.

2. **Stanford-Binet Intelligence Scales, Fifth Edition (SB5):**

The Stanford-Binet Intelligence Test was the first intelligence test to gain widespread acceptance in the United States. While the Wechsler scales have become the most popular and widely used intelligence tests in schools, the Stanford-Binet scales have continued to have a strong following. As of 2007 the most recent edition of these scales is the SB5 that was released in 2003. The SB5 is designed for use with individuals from 2 to 85 years of age. It contains 10 subtests which are combined to produce five factor indices (i.e., Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual-Spatial Processing and Working Memory), two domain scores (i.e., Verbal IQ and Nonverbal IQ), and a Full Scale IQ reflecting overall intellectual ability. A potentially

appealing aspect of the SB5 is the availability of an Extended IQ scale that allows the calculation of FSIQs higher than 160, which can be useful in the assessment of extremely gifted individuals.

Example of a common set of qualitative descriptions of performance levels expressed as IQs.

Table 1: Illustration by GAS Information Services
(Cengage Learning, Gale)

Score level	Qualitative description	Approximate percent of population included
69 & above	Significantly below average	2.34
70-79	Moderately below average	6.87
80-89	Below average	16.12
90-109	Average	49.61
110-119	Above average	16.12
120-129	Moderately above average	6.87
≥ 130	Significantly above average	2.34

PERSONALITY TESTS

Personality tests attempt to measure your basic personality style and are most used in research or *forensic* settings to help with clinical diagnoses. Two of the most well-known personality tests are:

- The Minnesota Multiphasic Personality Inventory (MMPI) or the revised MMPI-2, composed of several hundred "yes or no" questions.

- The Rorschach (the "inkblot test"), composed of several cards of inkblots—you simply give a description of the images and feelings you experience in looking at the blots.

CONTINUOUS AND COMPREHENSIVE EVALUATION

Continuous and Comprehensive Evaluation was formulated by Ministry of Human Resource Development, Govt. of India. This is the new teaching method introduced recently to decrease the accumulated stress of board exams on the students and to introduce a more uniform and comprehensive pattern in education for the children all over the nation.

CCE helps in improving student's performance by identifying his/her learning difficulties and abilities at regular time intervals right from the beginning of the academic session and employing suitable remedial measures for enhancing their learning performance. CCE is the modern method of evaluating all the prime dimensions of a student's personality that of how much he has been throughout.

NEW SCHEME OF EVALUATION

As a part of this new system, student's marks will be replaced by grades which will be evaluated through a series of curricular and extra-curricular evaluations along with academics. The aim is to reduce the workload on students and to improve the overall skill and ability of the student by means of evaluation of other activities. Grades are awarded to students based on work experience skills, dexterity, innovation, steadiness, teamwork, public speaking, behaviour, etc. to evaluate and present an overall measure of the student's ability. This helps the students who are not good in academics to show their talent in other fields such as arts, humanities, sports, music, athletics, etc.

MARKS AND GRADES

This also has its own demerits; a child with 92 marks will get the same grade as the child with 100 marks and their talents cannot be recognized by anyone else other than their close ones. And with this system students find it difficult to study many chapters because of its so called semester system and engages the student mostly in projects than studying. More than 60% of the students were afraid to take board exams. Though this system might have some drawbacks it instills this value that students need to compete with themselves to get a better grade and not with others.

The grading system is:

- 9.1 – 10.0Q = A1
- 8.1 – 9.0 = A2
- 7.1 – 8.0 = B1
- 6.1 – 7.0 = B2
- 5.1 – 6.0 = C1
- 4.1 – 5.0 = C2
- 3.1 – 4.0 = D
- 2.1 – 3.0 = E1
- 1.1 – 2.0 = E2

CCE in Brief

The examination pattern has undergone a sea change in this new system. Tests are divided into two parts:

1. Formative
2. Summative

Formative tests will comprise (a) class work (b) home work (c) oral questioning (d) quizzes (e) projects (f) assignment. Formative tests will be conducted four times in an academic session, two before summative assessment-I and two summative assessment-II. The overall weight of four formative assessments is 40%.

The summative assessments will be conducted by the school; question papers will be prepared by the school itself from the question bank issued by CBSE.

The summative assessment will be conducted twice in an academic session and the overall weight will be 30% for each summative assessment.

The percentage of marks will be added on the basis of the formula given below:

$$SA2 = 100\%.$$

$$10\% FA1 + 10\% FA2 + 10\% FA3 + 10\% FA4 + 30\% SA1 + 30\%$$

The CBSE has also introduced the grading pattern. In addition to the summative assessment, the Board will offer an online aptitude test (optional) that may also be used as a tool along with the grades obtained in the CCE to help students to decide the choice of subjects in class XI. The board has also instructed the schools to prepare the report card and it will be duly signed by the principal, the student and the Board official.

In order to evaluate social science the following skill must be followed:

1. Investigation
2. Deductive Method
3. Co-relation with real life situation
4. Use of IT
5. Concept understanding, various assignments can be given such as: (i) project, (ii) models and charts, (iii) group work, (iv) worksheet, (v) survey, (vi) seminar etc. The teacher will play a major role like to give remedial help, maintain record term wise, to maintain checklist and records etc.

The new CCE method will bring enormous changes from the traditional chalk and talk method when it is implemented in true spirit. The teacher will play a pioneering role in erasing the stress and phobia from the students.

Other Provisions

- The assessment has been made easy by splitting up the whole year into 2 semesters.
- After completing a semester, a test called 'summative assessment' is held by C.B.S.E. directly (90 marks for class IX and 90 marks for class X).
- According to the notified scheme, every aspect of extra-curricular activities like sports, club activities are given prior importance.

REFERENCES

- Horn, J.L. and Cattell, R.B. (1966), Refinement and Test of the Theory of Fluid and Crystallized General Intelligence. *Journal of Educational Psychology*, 57, 253-270.
- Jensen, A. (1998). These suppressed relationship between IQ and the reaction time slope parameter of the Hick function. *Intelligence*, 26, 43-52.
- Kamphaus, R.W. (2001) *Clinical assessment of child and adolescent intelligence*, 2nd ed. Boston: Allyn & Bacon.
- Lee, D., Reynolds C.R. and Willson, V.L. (2003). Standardized test administration: why bother? *Journal of Forensic Neuropsychology*, 3, 55-81.
- Reynolds, C.R. and Kamphaus, R.W. (2003). *Reynolds intellectual assessment scales and Reynolds intellectual screening test: Professional manual*. Lutz, FL: Psychological Assessment Resources Inc.
- Reynolds, C.R., Livingston, R.A., and Willson, V.L. (2006). *Measurement and assessment in the classroom*. Boston: Allyn and Bacon.
- Wechsler, D. (2003). *Wechsler intelligence scale for children*, 4th ed. San Antonio, TX: The Psychological Corporation.



CHAPTER

8

Guidance and Counseling

GUIDANCE

MEANING OF GUIDANCE

Guidance means to "show the path". It is the help provided by a more experienced person to a less experienced person to solve certain major problems of the individual (less experienced). The problem could be educational, vocational, personal etc.

