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Statistics

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Research
Hypothesis

Outline

- What is Hypothesis?
- Characteristics of Hypothesis
- Sources of Hypothesis
- Types of Hypothesis
- Examples of Hypothesis
- Functions of Hypothesis
- How will Hypothesis help in Scientific Method?

What is hypothesis?

- A hypothesis is an assumption that is made based on some evidence
- This is the initial point of any investigation that translates the research questions into predictions.
- It includes components like variables, population and the relation between the variables.
- A research hypothesis is a hypothesis that is used to test the relationship between two or more variables.

Characteristics of Hypothesis

- The hypothesis should be clear and precise to consider it to be reliable.
- If the hypothesis is a relational hypothesis, then it should be stating the relationship between variables.
- The hypothesis must be specific and should have scope for conducting more tests.
- The way of explanation of the hypothesis must be very simple and it should also be understood that the simplicity of the hypothesis is not related to its significance

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Types of Hypothesis

There are six forms of hypothesis and they are:

- Simple hypothesis
- Complex hypothesis
- Directional hypothesis
- Non-directional hypothesis
- Associative and causal hypothesis
- Null hypothesis

Simple Hypothesis

- It shows a relationship between one dependent variable and a single independent variable.
- For example – If you eat more vegetables, you will lose weight faster. Here, eating more vegetables is an independent variable, while losing weight is the dependent variable.

Complex hypothesis

- It shows the relationship between two or more dependent variables and two or more independent variables.
- Eating more vegetables and fruits leads to weight loss, glowing skin, and reduces the risk of many diseases such as heart disease.

Directional hypothesis

- It shows how a researcher is intellectual and committed to a particular outcome.
- The relationship between the variables can also predict its nature.
- For example-The assignments method **can improve** the ability of programming skills
- This shows the effect and direction of the effect.

Non-directional hypothesis

- It is used when there is no theory involved.
- It is a statement that a relationship exists between two variables, without predicting the exact nature (direction) of the relationship.
- For example- The assignment method **affects** the ability of programming skills.

Associative and causal hypothesis

- Associative hypothesis occurs when there is a change in one variable resulting in a change in the other variable.
- Whereas, the causal hypothesis proposes a cause and effect interaction between two or more variables.

Functions of hypothesis

Following are the functions performed by the hypothesis:

- Hypothesis helps in making an observation and experiments possible.
- It becomes the start point for the investigation.
- Hypothesis helps in verifying the observations.
- It helps in directing the inquiries in the right direction

How will Hypothesis help in the Scientific Method?

Researchers use hypotheses to put down their thoughts directing how the experiment would take place. Following are the steps that are involved in the scientific method:

- Formation of question
- Doing background research
- Creation of hypothesis
- Designing an experiment
- Collection of data
- Result analysis
- Summarizing the experiment
- Communicating the results

Thank you