

CHRIST KING HR. SEC. SCHOOL, KOHIMA
CLASS - 12
SUBJECT: EDUCATIONAL PSYCHOLOGY

Unit - IV
Heredity and Environment

I. Very short answer questions.

1. What is etymological meaning of heredity?

Ans: Heredity is the transmission of genetic characters from one generation to the next.

2. What is environment?

Ans: Environment is anything immediately surrounding an object and exerting a direct influence on it.

3. What is significance of heredity and environment in child's development?

Ans: Child is the product of heredity and environment. According to Woodworth, the relationship between heredity and environment is more like the product of multiplication than of addition. According to T.P Nunn, the human organism, body and mind is a centre of creative energy that uses endowments and environment as its working material, so that the elements, it receives from nature and nurture do not make it what it becomes.

According to Ruch, the action of these factors in the development level is expressed in the following formula:

$$DL = H \times E \times T$$

Where,

DL=Development Level

H=Heredity

E=Environment

T=Time

4. What is social environment?

Ans: Social environment is the social association that the child has from the very beginning.

5. What is mental heredity?

Ans: Mental Heredity is the mental characteristics that are inherited from parents.

6. What is Law of variation?

Ans: According to the law of variation, the child is not fully similar to the parents, but somewhat different from them. This is due to the variance in Gene combination.

II. Short Answer Questions.

1. What is heredity in psychology?

Ans: Heredity consists of all the structures, physical Characteristics, functions or capacities derived from parents, other ancestors or species.

2. What is social heredity?

Ans: Social heredity is the sum total of the past achievements of more than one generation. Social heredity is a form of an education environment that affects more than a single generation.

4. Define heredity.

Ans: By B.N Jha "Heredity is the sum total of inborn individual traits".

5. What is an environment? Give two definitions in justification of our answer.

Ans: Environment is anything immediately surrounding an object and exerting a direct influence on it. The two definitions are:-

1. By Ross, "Environment is an external force which influences us"
2. By Anastasi, "The environment is everything that affects the individual except his genes".

III. Long Answer Questions.

1. How does heredity and environment affect development?

Ans: In Altemburg's words "Each trait requires both heredity and environment for its development.

Heredity, no doubt has its influence on the physiological traits but environment is also the arbiter of our development. Heredity is of no avail if environment is not there to show it off. In immigrant group, no matter what its heredity antecedents, inhibits new characteristics when transplanted from its native land to the country of its adoption. David Abrahamson has written that heredity determines what a person can do in an environment what he will do. The capabilities of man are hereditary, but their manifestation is the work of the environment. Heredity has potentiality and environment offers it a chance of bringing them out. Each trait and response of an individual depends on his heredity and environment. (pg46)

2. How does heredity affect personality?

Each individual has a different pattern of behaviors and personality. This difference is seen due to the influence of heredity. An individual's heredity is present since the moment of conception, and some environmental conditions. Every human being is born as a result of conception which takes place due to certain biological factors and processes.

The child carries with itself several physiological and psychological peculiarities that are present in the parents. In fact it is the heredity that determines structures, complexion, structure of hair, height, facial features, nasal index etc of the child. Heredity also determines the aptitude or the capacity to learn a skill or abilities for a particular body of knowledge.

3. Explain the nature of heredity. (Answer from Page 39).

Ans. The word 'Heredity' has been derived from the Latin word 'hereditas' which means capital, which a child gets from his/her parents as inheritance. Every human being is born as a result of conception which takes place due to certain biological factors and processes. This process starts from the union of sperm and ovum during conception. The mechanism of heredity are:

- i) **Mating:** Mating is the first step for reproduction. The union of male sperm with female ovum results in zygote.
- ii) **Growth:** It involves repeated division of the fertilized cell or zygote.
- iii) **Chromosomes:** Every woman and man receives 23 Chromosomes from each parent or 46 in all.
- iv. **Genes :** Each chromosome consists of small particles numbering 40 to 100 which are called genes. Write the mechanism of heredity.

4. Write the mechanism of heredity.

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i. Mating: Mating is the first step for reproduction. The union of male sperm with female ovum results in zygote.

ii. Growth: it involve repeated division of the fertilized cell or zygote

iii. Chromosomes: Every woman and man receives 23 chromosomes from each parent or 46 in all.

iv. Genes: Each chromosome consists of small particles numbering 40 to 100 which are called genes.

v. Chance factor: Both ovum and sperm before fertilization contain 23 pairs of chromosomes each. At the time of conception, the genes in the chromosomes of the sperm, air the genes of ovum and determines the potential characteristics and qualities of the offspring.