According to *Education Commission* (1966): "Guidance should be regarded as an integral part of education and not as a special, psychological or social service which is peripheral to educational purposes. It is meant for all students not just for those who deviate from the norm in one direction or the other."

According to *Jones*: "Guidance involves personal help given by someone, it is designed to assist a person in deciding where he wants to go, what he wants to do, or how he can best accomplish his purposes. It does not solve problems for the individual but helps him to solve them. The focus of guidance is the individual, not the problem, its purpose is to promote the growth of the individual in self-direction."

CHARACTERISTICS OF GUIDANCE

1. It is promotion of growth of the individual in self-direction.

2. It is the process of helping the individual in affecting changes in him.
3. It helps the individual through his own efforts.
4. It assists an individual to find his place in the world.
5. It helps the individual to establish a harmonious place in the society.
6. It helps a person to adjust in the society.
7. It helps to make appropriate educational, vocational and personal choices.

NATURE OF GUIDANCE SERVICE

1. Its programme is organized.
2. Its programme has a structure, system and personnel.
3. It consists of specialized services: testing, counseling, educational and vocational information, placement and follow-up.
4. It should be an integral part of education system.
5. It should help to identify and develop potentialities and talents.
6. It should have a positive approach towards students.

FUNDAMENTAL OBJECTIVES OF GUIDANCE

1. **To appraise and interpret personal characteristics:** Self-understanding, discovery of aptitudes and capacities, attributes of the self, weak points and strong points, ability to evaluate the self in relation to personal and several experiences, and to use the self more effectively in everyday living is the aim of guidance.
2. **To adjust to college, teachers:** Guidance aims at satisfactory adjustments to academic work, getting the

most out of studies. It helps to diagnose several learning problems and instructional difficulties and tries to find out their remedies.

3. **To place in suitable educational experiences:** In accordance with individual needs and potentialities, guidance helps to transfer from one course to another, depending upon performance and other circumstances.
4. **It provides social adjustment:** Develops personal status, growth in self-confidence and acceptance of self.
5. **To provide orientation to educational, vocational, and avocational opportunities and requirements:** Guidance aims at selection of appropriate courses and planning a total educational programme in line with individuals' needs, interest, abilities, circumstances and social requirements.
6. **To develop personal potentialities:** It aims at growth in intellectual and academic capacities, skills and understanding according to personal capabilities.

PROCESSES RELATING TO CURRICULUM DEVELOPMENT

- Recognition, prevention and remedying of learning difficulties.
- Orientation of students, teachers and parents.
- Orientation and comprehensive testing programme.
- Providing for test information and interpretation.
- Participating in curriculum development programme.
- Evaluating curriculum outcomes.
- Helping researchers in curriculum development.

PROCESSES RELATING TO PERSONAL DEVELOPMENT

- Identification of learning difficulties of the learner.
- Prevention of learning difficulties.
- Remedying those difficulties.
- Referring the learner to appropriate experts.
- Follow up work.

PROCESS RELATING TO EDUCATIONAL AND VOCATIONAL GUIDANCE

- Counseling with students for helping them to understand their educational and vocational needs in relation to their abilities, aptitudes and achievements.
- Assisting teachers to understand the use of proper methods of assistance to students in making educational and vocational decisions.
- Making parents aware of the need for guidance programmes.

PRINCIPLES OF GUIDANCE

Guidance is based upon the following principles:

- Holistic development of individual: Guidance needs to be provided for the total development of personality.
- Guidance should have a definite purpose.
- Guidance is both a specialized and a generalized service.
- It should be provided by specially trained faculty.
- Guidance is required at every stage of life.
- Guidance is a slow process, as it requires a considerable time to make suitable adjustments.
- It is a continuous process.
- The purpose of guidance is to develop an insight in an individual.

- Most students should be considered as normal average persons.
- Present problems have their roots in the past.
- Every individual is different and thus every person requires a different kind of guidance.
- Guidance is planned activity which should be given adequate time.
- Guidance should follow a rigid code of ethics.
- Guidance services should be an integral part of education system and not viewed as supplementary.
- Guidance activities should complement the activities of an education system and they should be interdependent.
- Guidance should be based on certain educational objectives.
- Guidance should take into account community needs.
- Scientific methods should be followed in obtaining information during guidance process.
- The guidance and counseling process should be periodically reviewed.

CLASSIFICATION OF GUIDANCE**1. According to areas of development**

- | | |
|---------------|---------------|
| – Personal | – Vocational |
| – Educational | – Avocational |
| – Social | – Leadership |
| – Health | – Moral |
| – Leisure | |

Personal Guidance: It helps the students to understand themselves properly, assists them in taking independent decisions

and view the world in proper light. It could also help resolve disturbances in studies due to problems at home.

Educational Guidance: It helps the student to understand the course and curriculum in a better way.

Vocational Guidance: It helps the students by giving information about various career opportunities available through various courses.

Avocational Guidance: A college student may have several other interests besides his/her course. It could be an important part time activity pursued after the college hours. Avocational guidance provides the students a better understanding of these pursuits in co-ordination with his regular studies.

Social Guidance: Students are exposed to a relatively large social environment when they come to college. There could be problems with social adjustment such as acceptance in a group, developing social relationships, insecurity, tolerance etc. Social guidance on many of these matters could help.

Moral Guidance: College students are sometimes engaged in unwanted or immoral activities which can spoil their career. Moral guidance can help the student to understand the importance of values in life and inculcate some principles in them.

Health Guidance: Students in college could be exposed to various threats to their health such as injuries during sports, communicable diseases, sexually transmitted diseases etc. Health guidance helps resolve and advice the students about these threats.

Leisure-Time Guidance: Most students do not plan and spend their leisure-time properly. If properly utilized this time could result in more productivity and skill acquisition. Proper guidance for the utilization of one's leisure-time is thus important.

2. According to method of guidance

- Individual
- Group

Modes of Guidance: Individual and Group

Individual Guidance

Individual guidance is tailored to an individual student. For individual guidance the following information concerning the individual is gathered.

- Information about his/her intelligence, interests, attitude, personality.
- Information about a student's family conditions.
- Information about his/her social, financial, cultural background.
- Any other relevant information.

Advantages

- It collects almost complete information about an individual and hence a proper remedy can be effected.
- Remedies in this method are simpler and effective.

Disadvantages

- It is a time consuming process if many students have to be guided.
- It can become expensive if multiple visit have to be made.
- For an effective session the guidance has to be provided by a highly trained person.

Group Guidance

Group refers to a collection of people and interaction between individuals. For example many students and teacher/teachers at one school may gather together to form a group.

In a more specific term, it is guiding the individual in a group situation. Group could be of any type, but for guidance purposes a group should have a common goal. Just collection of individual may not be called a group for organizing guidance activities. Selection of group members will have to depend on sharing a common problem, volunteering to be members and willingness to group activities.

