**Unit 1**

**INDIVIDUAL DIFFERENCE**

* 1. Introductory concepts- Causes of individual difference
	2. Role of Heredity and Environment – Catering individual difference - measures

Dissimilarity is principle of nature. No two persons are alike. All the individuals differ from each other in many respects. Children born of the same parents and even the-twins are not alike. This differential psychology is linked with the study of individual differences. This change is seen in physical forms like in height, weight, colour, complexion strength etc., difference in intelligence, achievement, interest, attitude, aptitude, learning habits, motor abilities, and skill. Each man has an intellectual capacity through which he gains experience and learning.

Every person has the emotions of love, anger, fear and feelings of pleasure and pain. Every man has the need of independence, success and need for acceptance. Each child is a unique individual and differs from every other and presents individual problems. Individual differences among children are related to their developmental state at any time. The developmental state refers on the one hand to the level of maturation and on the other to the resultant of the process of growth and effects of experiences.

**Meaning and definition of individual differences**

Individual differences are often explanations for differences in learning and performance among learners. The study of individual differences among learners’ permits is done with the idea that results can help educators design instruction that better meets the needs of each learner’s needs. Differences between individuals that separate them from one another and make one as a unique individual in oneself are termed as individual differences.

Individual differences refer to the extent and type of distinctions among individuals on some of the significant psychological traits, personal characteristics, cognitive and emotional components.

Individual differences stand for “the variations or deviations among individuals inregard to a single characteristic or a number of characteristics.”

Individual differences stand for “those differences which in their totality distinguish one individual from another.”

According to **Wintz**, “the variations in the psycho-physical formation of individuals that makes one a unique person is called individual differences.

**Osborn** considers individual difference as “dissimilarity between persons that distinguish them from one another.”

**The dictionary of clinical psychology** defines “individual differences as the deviations of individuals from the group average or from each other.”

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

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

**Nature of Individual Differences**

The nature of individual differences can be summarized as follows:

1. Individual difference are one of degree, not one of kind:

All persons do have common human traits. But the amount and proportions of such traits differ from person to person leading to uniqueness of personality and behavior. So the concept of individual differences refers to quantitative differences found among individuals in respect of a specific trait or various traits.

1. Normal distribution of traits :

All measures of traits that contribute to individual difference tend to distribute themselves according to the laws of normal probability curve.

1. There exist both inter-individual and intra-individual differences:

Individuals not only differ among themselves with respect to a specific trait but differences may be also noticed within the same individual when he is studied in respect of various traits.

**Causes of Individual Differences:**

There are various causes which are responsible in bringing individual differences. Heredity and environment are two major sources to cause individual differences. Their constant interplay manifests in differences, even in members of the same family.

1. **Heredity**

 Heredity is the sum total of the traits, abilities and tendencies present in the fertilized ovum. One’s heredity consists of all the structures, physical characteristics, functions or capacities derived from parents, other ancestry or species. Biological inheritance is determined by the chromosomes and genes. Each chromosome contains of discrete units called genes, which are the real carries of heredity.

 The genes are responsible for the transmission of various inheritable traits from generation to generation. At the time of conception genes from the father pair with the genes from the mother and this determines the qualities or traits of the child.

Identical twins or monozygotic twins occur when a single fertilized egg (zygote) divides once and each of the two cells with identical chromosomes develops as separate individuals. Non identical twins develop from two separate zygotes and have different genetics composition, the ovaries produce i.e, two or more ovum and they are fertilized by different sperms and have different combinations of chromosomes and genes. Fraternal twins therefore, are sure to differ in many aspects. Like the identical twins they need not belongs to the same sex. They may belongs to the same or opposite sex.

 The studies have showed that there is a higher correlation between intelligence test score and the increase in the amount of blood relationship. All these show that heredity not only contributes directly towards the differences in the individuals in relation to sex, intelligence and other specific abilities.

1. **Environment**

The environment consists of the external force, which influences the growth and development of an individual right from his conception. The environmental condition in the womb of the mother, varying conditions at the time of the birth, nutrition and care received at the infancy, nature of schooling, socio-economic status of the family, education of the parent, peer group relationship , race, caste, nationality and so many other environmental stimulation bring a lot of differences in the personality of the individual. Environmentalists believe that the growth and development of an individual is the net result of the environment. Environment may influence behavior in two way namely;

* By producing organic effects that may in turn affect subsequent behavior and
* By providing stimuli for psychological reactions.

