Hypothesis

Definition:

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

Example:

Training has significant relationship with employee and job performance.

Deductive/ Inductive Approach

Deductive Approach/ Reasoning:

Deductive research is also known as **theory testing research**. It is a process of testing hypothesis in order to verify a theory. It generates new knowledge through the creation of theories. It mostly comes quantitative research where researchers bring out causality and present a statistical analysis.

Or

Deductive reasoning is a logical approach where you progress from general ideas to specific conclusions

Example:

1. **All birds have feathers.**
2. **A penguin is a bird.**
3. Therefore, **a penguin has feathers**.

In this example, the first premise is a general idea that all birds have feathers. The second premise is a specific observation that a penguin is a bird. The conclusion is a specific conclusion that a penguin has feathers.

OR

1. **All men are mortal.**
2. **Hassan is a man.**
3. Therefore, **Hassan is mortal**

Inductive Approach/ Reasoning:

Inductive approach aims at creating new knowledge. It is a process of generalization using a specific facts or data.

OR

Inductive reasoning is a logical approach to making inferences, or conclusions. In inductive reasoning, you start with specific observations and then make generalizations based on those observations.

Example:

1. **Every crow I've ever seen is black.**
2. Therefore, **all crows are black**.

In this example, the first premise is a specific observation that every crow the person has seen is black. The conclusion is a generalization that all crows are black.

OR

1. **Every time I eat peanuts, I get a headache.**
2. Therefore, **I'm allergic to peanuts**.

Deductive Vs Inductive

Difference between deductive and inductive approach

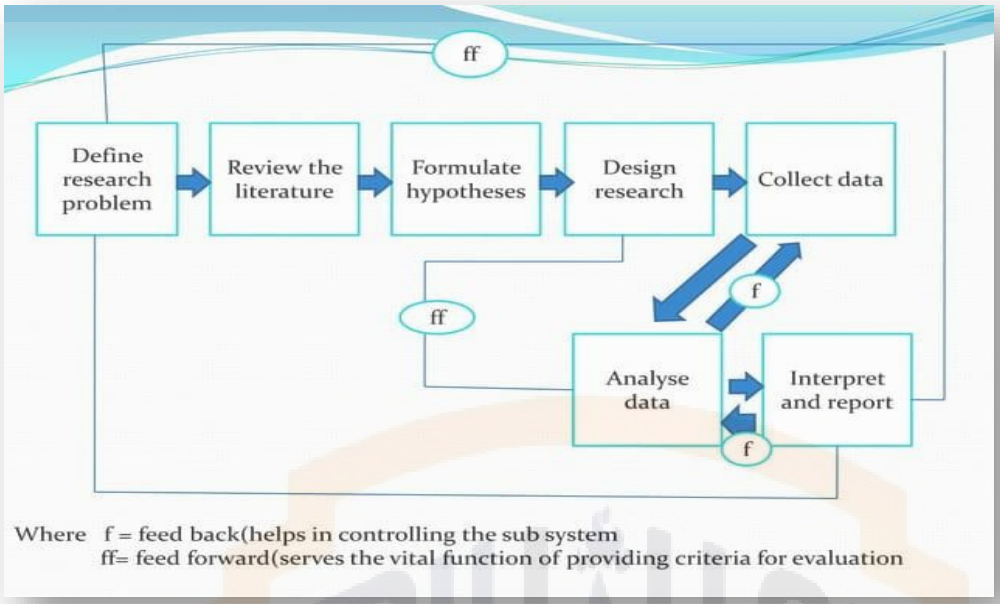
Deductive approach	***Inductive approach***
We work from the more general to the more specific.	We work from the more specific to the more general.
It uses top-down approach.	It uses bottom-up approach.
It aims at verifying theories.	It aims at producing new theories.
It is used to test hypothesis.	It is used to find answer to research questions.
It use with numbers.	It deals with descriptive data.

Hypothetico-Deductive Method

- Scientific research pursues a step-by-step, logical, organized, and rigorous method (a scientific method) to find a solution to a problem.
- The Hypothetico-deductive method provides a useful, systematic approach for generating knowledge to solve basic and managerial problems.

Seven Steps of Research process

- ***Define Search Problem.***
- ***Review of literature.***
- ***Formulate Hypothesis.***
- ***Preparing the Research Design.***
- ***Data Collection.***
- ***Data Analysis.***
- ***Interpretation and Report Writing.***



1. Define Research Problem:

Finding an issue or formulating a research question is the first step
A well-defined research problem will guide the researcher through all stages of the research process, from setting objectives to choosing a technique.

- A preliminary survey
- Case studies
- Interviews with a small group of people
- Observational survey

There are two types of research problem those are:

- Relate to states of nature.
- Relationship between variables

Essentially two steps are involved in define research problem:

- Understanding the problem thoroughly and
- Rephrasing the same in to meaningful terms from a point of view.

2. Review the Literature:

A thorough examination of the relevant studies is essential to the research process. It enables the researcher to identify the precise aspects of the problem. Once a problem has been found, the investigator or researcher needs to find out more about it.

This stage gives problem-zone background. It teaches the investigator about previous research, how they were conducted, and its conclusions. The researcher can build consistency between his work and others through a literature review. Such a review exposes the researcher to a more significant body of knowledge and helps him follow the research process efficiently.

3. Formulate Hypothesis:

Formulating an original hypothesis is the next logical step after narrowing down the research topic and defining it. A belief solves logical relationships between variables. In order to establish a hypothesis, a researcher must have a certain amount of expertise in the field.

It is important for researchers to keep in mind while formulating a hypothesis that it must be based on the research topic. Researchers are able to concentrate their efforts and stay committed to their objectives when they develop theories to guide their work.

4. Preparing the Research Design:

Research design is the plan for achieving objectives and answering research questions. It outlines how to get the relevant information. Its goal is to design research to test hypotheses, address the research questions, and provide decision-making insights.

The research design aims to minimize the time, money, and effort required to acquire meaningful evidence. This plan fits into four categories:

- Exploration and Surveys
- Experiment
- Data Analysis
- Observation

5. Data Collection:

Data collection is important in obtaining the knowledge or information required to answer the research issue. Every research collected data, either from the literature or the people being studied. Data must be collected from the two categories of researchers. These sources may provide:-

Primary data Categories are:

- Experiment
- By mailing of Questionnaires
- By Observation
- Through telephone Interview
- Through personal Interview
- Through schedules

Secondary data categories are:

- Literature survey
- Official, unofficial reports
- An approach based on library resources

6. ***Data Analysis:***

During research design, the researcher plans data analysis. After collecting data, the researcher analyzes it. The data is examined based on the approach in this step. The research findings are reviewed and reported.

Data analysis involves a number of closely related stages, such as setting up **categories**, applying these **categories** to raw data through:

- **Coding**
- **Editing**
- **Tabulation**
- **Then drawing statistical conclusions.**

The researcher can examine the acquired data using a variety of statistical methods.

7. Interpretation and Report Writing:

After completing these steps, the researcher must prepare a report detailing his findings. The report must be carefully composed with the following in mind:

The Layout: On the first page, the title, date, acknowledgments, and preface should be on the report. A table of contents should be followed by a list of tables, graphs, and charts if any.

- **Introduction:** It should state the research's purpose and methods. This section should include the study's scope and limits.
- **Summary of Findings:** A non-technical summary of findings and recommendations will follow the introduction. The findings should be summarized if they're lengthy.
- **Principal Report**: The main body of the report should make sense and be broken up into sections that are easy to understand.
- **Conclusion:** The researcher should restate his findings at the end of the main text. It's the final result.

THE END