Advantages

- To help students in identifying common problems, analyse them and find relevant solutions.
- To place a wide range of information before students with common problems which could be useful for them for finding solutions.
- To provide a platform where students with common problems could interact with each other and could be benefited by each other's perspectives, ideas and experiences.
- To help in creating an atmosphere where students could get an opportunity to express themselves and in the process analyze themselves.
- *Inspires learning and understanding:* Interaction in group setting inspires learning and understanding of students. The student learns from other members of the group.
- *Saves time and effort:* Group guidance technique can save time and effort of both the counselor and students. The time saved can be used for the more difficult and complex problems of students.
- Improvement of student's attitude and behaviour.
- Development of wholesome and helpful awareness of unrecognized needs and problems of student/s.

Disadvantages

- In this method, it is not possible to obtain the same amount of individual information as in individual guidance.
- Group guidance though serves a useful purpose, but they cannot be taken as a substitute for individual counseling.
- Group activities serve many of the objectives of the school guidance programme, but not all of these.

- Further students may feel hesitant to come out with their personal problems in the group. So, in these cases group guidance cannot be of help.

Some of the common group guidance activities are: Class talk, career talk, displays and exhibitions.

TECHNIQUES OF GUIDANCE

A number of techniques are used in organizing guidance activities.

Group Discussion

For example, at college level students should have knowledge about different careers. A group discussion may be organized in college. For organization of the group discussion proper room/hall, group and relevant topic and expert/resource person should be selected. The group discussion will be useful only if the members participate effectively without the fear and all the members have the opportunity to participate. But the effectiveness of the group discussion depends upon the facilitator and the group selected.

Problem Solving

For solving individual as well as common problems, problem solving can be applied as a technique. It comprises of the following steps:

- Existence of common problem.
- Focused description of the problem.
- Initiation of action for solving problem based on relevant facts.
- Analysis of problem in the light of data collected.
- Listing of possible solutions and evaluation of them.

- Acceptance of degree of acceptance of solution in the group.

ROLE PLAY

In small group role playing can be adopted as a technique of guidance. Role playing is a method where real life situations are simulated by group members/participants. This provides new insight, intuitions, skills and understanding of opposing viewpoints. The role playing may comprise of the following steps:

- Existence of common problem.
- Orientation of group to role playing and the problem.
- Assigning of roles.
- Preparation of other members/audience to observe intelligently.
- Assessing the role play.
- Concluding session and feedback.

Other methods like **case study** and **sociometric technique** can be used as group guidance technique.

CASE STUDY

A case study is an in-depth, intensive and detailed study of an individual or the client.

SOCIOMETRIC TECHNIQUE

The purpose of this technique is to study the nature of social relationship of individual within a group. It offers an opportunity to identify personality problems, especially in isolates and the rejects.

LIMITATIONS OF GUIDANCE

A rigid type of administration is often a major cause of trouble. Generally, when the counselor asks for time in the time table for

conducting these guidance activities, he/she may get a discouraging reply, the time table is already full. No periods are free.

Lack of cooperation on part of the administration as well as the faculty members may also create problems in organizing such activities. Teacher may feel this as an addition burden.

Lack of adequate funds is another problem.

It is not a "cure all" kind of medicine which can solve all the educational and vocational problems of a student.

Sometimes its methods may not be very well organized and planned.

Sometimes unqualified persons may be recruited to provide guidance services.

COUNSELING

Webster's Dictionary defines Counseling as: "Consultation, mutual interchange of opinions, deliberating together". *Wren* says: "Counseling is a dynamic and purposeful relationship between two people who approach a mutually defined problem with mutual consideration for each other to the end that the younger or less mature, or more troubled of the two is aided to a self-determined resolution of his problem."

Counseling is a process that occurs between two individuals... Counselor and counselee (students). It takes place within a professional setting.

MEANING OF COUNSELING

Though the term guidance and counseling is used interchangeably, both the terms have different meaning. We have studied about guidance, now we will know about counseling. In everyday life, we find counseling goes on at many levels. In a family, parents counsel their children, doctors counsel patients, lawyers to clients and teachers to students.

Counseling constitutes three activities:

- I – Informing
- A – Advising
- C – Counseling.

Informing: Here the role of the Counselor is to give appropriate and correct information to the students. For example, you are a student and you need counseling to select your course for the future. Here, the role of the Counselor is to give you information about the availability of different courses and its future prospects.

Advising: In this stage, the Counselor suggests appropriate action. Here the Counselor will offer you several options and recommends one according to your aim or interest. For example, if your aim is to be an engineer, the Counselor will suggest you a course related to applied mathematics.

Counseling: In this stage, Counselor helps the students to clarify his needs, feelings or motivations, so that he can make the appropriate decision for himself. For example, if you will tell, you have no aim or you can not decide what you will do in the future. So, the Counselor will ask you if you are not sure about what to do in future but you must want to do something interesting so describe about your idea. Like this the Counselor can motivate you to find out your idea and can recommend you the course according to your interest.

So, counseling is student dependent rather than knowledge dependent. As a Counselor one needs skill rather than knowledge. It needs high level of interpersonal skills.

CHARACTERISTICS OF COUNSELING

1. Counseling involves two individuals – one seeking help and the other, a professionally trained person, who can help the first.

2. There should be a relationship of mutual respect between the two. The Counselor should be friendly and cooperative and the counselee should have trust and confidence in the counsellor.
3. The aim of counseling is to help a student form a decision, make a choice or seek direction.
4. It helps a counselee to acquire independence and develop a sense of responsibility, explore and utilize his potentialities.
5. It is more than advice giving. The progress comes through the thinking that a person with a problem does for himself rather than through solutions offered by the counsellor.
6. Its function is to produce changes in the individual that will enable him to relieve himself from his difficulties.
7. Emotional rather than purely intellectual attitudes are the raw material of the counseling process.
8. It helps an individual to know himself better, gives him confidence, encourages his self-directedness and provides him with new vision to grow.

OBJECTIVES OF COUNSELING

- To give the student information on matters important to his success.
- To get information about the student which will be of help in solving his problems
- To establish mutual understanding between the counsellor and counselee.
- To help student work out a plan for solving his difficulties.
- To help the student to know his interests, abilities, attitudes etc.
- To encourage and develop abilities and right attitudes.

- To assist the student in planning educational and vocational choices.

PRINCIPLES OF COUNSELING

The principles on which the process of counseling is based are:

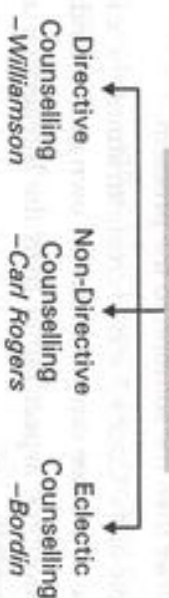
- It involves a face-to-face relationship between two persons.
- It requires emotional rather than purely intellectual attitude.
- **Warmth:** The Counselor should communicate personal warmth and make the students feel welcome, valued as individuals.
- **Acceptance:** The Counselor should accept the person and his feelings for what he is without criticizing him. He should also accept the person irrespective of age, race, sex, etc.
- **Genuineness:** The Counselor should be very honest with himself and with students he should be very open, friendly and undefensive.
- **Empathy:** Instead of showing sympathy to the person having problem, the Counselor should show empathy, which means to sense the feelings and experience of another person.