When a study was conducted on the foster children, it was found that the average I.Q of their mother was 87. Whereas the average I.Q of their children were 116, which was higher than their mothers. This shows the influence of environment on the growth and development of personality traits.

**Role of Heredity and Environment**

Hereditary factors begin their influence right from the time of conception of the child through the transmission of chromosomes and genes of its ancestral stock from its immediate parents.

**1) Heredity**

Role of heredity in generating individual differences

1. **Heredity determines the sex of the child**. As already understood, there exist 23 pairs of chromosomes in the sperm and ovum. Out of these the first twenty two pairs of chromosomes are called autosomes. The autosomes are responsible for deciding and determining the growth and development of most of the characteristics and structural composition of your body. The remaining twenty-third pair is sex chromosome. Whether the baby to be born should be a boy or a girl and what sex-linked characteristics should it possess, are decided by the mechanism of sex chromosomes of the father and mother.
2. **Heredity contributes significantly towards physical constitution**. Most of the attributes related to our body make-up, its constitution and functioning are well decided and guided by heredity. Some children have blue eyes, others have black or brown. Certainly, this difference is actually brought out by their genetic differences. Same is the case with the color and texture of the skin and hair, height, facial outlook and appearances, blood types, finger prints etc.
3. **Contribution of heredity towards the birth of twins and the related individuals differences**. Sometimes there are birth of twins and multiples. Very often they are found to differ much from their siblings in many aspects. Not only are the twins found to differ from their counterpartsinspite of their commonness in their heredity stocks, but also they are different as individuals.

Twins and multiples help us draw a conclusion about the role of hereditary factors in bringing individual differences as the following:

* 1. Twins are bound to differ from siblings as they are inherited from different sets of chromosomes and genes.
	2. Fraternal twins differ from each other on account of the inheritance of different combination of genes and chromosomes.
	3. The role of heredity cannot be denied as inspite of being identical twins, they may receive at the time of conception somewhat a different type of composition of genes and chromosomes quite capable of creating differences in their genetic structure resulting in two different types of personalities.

**2) Environment**

The environmental influences are those which act upon the organism, at the earlier stages development within mother’s womb and later external environment which operates from the time birth. The nucleus, chromosomes and genes are surrounded by a jelly like substance known cytoplasm. The cytoplasm is an intracellular environment, because the genes surrounded by it influenced by and in turn influence its characteristics. The outcome of the organism is determined cytoplasm as well as its heredity. A new internal environment comes into existence, after the interaction of genes and cytoplasm has produced several cells. The actual structure of a cell depends upon relation to other cells. Development in specific location determines the part of the body. Many congenital deformity are the result of overactive or underactive endocrine functioning. The growing organism is surrounding by amniotic fluid and attached to the mother by umbilical cord. Hereby the growth of the embryonic depends on nourishment provided by the mother. The social psychological environment in which, child is born provides social heritage. The customs, socio-economic status, family environment interaction amongst the family members and later peers and school environment cause variety conditions to determine individual differences.

**Catering of individual differences**

 The differences or variations exist among the human being may be generally grouped or classified in two broad categories, namely physical or physiological differences and psychological differences. The following are the specific types or varieties of individual differences,

1. Physical differences

Individuals differ in height, weight, colour of skin, colour of eyes and heir, size of hands and heads, arms, feet mouth and nose, length of waistline, structure and functioning of internal organs, facial expression and other such native or acquired physical characteristics.

1. Mental difference

 People differ in intellectual abilities and capacities like reasoning and thinking, power of imagination, creative expression, concentration etc. In the field of general intelligences also we find tremendous difference between individuals. On the basis of these differences they are usually classified as idiot, imbecile, moron, border line, normal, bright very superior and genius.

1. Differences in motor ability

 There exist a wide difference in motor abilities such as reacting time, speed of action, steadiness, rate of muscular moment, manual dexterity and resistance to fatigue etc.

1. Emotional differences

 In some individuals, positive emotions like love affection and amusement and the like are prominent whereas, in some, negative emotions are more powerful. Individuals also differ in the manner they express their emotions.

1. Differences in achievement

 Difference exists in achievement and in knowledge even among individuals who have almost the same amount of intelligence and have been subjected to equal amount of schooling and experience.