5. Explain the controversy between heredity and environment.

Ans: The influence of heredity and environment is discussed by many psychologists. A significant issue in development psychology is the relationship between innateness and environmental influence in regard to my particular aspect of development. This is often referred to as “Heredity versus Environment” or nativism versus empiricism. A nativist account of development would argue that the processes in question are innate, that is they are specified by the organisms genes. Today development psychologist rarely take such extreme positions with regard to most aspect of development, rather they investigate among many other things , the relationship between innate and environment influences. One of the ways in which this relationship has been explored in recent years is through the emerging field of evolutionary development psychology.

One area where this innateness debates has been prominently portrayed is in research on language acquisition. A major question in this area is whether or not certain properties of human language are specified genetically or can be acquired through learning. The empiricist position on the issue of language acquisition suggests that the language input through a process of statically examining. From this perspective language can be acquired via general learning method that also applied to other aspects of development, such as perceptual learning.

6. Write the educational implications of heredity and environment for students.

Ans: The knowledge of heredity and environment has a great influence on human development. The

Development pattern of the children is determined by both heredity and environment.

The educational implications of heredity and environment for students are:-

- i) Knowledge of heredity and environment helps the teacher to know the varying needs and abilities of the children.
- ii) It helps to provide proper guidance to the students in the field of educational, vocational and personal fields.
- iii) It helps to classify the students as gifted, normal or slow learner and arrange different types of education for them.
- iv) It helps to study the behaviour of the children under different situations.
- v) IT helps to organize various curricular and co curricular programmes for the best benefit of the children.

7. Explain the various types of heredity.

Ans: The various types of heredity are:-

i) Biological Heredity: It is a general observation that cow begets cow, human beings beget human beings. There is no exception to this rule. Identical twins resemble each other at birth in every respect. Fraternal twins resemble in majority of the traits. Siblings resemble in many characteristics.

ii) Mental heredity: Mental heredity are the mental characteristics that are inherited like every child at birth instinctively sucks, breath , laughs , cries and moves the limbs. All the instincts are inherited.

iii) **Social Heredity:** Social Heredity is the sum total of the past achievements of more than one generation.

8. Explain the different types of environment.

Ans: The different types of environment are:-

i) **Physical environment:** Physical environment includes all the geographical features that have an effect on the individual. Food, temperature, climate, resources for comfortable living, the natural belief features are all include in it.

ii) **Mental environment:** This means the atmosphere essential and helpful for the mental development of a person. This will include the intellectual atmosphere at home, the atmosphere at school, the libraries, the recreation rooms, laboratories etc. The child learns new experiences unconsciously in the mental environment.

iii) **Social environment:** This includes the social associations that the child has from the very beginning. It further includes the cultural atmosphere of the society with its ingredients as religion, folk-lore, literature, art, music, social conventions and political organization.

iv) **Cultural environment:** A cultural environment is a set of beliefs, practices, customs, and behaviour's that are found to be common to everyone that is living within a certain population.

9. Explain the laws of heredity.

Ans: the laws of heredity are as follows:

i) **Like begets like:** It is a common observation that children are like their parents. 'A youth is a chip of the old block'. A child takes after his parents in size, colour, dullness, brightness etc. Thus a cat gives birth to kittens. A Negro gives birth to a Negro. Children of bright intelligent persons are not always bright. Criminals do not always beget criminals. Secondly, it ignores the effect of environment. Role of environment is equally important.

ii) **Law of variation:** The exceptions to the above rule are explained by this law. Variations take place at a number of steps during the process of fertilization and birth. There is a chance of variations when only 24 pairs are selected. There is chance for variations when these take place certain combinations of genes.

iii) **Law of Regression:** The law states that "in successive generations variations tend to move towards the average of the species of which they form a part". If the father is a tall man, his son may be tall, but not as tall as his father. He will regress towards the normal height of the human beings. There is always, a mean height, mean weight, mean IQ, mean strength etc, 67% cluster round this mean.

iv) **Chance factor:** Both ovum and sperm before fertilization contain 23 pairs of chromosomes each. At the time of conception, the genes in the chromosomes of the sperm, pair with the genes of the ovum and determines the potential characteristics of the offspring.

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