In order to make good relationship the above qualities should be acquired by a counsellor. He should imbibe these qualities to follow the principles of counseling properly.

TYPES OF COUNSELING

Based on the nature of the counseling process and the role of the counsellor, the following are the three types of counseling:

Types of Counseling



DIRECTIVE COUNSELING

- B.G. Williamson is the chief exponent of this type of counseling.
- The Counselor assumes the major responsibility of solving the problem.
- Counselor identifies, defines, diagnoses and provides a solution to the problem.
- Counselor directs thinking by informing, explaining, interpreting and advising.
- It is counsellor-oriented/dominated process.
- Emphasis is on the problem.

Non-Directive Counseling

(Students-oriented/Centered Counseling)

- Carl Rogers is the chief exponent of this type of counseling.
- Counselee is allowed free expression.
- Counselor only directs and guides.
- Counselor asks a few questions, so as to think about the solution of the problem.
- Counselee takes active part, gains insight into the problem with the help of the Counselor and arrives at the decision and action to be taken.
- Counselor's role is passive.

- Goal is independence and integration of the student rather than the solution to the problem.
- Role of the Counselor is to create an atmosphere in which the counselee can work out his own understanding.
- Emotional aspect rather than the intellectual aspect is stressed.
- Counseling relationship is the establishment of a warm, permissive and accepting climate which helps the student to express his self structure.

ECLECTIC COUNSELING

- Bordin (Thome) is the chief exponent of this type of counseling.
- Counseling may progress along a continuum from directive to non-directive to directive.
- Eclectic is a combination and synthesis of directive and non-directive counseling.
- Both Counselor and counselee are active and cooperative.
- Both do the talking in turns.
- The problem is solved jointly.

The Counselor studies the needs and personality of the students and then selects the technique (appropriate). Begins with directive but switches over to non-directive or vice versa as demanded by the situation.

ONLINE COUNSELING

Online counseling refers to the provision of professional mental health counseling services via the internet. Services can be typically offered via email, real time or video conferencing.

Advantages of Using Online Counseling

- Convenient – any time, any place, whatever suits the process.

- Flexible – student controls everything, receive help when student wants it.
- Can deal with embarrassing issues without having to see anyone.
- Student anonymity is protected.
- Gets to the root of the problem quicker as writing lets the student get in touch with his/her feelings.
- More cost and time effective as student can deal with more issues in a session.
- No need to take time off.

Disadvantages

1. It is a remote process and thus direct expression of feelings is not possible.
2. It requires advanced technology for communication.

DIFFERENCE BETWEEN GUIDANCE AND COUNSELING

The terms guidance and counseling have been loosely or interchangeably used. Guidance is a term which is broader than counseling and it includes counseling as one of its services.

GUIDANCE AND COUNSELING SERVICES FOR STUDENTS

A college student has to be made aware of the guidance and counseling services provided by the college. These services should be easily accessible to the students. Guidance services can assist the students in knowing themselves – their potentialities and limitations, making appropriate choices in educational, vocational and other fields. Some of the important guidance services are:

1. Orientation services, e.g., orientation day, faculty introduction etc.
2. Student inventory services.

3. Career information services.
4. Counseling services.
5. Group guidance services.
6. Placement services.
7. Research and evaluation services.

GUIDANCE AND COUNSELING OF FACULTY MEMBERS

Sometimes the faculty members need some guidance and counseling because of burnout and stress in their job.

BURNOUT AND CAREER GUIDANCE

MEANING OF BURNOUT

Burnout is a psychological term for the experience of long-term exhaustion and diminished interest. The term burnout in psychology was coined by Herbert Freudenberger in 1974. Psychologists Herbert Freudenberger and Gail North gave 12 phases of burnout,

1. A compulsion to prove oneself.
2. Working harder.
3. Neglecting one's own needs.
4. Displacement of conflicts (the person does not realize the root cause of the distress).
5. Revision of values (friends or hobbies are completely dismissed).
6. Denial of emerging problems (cynicism and aggression become apparent).
7. Withdrawal (reducing social contacts to a minimum, becoming walled off, alcohol or other substance abuse may occur).
8. Behavioural changes become obvious to others.

9. Depersonalization (life becomes a series of mechanical functions).
10. Inner emptiness.
11. Depression.
12. Burnout syndrome.

BURNOUT SYNDROME

- Increased absences and/or tardiness
- Boredom
- Anger/resentment in workplace
- Sleep problems.

COPING WITH BURNOUT

There are a variety of ways that both individuals and organizations can deal with burnout.

ORGANIZATIONAL ASPECTS

Employee Assistance Programs (EAP) including counseling and psychological services for employees.

Stress Management Training (SMT): Stress Management Training is employed by many organizations today as a way to get employees to either work through stress or to manage their stress levels; to maintain stress levels below that which might lead to higher instances of burnout.

INDIVIDUAL ASPECTS

Problem-based Coping

Individual can cope with the problems related to burnout and stress by focusing on the causes of the stress. This type of coping has successfully been linked to reductions in individual stress.

Appraisal-based Coping

Appraisal-based coping strategies deal with individual interpretations of what is and is not a stress inducing activity.

FACULTY DEVELOPMENT AND DEVELOPMENT OF PERSONNEL FOR P.T. SERVICES

Goals of Faculty Development should be:

- Providing teachers with training opportunities to achieve maximum effectiveness.
- Ensuring that employees develop their skills and capabilities to be able to work efficiently and respond rapidly to changes within their organisations.
- Improving performance of their present duties.
- Ensuring that the best use is made of the natural abilities and individual skills of all employees for the benefit of the organisation and their career.

Development and training is a continuous and systematic process. The process of training should necessarily be directed to give every teacher a sense of professionalism, excellence, motivation and customer satisfaction.

Four major areas of faculty development are:

1. Individual development
2. Instructional development
3. Organizational development
4. Change management.

The above major areas should cover the following important aspects:

1. Teaching (class organization, evaluation of students, inclass presentation).

2. Career Planning (grant writing, publishing, committee work, administrative work, supervisory skills, and wide range of other activities expected of faculty).
3. Personal Development (wellness management and interpersonal skills).
4. Conducting Innovative Research.
5. Improve Clinical Teaching in Case of Medical Professionals.
6. Develop Leadership and Management Skills.

METHODS OF FACULTY DEVELOPMENT

Faculty development programme can be delivered in a variety of methods. Faculty development can mean

1. Participation in workshops and conferences.
2. Journaling and sharing experiences with colleagues.
3. Reading professional publications.
4. Collegial discussions at faculty meetings.
5. Activities related to the ongoing work of the college.

Probably the best way for training faculty, among above mentioned training strategies, is training through different workshops and seminars. Continual re-education of teachers can be organized internally and externally as central training and department training.

