ORGANIZATION AND PLANNING OF SCIENTIFIC RESEARCH

Lecture 4

HYPOTHESIS. REQUIREMENTS TO HYPOTHESIS

HYPOTHESIS

- A PROPOSITION, OR SET OF PROPOSITIONS, SET FORTH AS AN EXPLANATION FOR THE OCCURRENCE OF SOME SPECIFIED GROUP OF PHENOMENA, EITHER ASSERTED MERELY AS A PROVISIONAL CONJECTURE TO GUIDE INVESTIGATION **(WORKING HYPOTHESIS)** OR ACCEPTED AS HIGHLY PROBABLE IN THE LIGHT OF ESTABLISHED FACTS.

Types of hypothesis

1. Null
2. Alternative
3. Nondirectional
4. Directional

Null Hypothesis

The null hypothesis states that there is no relationship between the two variables being studied (one variable does not affect the other).

It states results are due to chance and are not significant in terms of supporting the idea being investigated.

Types of Research Hypotheses

Alternative Hypothesis

The alternative hypothesis states that there is a relationship between the two variables being studied (one variable has an effect on the other).

It states that the results are not due to chance and that they are significant in terms of supporting the theory being investigated.

Nondirectional Hypothesis

A two-tailed non-directional hypothesis predicts that the independent variable will have an effect on the dependent variable, but the direction of the effect is not specified.

Directional Hypothesis

A one-tailed directional hypothesis predicts the nature of the effect of the independent variable on the dependent variable.

PARAMETERS OF A GOOD HYPOTHESIS

- **BE LOGICAL AND USE PRECISE LANGUAGE.**
- **MAKE SURE YOUR HYPOTHESIS IS TESTABLE WITH RESEARCH AND EXPERIMENTATION.**
- **STATE YOUR CASE**

IMPORTANCE OF A TESTABLE HYPOTHESIS

- TO DEVISE AND PERFORM AN EXPERIMENT USING THE SCIENTIFIC METHOD, YOU NEED TO MAKE SURE THAT YOUR HYPOTHESIS IS TESTABLE. TO BE CONSIDERED TESTABLE, SOME ESSENTIAL CRITERIA MUST BE MET:
- THERE MUST BE A POSSIBILITY TO PROVE THAT THE HYPOTHESIS IS TRUE.
- THERE MUST BE A POSSIBILITY TO PROVE THAT THE HYPOTHESIS IS FALSE.
- THE RESULTS OF THE HYPOTHESIS MUST BE REPRODUCIBLE.
- WITHOUT THESE CRITERIA, THE HYPOTHESIS AND THE RESULTS WILL BE VAGUE. AS A RESULT, THE EXPERIMENT WILL NOT PROVE OR DISPROVE ANYTHING SIGNIFICANT.

Hypothesis vs. Prediction

Now that you've seen a hypothesis and prediction in action, it's time to break the two down in a simple table.

Term	Hypothesis	Prediction
Definition	Explanation of a phenomenon	Event that will occur if phenomenon is true
What it does	Explains why something happens	Forecasts future event

1. What is a hypothesis?
2. Name important characteristics of a good hypothesis?
3. Is theory identical to hypothesis?
4. Is hypothesis equals to prediction?