1. Differences in interests and aptitudes

 variations occur among the individuals in relation to the specific tastes and interests. Some take interest in meeting people, attending social functions and are very fond of picnics and group excursions; others feel happy in solitude, avoid social gatherings and are interested in meditation or enjoy company of books. In a similar way, people are found to have different aptitudes. Some have mechanical aptitude, while the others have scholastic, musical or artistic aptitudes.

1. Difference in attitudes, beliefs and opinions

Individuals are found to possess varying attitudes towards different people, groups, objects and ideas. Their attitudes may be positive, negative or of somewhat indifferent nature. Similarly they differ in respect of beliefs, opinions and ideas. Some believes in one thing, others in another. Some believes in one thing, others in another. Some are conservative and rigid while the others are progressive, liberal and dynamic.

1. Learning differences

 individual differences are found in the field of learning also. Some learn more easily and are able to make use of their learning more comfortably than others.

1. Differences in social and moral development

 Individuals differ in respect of their social and moral development. Some are found to be adjusted properly in the social situations and lead a happy social life while others are socially handicapped, unsocial or antisocial.

**Factors for catering individual difference**

Each student is a unique individual, different in cognitive and affective development, social maturity, ability, motivation, aspiration, learning styles, needs, interests and potential. Apart from this, there are other factors underlying student differences. These include innate differences in intelligence, differences in social and economic background, variations in past learning experiences, and perhaps variations in the level of congruence between the learner and the curriculum. In view of these factors, catering for individual differences is intended neither to narrow the gap between individuals nor to even out their abilities and performance. It should aim for understanding why students are able or unable to learn well and finding appropriate ways to help them learn better.

There are five broad areas, in which a lot of work could be done to take into consideration the individual differences. These are:

1. Streaming of students.
2. Curriculum planning
3. Disciplinary treatment.
4. Guidance and counseling.
5. Special schools for the handicapped children.
6. Streaming or grouping of children

Many methods are adopted to group children. Some schools divide students of the same age into classes and each class is further divided into different sections so that the number of students taught together is reasonably manageable. Many schools, while adhering to age, divide students into different sections as homogenous groupings. Usually this grouping is based on intellectual attainments or on intelligence test, etc. In homogenous groups, the children of high ability, of medium ability and of low ability are kept together in separate sections. Different methods of teaching- learning are followed in different sections. Some psychologists oppose homogenous groupings and favour the division of children in heterogeneous groupings. The gifted as well as the dull students are taught together in such groupings.

1. Curriculum planning and individual differences

In progressive school’s curriculum provides for a rich and flexible curriculum. Efforts are made to take into consideration the three A’s, i.e. age, ability and aptitude of the children. Some schools make provision for advanced and ordinary courses in some subjects. They also provide a variety of curricular activities.

Some students go faster than others. Such students may be given double promotion or separate steams formed or some additional work given to them so that their progress is not retarded due to the slow learners. Similarly, steps will have to be taken to ensure that the slow learners also make satisfactory progress commensurate with their capacity and ability to work.

A deaf, dumb, blind, undersized, oversized, too fat or too lean needs guidance in the selection of such a vocation where his physical defect may not be a handicap and he be able to earn his living in an honourable manner. Such students need special educational courses. Ordinary schools fail to do justice to them.

1. Disciplinary treatment

There are some students whose parents are very dominating with the result that their children develop inferiority complex. Too lenient parents allow their children to be free- lancers and such children suffer from other complexes and develop bad habits. Children of the rich and the poor have altogether different situations to be faced with.

1. Methods of teaching

The learning and other experiences of children who come from backward homes, are usually limited. Hence such methods of teaching are to be adopted which may broaden their outlook. Gifted children learn very rapidly. They, therefore, need to be provided more opportunities to explore. Remedial teaching may be needed in the case of weak students.

 Dalton Plan of Helen Parkhurst and winnetaka Plan of CarletoneWashburne are various attempts to individualise instruction. Proect Method of Kilpatrick is middle way of individual instruction and group instruction.

1. Guidance

The programme of proper guidance is not confined to the selection of subject, schools, vocations etc. All children need guidance for their harmonious development. They need guidance in recreational, moral and religious, social adjustments, cultural pursuits, physical development etc.