1. **Central Training:** A good way to organize regular re-training of faculty is forming of **Central Office of Faculty Development** for continual education and life long learning. In this center, teaching faculty can get knowledge about different things like teaching and examining methodologies, leadership and management skills etc.
2. **Internally Organized Faculty Training:** Apart from central training, training organized inside faculties and

in different departments internally organized faculty training programmes are also crucial for improving of teacher knowledge and skills.

Faculty development office and departments are responsible for ensuring that faculty have a clear understanding of all the functions and activities of the department where they are working. It should be organized as systematic and regular training programme directly related to the needs of the department and the individual teacher.

REFERENCES

1. Agrawal, R. (2006), Educational, Vocational Guidance and Counseling, New Delhi, Sipra Publication.
2. Bhatnagar, A. and Gupta, N. (1999), Guidance and Counseling: A Theoretical Approach (Ed.), New Delhi, Vikas Publishing House.
3. Jones, A.J. (1951), Principles of Guidance and Pupil Personnel Work, New York, McGraw Hill.
4. Kochhar, S.K. (1985), Educational and Vocational Guidance in Secondary Schools, New Delhi, Sterling Publisher NCERT (2008), Introduction to Guidance, Module-1, DEPE, New Delhi.
5. Professional and Organizational Development Network in Higher Education, 2002.
6. Richard W. Riley, Teaching PreK-8, January 1994, Vol. 24, Issue 4, p.12. Adapted from Ben Harris, Supervisory Behaviours in Education, Prentice-Hall, Englewood Cliffs, N.J., 1963, p. 71.
7. Elisabeth Smith, Section 6, Professional Development.



CHAPTER

9

Clinical Education

- Clinical Education meaning differs according to the recipient involved.
- Education of health and diseases to the masses.
- Educating of clinical health professional.
- Providing a suitable training environment to the student trainees.
- Clinical education of student trainees.

AWARENESS AND GUIDANCE TO COMMON PEOPLE ABOUT HEALTH AND DISEASES AND AVAILABLE PROFESSIONAL SERVICES

AWARENESS ABOUT HEALTH AND DISEASES

Awareness about health and diseases means making people aware of the various practices that must be followed to ensure healthy personal as well as community life. Health education has to create awareness in the community about the prevailing health problems. It should encompass the following aspects of health:

1. **Human Biology:** The aim of education about human biology is to explain, e.g.,

- Structure and function of human body,
 - How to keep physically fit
 - Need for exercise, rest and sleep
 - Effect of smoking and drugs on the body
 - Immunization.
2. **Nutrition:** The aim of nutrition education is to guide people to
- Prevention of malnutrition
 - Value of breast feeding and proper weaning
 - Choose optimum and balanced diets
 - Promote good dietary habits
 - Explain link between dietary habits and diseases like obesity, cardiovascular diseases.
3. **Hygiene:** The aim of education about hygiene is to promote
- Personal hygiene
 - Domestic hygiene at home
 - Hygienic disposal of wastes
 - Improvement of basic sanitary services.
4. **Family Health:** The aim of education about family health is to explain
- The role of family in health care
 - Early diagnosis and care of sick
 - Inculcation of healthy lifestyle habits.
5. **Disease Prevention and Control:** The aim of education is to provide education about locally endemic diseases such as malaria, tuberculosis, leprosy, filaria, goiter etc.
6. **Mental Health:** The aim of education about mental health is to
- Help people keep mentally healthy
 - Prevent mental breakdown

- Education about various symptoms of mental illness
 - Coping strategies for people with mental illness.
7. **Prevention of Accidents:** The aim of this education is to provide safety education about
- Accidents on roads
 - Accidents at workplace, factories etc.
 - Accidents at home.
8. **Use of Health Services:** The aim of this education is to create awareness about
- Discover resources available for solving health problems
 - Use of locally available health services
 - Use of health services available at State level
 - Use of health services available at National level.

AVAILABLE PROFESSIONAL SERVICES

The knowledge about various personnel available in the local area is important for the utilization of services. The available professional services in the health care system of our country vary from region to region. The range of health services differ between an urban and rural area. In the urban areas there are service personnel such as Specialists Doctors, General Physicians, Nursing Care, Physiotherapy, Occupational Therapy, Speech & Hearing Therapists, Home Care Attendants etc. whereas in the rural areas these services may be limited. In the rural areas generally there are health care providers such as General Physicians, Nursing aids, and attendants. In remote areas the health care system is dependent upon Anganwadi workers, and health assistants in the form of ASHAs.

PATIENT EDUCATION

Patient education is the process by which health professionals and others impart information to patients that will alter their health behaviours or improve their health status. Education providers may include: physicians, physiotherapists, pharmacists, dietitians, nurses, medical social workers, psychologists, NGOs and pharmaceutical companies.

Patient education may include both general preventive education and or condition specific education.

The aim of patient education is to enable the patient to acquire skills to manage himself/herself to the maximum extent possible and also to seek medical advice when appropriate.

Proper patient education provides the following outcomes:

- Improved understanding of medical condition, diagnosis, disease, or disability.
- Improved understanding of methods and means to manage multiple aspects of medical condition.
- Patient is able to act both independently from medical providers and in interdependence with them.
- Patient is able to show increased compliance to the treatment being offered.
- Patients show fewer complications.
- Patients feel you have provided the information they need.
- Patients are able to utilize medical services effectively.
- Patient feel satisfied and they may refer other patients.
- Patients have realistic expectations.

EDUCATION OF THE PRACTITIONERS

Benefits of continuing medical education are:

- Improves the clinical competence of general practitioners.
- Improves the quality of health care services.

- It informs them of new inventions, technologies.
 - It informs about recent practices in their field.
 - Develops the concept of Evidence Based Practice.
- Various methods for educating clinical practitioners are:

- Live events or workshops, seminars, conferences.
- Written publications in the form of newsletters, journals, handouts etc.
- Online programs.
- Audio recordings.
- Video recordings.
- Other electronic media.

In some cases it is required on a continuous basis in order to retain the license to practice in which case it is called continuing medical education.

DIMENSIONS OF PHYSIOTHERAPY

There are four dimensions of Physiotherapy which are important for Clinical Education of student trainees.



Fig. 9.1: Dimensions of Physiotherapy

ABOUT THE DIMENSIONS

1. **Foundation Dimension:** Supports and informs the entire curriculum and encompasses four domains:

- Basic Sciences (Anatomy, Physiology, Biochemistry)
- Psychosocial Sciences (Psychology and Sociology)
- Scientific Inquiry (Biostatistics)
- Professionalism and Ethics (Orientation to Physiotherapy)

These foundational subjects form the knowledge base for the Physiotherapy Clinical Practice and Professional Interaction Dimensions which are applied in clinical education.

2. **Physiotherapy Clinical Practice:** Dimension is made up of five domains:

- PT Movement Sciences (Biomechanics and Kinesiology)
- PT Therapeutics (Exercise and Electrotherapy)
- Cardiorespiratory PT Practice
- Musculoskeletal PT Practice
- Neurological PT Practice
- Sports PT Practice.

