

## CHAPTER # 04

### Scientific Hypothesis

#### Lecture no: 11

*In today's lecture we will go through the following points.*

- *Scientific Hypothesis*
- *Definitions of hypothesis*
- *Variables*
- *Types of variables*
- *Forms of hypothesis*

## *SCIENTIFIC HYPOTHESIS*

*Hypothesis is a Greek word which means "to put under" or "to suppose".*

*It is a tentative statement which is based upon the observation or derived from the old theories.*

*A single hypothesis consists of two variables usually. (the dependent variable and independent variable, or cause and effect).*

*It is a statement which can be tested and its validity will be judged after its testing, whether the hypothesis is true or false.*

*Researchers call it as "an educated guess or a wise guess".*

*Hypothesis is a proposition or an assumption, does not base upon the reality. It is predictive statement.*

*In research study hypotheses are scientifically tested that is why it is called scientific hypothesis.*

*Some of the examples of hypothesis*

- 1) Gathering with bad society of children lead them towards delinquency.*
- 2) Physical punishment causes drop out in schools.*
- 3) Spoil political system in a state increases the chances of corruption in the country.*

## *DEFINITIONS OF HYPOTHESIS*

*According to Grinnell and Stothers*

*"A hypothesis is written in such a way that it can be proven or disproven by valid and reliable data".*

*According to Goode and Scates*

*"Hypothesis is a careful guess which explains a condition which has been observed"*

## VARIABLES

*As its name explicates variable is that quantity or quality of a thing that can be changed. It is against the constant.*

*A variable is a concept which can be measured and has more than one values. Or the thing which has no fix value is called variable.*

*Variables are those characteristics of objects, events, things and human beings which are vary and can be measured. For example, poverty, literacy, age, time, war, cold, number of students, fish etc.*

## *TYPES OF VARIABLES*

*Some of the famous types of variables are described below*

- 1) Dependent variable*
- 2) Independent variable*
- 3) Extraneous variable/confounding variable*
- 4) Hidden variable/intervening variable*

1) Dependent variable

*The phenomenon or characteristic hypothesized to be the outcome, effect, consequence or output of some input variable is called dependent variable.*

2) Independent variable

*The phenomenon or characteristic hypothesized to be the input or cause is called independent variable.*

*e.g. illiteracy leads a society towards crime.*

*In this hypothesis illiteracy is independent variable and crime depends upon the crime is dependent variable.*

3) Extraneous variable or confounding variable

The variable which creates confusion or disturbance between the dependent and independent variable is known as extraneous or confounding variable.

4) Hidden or intervening variable

A variable which is hypothesized to exist but can not be observed. It establishes and explain the relationship between the two variables. Or the variable which joins the two variables is a hidden variable.

e.g. "quality education in the schools increases the trend of competence in students". In this hypothesis quality education is independent variable, trend of competence is dependent and school is intervening variable.



## FORMS OF HYPOTHESIS

*On the basis of structure there are two types of hypothesis.*

### **1) Simple hypothesis**

*A hypothesis which consists of single dependent variable and independent variable is called simple hypothesis.*

*e.g. delinquency is caused by parents' carelessness.*

### **2) Complex hypothesis**

*The hypothesis in which either dependent or independent variable contains more than one variable.*

*e.g. poverty, injustice and bad governance lead a society towards crime.*

*On the basis of relationship there are two types of hypothesis*

**1) Null hypothesis**

*The hypothesis when there is no relationship between the two variables is known as null hypothesis. It is always formulated in negative way and denoted by  $H_0$ .*

**2) Alternative or research hypothesis**

*Alternate to null hypothesis, in this hypothesis there is significance relationship between the two variables of cause and effect. They have positive co-relation and denoted by  $H_a$ .*

*e.g. poverty and crime have no relation. Poverty and crime have relation. The first one is null and other is alternative hypothesis.*

*There is another type of hypothesis*

**Statistical hypothesis**

*Hypothesis based upon the statistical entities or numbers is known as statistical hypothesis.*

*e.g. the average age of male students in sociology department is higher than female students.*

***THE END***