 In order to cater to individual differences, every school should be properly equipped with facilities and materials as per the needs of all kinds of children. Every school should have competent teachers, school psychologists, guidance workers, curriculum supervisors and administrators. Society should recognize the importance of educated and competent staff.

**Measures**

Besides knowing the ways in which a single person differs from others, it is also important that should be able to measuring these individual differences. After knowing the capability, aptitudes interest, the person can make suitable goals in learning and vocation, which in turn would help him adjust better in the society.

Importance of knowledge of individual difference for a teacher:

1. Teachers must recognize and accept individual differences and their approach to pupils must be more positive. Teacher should modify expectations of each pupil’s achievement according to his/her capacity. It is neither possible nor desirable to reduce such individual variations. A teacher can do is to provide opportunities for learning and practice. By understanding individual differences, a teacher will be able to devise remedial programmes.
2. Knowledge of individual differences will go a long way to make education child-centerd, realistic and positive. Teachers should not plan and work at the impossible idealistic level but at the actual level of the pupil’s capacity to learn and to improve.
3. We must devise modes of individualized teaching and learning procedures so that we may be able to meet the needs and abilities of all the students.
4. The primary task of us teachers should be to know the potentialities and limitations of each of our students. We will plan for the average students as they are the majority in a class but bright students will be on our mind and we must know where to explain the point more; at the same time, backward children need more push.
5. In matters of correction and punishment, the teachers must be sensitive to the individuality of the child as punishment may have little effect on one but severe effect on the other. Thus education can be child-centered even in the classroom.
6. If we know the nature of the ability and the educational level of or pupils and are able to measure the variations in them, then we can provide the most appropriate instructions and the most adequate guidance to all types of children in our class.
7. The constructive revolution that would take place in our educational system if school teachers are equipped with the necessary information regarding the individual differences among pupils and the individualized methods of handling the mutually differing pupils effectively. Such an enlightening knowledge and effective methodology will enable us to understand, educate and guide the individual child in the classroom more adequately and more successfully.

Teachers, school authorities, parents, government as well as voluntary agencies –all should come on a common platform to meet individual requirements of children who possess tremendous individual differences.

Psychologists have developed tests to measure different human characteristics. Inschools, we use achievement tests which measure what people have learnt.Psychologists frequently use tests of ability and personality. The tests of ability tellwhat an individual can do when he or she is at his/her best. Ability tests measurecapacity as potential rather than achievement. Tests of intelligence and aptitude comeunder this category. Aptitude refers to the ability to learn a particular kind of skillrequired in a specific situation. Personality tests measure the characteristic ways ofthinking, feeling or behaving.

**Educational implications of Individual differences are listed below:**

i. Aims of education, curriculum, method of teaching should be linked with individual differences considering the different abilities and traits individual.

ii. Curriculum should be designed as per the interest, abilities and needs of different students.

iii. The teacher has to adopt different types of methods of teaching considering individual difference related to interest, need, etc.

iv. Some co-curricular activities such as Drama, music, literary activities (Essay & Debate Competition) should be assigned to children according to their interest.

v. Teacher uses certain specific teaching aids which will attract the children towards teaching considering their interest and need.

vi. Various methods such as playing method, project method, Montessori method, storytelling methods are to be used considering/discovering how different children respond to a task or a problem.

vii. The division of pupils into classes should not be based only on the mental age or chronological age of children but the physical, social and emotional maturity should be given due consideration.

viii. In case of vocational guidance the counselor is to plan the guidance technique keeping in view the needs and requirements of the students.

ix. Remedial instruction should be made available to such students who need it.

x. Assignments should be adapted to the needs of students.

**Conclusion**

Individual differences are a cornerstone subject area in modern psychology. In many ways, it is the “classic” psychology that the general public refers to the psychology of the person – the psychological differences between people and their similarities. Plato stated more than 2000 years ago: “No two persons are born exactly alike; but each differs from the other in natural endowments, one being suited for one occupation and the other for another.”

The study of individual differences focuses on the extent and kind of variations or similarities among people on some of the important psychological aspects such as intelligence, personality, interest, and aptitude. Individual differences occur due to interaction of genetic and environmental factors. The differences in psychological characteristics are often consistent and form a stable pattern. This consistency and stability in behaviour is unique to every person. Psychological assessment refers to the use of specific procedures for evaluating personal qualities, behaviours and abilities of individuals. These procedures describe people by specifying how they are different from or similar to other individuals.

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