In this dimension, *PT Movement Sciences and Therapeutics* are considered as integral knowledge and skills applied in all clinical education experiences. In addition, students need to gain experience or apply this knowledge and these skills specifically in cardiorespiratory, musculoskeletal, neurological PT, and sports PT practice areas.

3. **Physiotherapy Professional Interactions:** Dimension addresses curriculum content at the level of interaction between the client/patient and individual physiotherapist in three domains:

- Professional and Ethical Practice

- Client-Physiotherapist Interaction
- Interprofessional Practice.

This dimension represents the essence of all clinical placements students' professional interactions with

- (a) Clients
- (b) Families
- (c) Peers
- (d) Supervisors
- (e) Interdisciplinary colleagues
- (f) The public.

4. **Context of Practice:** Dimension addresses curriculum content required of the graduated physiotherapist at the service and health system level. It is the environment in which the entire curriculum lives, influencing clinical and professional practice.

Context of Practice includes an understanding of the following domains:

- Health Care Environment (e.g., Indian health care system)
- Health Care Models and Frameworks (e.g., Govt, private, corporate, charitable)
- Practice Management/Clinic Management.
- Services Management/Management of PT services in clinics.
- Practice Settings/Adjustment to changing practice environment.

The Framework below represents the components of each clinical education experience.

Foundations: Students acquire a foundation of knowledge through their academic curriculum which they take with them into clinical practice.

Physiotherapy Clinical Practice: The learned skills of movement science and therapeutics and applied in musculoskeletal, neurological, cardiorespiratory and sports practice areas.

Professional Interactions: Students learn and apply the essential competencies and skills in various roles such as professional, communicator, collaborator, advocate, manager, scholarly practitioner and expert.

Context of Practice: Students are exposed to key practice settings in which they can experience different models of practice and health care. These settings include: Acute Care, Rehabilitation/Long Term Care and Ambulatory Care.

It is understood that during the course of a student's education, he/she will have several different clinical placements. As students move through successive clinical education experiences, they will:

- Have increasing amounts of foundational knowledge to draw on,
- Have increasing clinical practice skills to apply,
- Have been exposed to different clinical practice areas and contexts and
- Have the opportunity to develop increasing proficiency in the roles described

However good clinical education is not possible without the active involvement of supervisors, clinical co-ordinators, clinical education Partners.

GUIDELINES FOR CLINICAL EDUCATION OF STUDENTS

In order to produce graduate competent generalist physiotherapists, the following guidelines are recommended for clinical education.

1. Clinical Hours

A minimum of 1025 hours must take place in clinical placements which are normally scheduled within clinical training hours.

Application

- Atleast 80% of these hours (i.e., 820 or more of the 1025 hours per student) must be in settings that provide patient care. In select cases, it may be possible for a student to complete one placement (or components of more than one placement) in a non-patient care setting (e.g., research facility).
- If the student has (or will have, by graduation) successfully completed the required mix of clinical experience (i.e., hours, essential settings, and areas of practice in patient care).
- Additional clinical education hours are encouraged.

2. Area of Clinical Practice

Each student must acquire significant clinical experience in each of the following essential areas of practice:

- Cardiovascular and Respiratory conditions
- Neurological conditions
- Musculoskeletal conditions
- Sports conditions.

Application

Significant experience in **each area** may be gained during one clinical placement or through components of multiple placements.

A minimum of 100 hours should be completed in each essential area of practice.

While acquiring clinical experience in essential areas of practice, each student is also expected to acquire clinical

experience working with patients with complex (or multi-system) conditions; and of a variety of ages.

3. Context of Practice

Each student must acquire significant clinical experience in each of the following essential settings:

- Acute Care
- Rehabilitation/Long Term Care
- Ambulatory Care

Application

Acute/Hospital Care: Interdisciplinary care provided for a patient during an acute illness, an acute exacerbation of a chronic illness/disability or a surgical intervention which necessitates admission to an acute care hospital. The patient typically has a changing health status and the hospital stay is generally of short duration.

Rehabilitation/Long Term Care: Interdisciplinary or care provided for a patient with a focus to maximize functional independence, and provided within a rehabilitation hospital, unit or clinic. Typically following an injury leading to a disability (e.g., Spinal Cord Injury), an acute illness (e.g., Pneumonia) or a surgical intervention (e.g., Joint Replacement). Rehabilitation often provides for important transition from Acute Care to Ambulatory Care and may be provided on an inpatient or an out-patient basis.

Ambulatory Care: Care provided for a patient as an out-patient where the patient requires primarily or solely the services of a physiotherapist. The patient lives in the community and attends an out-patient setting for treatment. Ambulatory Care could be provided at physiotherapy clinics, sporting events, hospital-based ambulatory care clinics, work sites, etc.

The amount of experience assigned to each for the purposes of clinical education ensures that students receive adequate exposure to each of these practice settings.

4. Supervision of Students

The majority of clinical education hours are evaluated by a qualified physical therapist.

Application

While the majority of clinical education hours are supervised by qualified physiotherapists, students may at times be supervised on a day to day basis by qualified professionals other than physiotherapists. These clinical education opportunities allow students to gain experience in more non-traditional role settings.

The supervisor should have adequate professional experience to competently supervise a student and should have adequate education, support and mentorship for this role.

- (a) Clinical Education partners are Incharges/H.O.D's, Staff of hospitals or NGOs.
- (b) Clinical Co-ordinator is an internal faculty member who co-ordinates clinical education.
- (c) College Principal/Director – who plans the clinical education sites along with the clinical co-ordinator.

ROLES AND RESPONSIBILITIES IN CLINICAL EDUCATION

Clinical Education should:

- Enable students to link theory with practice.
- Enable students to take an active role within the clinical site.
- Promote satisfaction for both students and clinical educators regarding the clinical experience.
- Be a collaborative learning experience among students, clients, clinical educators, clinical coordinators and programme coordinator principal.

- Be mutually beneficial to students and clinical educators, i.e., students gain experience whereas clinical educators gain help in managing patients.
- Be accepted as an essential part of professional growth for both students and clinical educators, i.e., the staff in the physiotherapy department in hospitals should also have clinical education as a role.
- Occur in a positive learning environment.

Students are expected to:

- Take responsibility for their learning experience and the direction of that experience in partnership with clinical educators, clinical coordinators and college principal.
- Set personal and professional goals before the beginning of the clinical experience. Review and adjust them throughout the placement.
- Do preparatory readings before and during the clinical experience.
- Uphold the Codes of Ethics at all times (professional association, professional regulatory body, clinical site, university programme).
- Comply with clinical site Hospital and College policies and procedures.
- Increase their understanding of and promote the roles and functions of physiotherapists.
- Increase their understanding of and respect the roles and functions of other team members.
- Learn how physiotherapists contribute to the service delivery team.
- Develop competencies for the application of the physiotherapy process.
- Develop increased confidence and competence in their practice of physiotherapy.

- Develop an interest in one or several areas of physiotherapy to guide them in designing their career path.
- Communicate with the clinical coordinator before or at mid-term if they encounter clinical challenges.
- Provide feedback to clinical coordinator based on their clinical learning experience.

Clinical Educators are expected to:

- Become familiar with the colleges' clinical education programme (learning objectives, educational tools, clinical evaluation tool, expected performance of student depending on placement level) and with the supervision process.
- Offer a welcoming environment, a comprehensive orientation and provide space for student use, as available within the site's resources.
- Act as role models for students.
- Offer a positive and comprehensive learning environment to enable student development within the core competencies required for physiotherapy practice.
- Clearly inform students of what is expected of them, appropriately grade responsibilities and expectations and be available to students to offer appropriate supervision.
- Offer regular and timely feedback based on student performance, including recommendations for improvement.
- Assist students to develop a good understanding of their "professional growth" and of the remaining learning objectives by allowing and promoting time for guided reflection.
- Meet with students to discuss and evaluate their performance at the mid-term and end of the clinical education experience.

- Communicate with the clinical coordinator before or during the mid-term evaluation if the student encounters significant challenges.

Clinical Coordinators are expected to:

- Assist students to develop a good understanding of their "professional growth" and of their learning objectives by offering clinical preparation (e.g., orientation and resources; integration of theory with practice) to students.
- Provide clinical educators with orientation and educational resources related to the clinical education program and the supervision process.
- Coordinate offers and requests for placements and whenever possible match students and sites according to students' academic and clinical profiles and interests.
- Enable students to make suitable choices in selecting clinical settings.
- Offer ongoing support and problem solving to students and clinical educators in dealing with student learning challenges.
- Recognize clinical partners who contribute time and expertise in supervising students.
- Provide with a clinical agreement, either temporary or long term, describing the liability and responsibilities of each party.
- Regularly assess the content and quality of supervision given and provide recommendations to clinical sites and feedback to clinical educators.



CHAPTER

10

Current Issues and Trends in Higher Education

WHAT IS HIGHER EDUCATION?

Higher education is generally understood to cover teaching, research and extension. Higher education also provides opportunities for lifelong learning, allowing people to upgrade their knowledge and skills from time to time. The report of the UNESCO International Commission on Education in the 21st century has highlighted the following functions of higher education:

1. To prepare students for research and teaching.
2. To provide highly specialized training courses adapted to the needs of economic and social life.
3. To be open to all so as to cater to the many aspects of lifelong learning in the widest sense.
4. To promote international cooperation through internalization of research, technology, networking and free movement of persons and scientific ideas.

INDIAN HIGHER EDUCATION SYSTEM

The Indian higher education system is one of the largest such systems in the World. Indian higher education system has undergone massive expansion in post-independent India.

In 1950-70s

The aim was to establish several Universities, Technical Institutes, Research Institutions and Professional/Non-professional Colleges all over the country. It has helped to generate and disseminate knowledge coupled with the noble intention of providing easy access to higher education to the common Indian. Government initiatives played a predominant and controlling role in this phase. Most of the Universities were Public institutions with powers to regulate academic activities on their campuses as well as in their areas of jurisdiction through the affiliating system. Some private institutions were established by philanthropists mostly funded through their business success. Even the private institutions enjoyed large-scale financial support in the form of grants from the public exchequer.

1970-2000

The government of India in these decades adopted a policy of limited funding of Universities and Institutions. There was a shortage of funds for the expansion and diversification of the higher education system in the country to meet the continuously growing demands. There was little option other than bringing in private initiatives in a massive way to meet the various challenges. The government started deregulating the education system with the granting of "Autonomous Status" to identified Colleges in the 1970s. Some of these Colleges excelled further to receive the "Deemed to be University" status in later years.

2000 AD

Now, the country is witnessing a mushrooming of many Private Universities in different States. Thus, the higher education sector in India is moving towards privatization. There is a major rise in the proportion of population being served through private higher educational institutions.

AUTONOMY

The higher education sector in India is regulated by the Government of India. Even though there are a lot of private colleges in India, but all of them are supposed to seek approval and report their activities to the government from time to time. In most cases, the institution which is affiliated to a Government University has to follow a prescribed curriculum, and other rules and regulations with regard to academic and administrative matters.

Autonomy means freedom to decide on our own. Academic autonomy is the freedom to decide academic issues like curriculum, instructional material, pedagogy, techniques of students' evaluation etc. by an institution itself. This literally means that the institution is free to a large extent in matters relating to administration and control of the organization.

This concept has gained momentum in the past few years among institutions of higher learning. The prime reasons why institutions want autonomy are:

- Freedom to teach students as per the changing needs of the society, e.g., introduce new courses, prepare a curriculum as per industry requirements etc.
- Freedom to recruit and train faculty as per need.
- Freedom to administer and control the staff, finances and other matters on their own.

In the recent years, the government has declared a lot of institutions as Autonomous in the form of Deemed Universities, Private Universities, and Autonomous colleges. It has conferred on them the power to decide the academics and administration of their institutions as they like. This has both advantages and disadvantages.

However, Autonomy provided to these institutions comes along with accountability.

ACCOUNTABILITY

Every institution should be accountable to its participants:

- It should be accountable to the students who are its customers. The students should be satisfied with the quality of education that is being provided.
- It should be accountable to the concerned government agencies who monitor the finances of the institution.
- It should be accountable to the society which has directly or indirectly helped the institution to grow.
- Unfortunately most of the autonomous institutions in India have failed on the accountability parameter.

PRIVATIZATION

Privatization in higher education means a movement away from public financing and toward private financing. This includes the setting up of privately owned and managed educational institutions under the regulatory control of government. The government regulates these private educational institutions through various agencies at the National and State level. In India at the national level they are governed by either Ministry of Human Resource Development for general courses like MBA, MCA, BBA, BCA, Engg., etc. or by Ministry of Health & Family Welfare for health sector related courses.

Ministry of Human Resource Development includes agencies such as University Grants Commission, All India Council for Technical Education, etc.

Ministry of Health & Family Welfare includes agencies such as Medical Council of India, Dental Council of India, Pharmacy Council of India, and Nursing Council of India.

IMPACT OF PRIVATIZATION

Privatization increases the pressure on private higher educational institutions to

- Operate more efficiently.
- To pursue goals set by outside interests.
- To market more aggressively.

While such efforts can help the institution financially, they can also weaken the knowledge driven academic culture through adoption of management practices more typical of business culture.

Some of the measures adopted by private educational institutions to cut costs include:

1. **Contracting out services:** Colleges use outside vendors to provide a wide range of services such as Food Services, Bookstore, Printing, Health Services, Computing Services, Hostels etc.
2. **Restructuring the workforce and controlling payroll:** This includes reducing the number of regular teaching posts, cutting down salaries and other faculty welfare schemes. The impact of this is that the part time faculty is less likely to participate in management decisions as it does not affect them much. The faculty loses its role in shaping institutional policies and programmes.
3. **Diversifying education streams:** The colleges can offer admission to a large number of diverse educational programmes with a large potential enrollment. They target students who otherwise might join traditional courses.
4. **Using technology to cut costs:** In the past education was place bound. The students had to come to college to take classes and the colleges had to invest a huge amount to build campuses. With the increased use of computers and internet this concept is now changed. Web based educa-

tion allows a college to rent a classroom, hire some part time teachers, and deliver a packaged class to whoever enrolls at very low costs.

5. **Contract training:** The colleges can also adopt to outsource the training of students to outside contractors in order to reduce costs.

Many of the above practices have an adverse impact on education and knowledge level of students.

ISSUE OF QUALITY IN HIGHER EDUCATION

Quality in higher education means that the educational process is such that the students achieve their goals and it satisfies the needs of the society and helps in national development.

The quality of a product or service is judged in terms of whether it is:

- **Exceptional** (exceeding high standards and passing a required standard).
- **Consistent** (with zero defects).
- **Fit for purpose** (it meets customer needs and satisfaction).
- **Value for money** (it is efficient and effective).
- **Transformative** (it brings about change).

Why Educational Institutions Should Worry About Quality?

Some of the reasons why educational institutions should worry about quality are:

- **Competition** (regional, national, international competitors).
- **Customer satisfaction.**
- **Maintaining standards.**
- **Maintaining accountability.**
- **Improve employee morale and motivation.**

- **Improve brand value.**
- **Improve image to get support from funding agencies.**

PROFESSIONAL DEVELOPMENT OF TEACHERS

Teaching is an art. It requires a sense of professionalism to be a good teacher. Every teacher who has taught students knows that there is always some scope for improvement no matter how good one's method of teaching is. There are numerous activities which can be planned for the professional development of teachers. Some of these are:

1. Participation in workshops and conferences
2. Sharing experiences with colleagues
3. Reading professional publications
4. College level discussions at faculty meetings
5. Activities related to the ongoing work of the college.



Index

A

- Achievement tests 118
 - construction of 118
 - purpose of 118
- Acute/hospital care 188
- Affective domain 89
- Agencies of education
 - formal 13
 - informal 13
 - non-formal 11
- Aims of education 8
 - democratic set-up 9
- Ambulatory care 188
- Assignment 78
- Assessment
 - types of 113
- Audio aids, types of 103
- Audio-Video aids
 - benefits of 105
 - types of 103
- Avocational guidance 162

B

- Bloom's revised taxonomy 93
- Bloom's taxonomy of learning
 - objectives 85
- Brainstorming 75
- Burnout syndrome 175
- Buzz group 76
- Buzz session 76

C

- Case studies 71, 166
- Central Office of Faculty
 - Development 177
- Clinical education 179
 - clinical educator 191
 - clinical coordinator 192
 - guidelines for students 186
 - roles and responsibilities in 189
- Clinical hours 187
- Clinical practices, area of 187
- Cognitive domain 86

INDEX

- Committee method 80
- Conference 73
- Content courses 56
- Coping with burnout 175
- Counseling 167
 - characteristics of 168
 - directive 171
 - electric 172
 - meaning of 167
 - non-directive 171
 - objective of 169
 - online 172
 - principles of 170
 - types of 170
- Curriculum 22, 27, 58
 - bases of 60
 - development, objectives of 59
 - development, process of 61
 - evaluation 65
- as a continuous process 3
 - formal 11
 - functions of 6
 - higher 193, 200
 - informal 11
 - in democratic set-up 9
 - informal agencies of 13
 - non-formal 11
 - of the practitioners 182
 - philosophy of 13
 - process of 3
 - types of 10
- Educational guidance 162
- Educational measurement 106
 - nature of 106
- Educational psychology 38, 40
 - meaning and scope of 38
- Employee assistance programs 175
- Evaluation 106, 107
 - comprehensive 153
 - continuous 153
- Experimental pragmatism 28
- Experience, real life 80

D

- Debate 77
- Demonstration 69
- Dimensions 184
 - foundation 184
 - of physiotherapy 183
- Discipline 24
- Discussion 74
 - group 165
 - panel 75

E

- Education 1
 - agencies of 13
 - aims of 8

F

- Faculty development 117, 176
 - methods of 117
- Faculty members
 - guidance and counseling of 174
- Faculty training, internally
 - organized 117
- Field trip 80
- Formal agencies of education 13
- Foundation dimension 184

G

Group discussion 165
 Group guidance 163
 Guidance 157
 classification of 161
 characteristics of 157
 group 163
 health 162
 individual 163
 leisure-time 162
 limitations of 166
 meaning of 154
 personal 161
 principles of 160
 social 162
 techniques of 165
 Guidance and counseling 157
 difference between 173

H

Health guidance 162
 Higher education 193, 200
 issue of quality in 198
 Humanistic pragmatism 28

I

Idealism 20, 22, 24
 role of the teacher according to 23
 Indian higher education system 200, 193
 Individual accountability 55
 Individual aspects 175
 Individual differences 49
 causes of 50
 kinds of 52

Individual guidance 163

Informal agencies of education 13

Informal education 11

Intelligence 140
 as a process 142
 types of 142

Intelligence
 origin of 144
 quotient 143

Interest 24

K

Kohler's gestalt or insightful learning 48

L

Learning 5, 40
 methods, problem based 79
 objectives 83
 outcomes 84, 93, 96
 theories of 45
 trial and error 46
 Lecture method 68
 Leisure-time guidance 162

M

Measurable performance 84
 Measurement 106
 functions of 107
 levels of 107
 nominal scale 107
 ordinal scale 108
 rank scale 108

equal scale 108
 interval scale 108
 ratio scale 108

Mechanical naturalism 18

Moral guidance 162

Multiple theory of intelligence 141

N

Naturalism 17
 biological 18
 forms of 18
 of physical science 18
 Non-formal education 11

Q

Problem solving 165
 Processing speed 153
 Professional development of teacher 56
 Professional services 181
 available 181
 Project method 70
 Psychology 35
 Psychomotor 90
 Quality in higher education 198
 Quiz session 77

O

Online counseling 172
 Organizational aspects 175

P

Panel discussion 75
 Patient education 182
 Personal guidance 161
 Personality tests 152
 Physiotherapy
 clinical practice 184, 186
 professional interactions 184
 Pragmatism 25, 27
 and discipline 30
 biological 28
 experimental 28
 forms of 28
 humanistic 203

S

Schooling 4
 Short term courses 57
 Simulation 81
 Skinner's operant conditioning 47
 Social guidance 162
 Sociometric technique 166
 Standardized tests 133
 uses of 135
 Stanford-Binet intelligence scales 151
 Story telling 69

Stress management training 175
Summer programmes 56
Symposium 74

Thorndike's connectionism 46
Training 5
Two-factor theory 141

T

Teaching 42
methods and techniques of
67
planning for 83
Teaching aids 103

C

Unit and lesson planning 93
Unit plan 94, 95
format 95

 $\wedge$

Visual aids, types of 103
Vocational guidance 162

W

- Watson's and pavlov's classical conditioning 47
- Working memory index 151
- Workshop 73
- Workshop and seminars 57



NOTES

[illegible]