

RESEARCH APTITUDE 1

What is Research?

- Problem
 - Solution
 - Tools
-
- Structured, Conscious, Creative Enquiry
 - Scientific Methodology
 - New Knowledge
 - ❖ Acceptable
 - ❖ Applicable
 - Framework

About Research Aptitude:

- The ability to conduct systematic research
- Requires skills & knowledge to conduct the same
- Essential for academic and professional pursuits
- Crucial for high-quality research outcomes
- Relevant Research Questions & Methodologies
- Evidence-based research reporting

Characteristics of Research Aptitude

- **Curiosity:** To investigate and explore newer phenomena
- **Analytical Thinking:** To critically analyse research findings
- **Attention to Detail:** Being thorough and meticulous in research design and data collection.
- **Ethical Conduct:** Regarding the way we stick on to ethical standards in all aspects of research
- **Openness:** To criticism and reception of new ideas & perspectives
- **Persistence:** The consistency in efforts and willingness to face challenges

STEPS OF RESEARCH

Step 1: Identifying the Research Problem

- To identify a problem or develop a research question
- Selecting and formulating it based on various backgrounds
- The problem should be:
 - ✓ Researchable
 - ✓ Needful
 - ✓ Practical

- ✓ Relevant
- ✓ Feasible (Expenditure & Duration)
- ✓ Novelty

Step 2: Define the Research Problem

- There is a need to define and delineate the research problem clearly.
- A general statement of an issue meriting research.
- **Terms and concepts:** Words or phrases used in the purpose statement of the study or the description of the study.
- These items need to be specifically defined as they apply to the study.
- Terms or concepts often have different definitions depending on who is reading the study.
- To minimize confusion about what the terms and phrases mean, the researcher must specifically define them for the study.

Step 3: Review the Literature

- Once the problem is identified, the researcher must learn more about the topic under investigation.
- The researcher must review the literature related to the research problem.
- Provides foundational knowledge about the problem area.
- Also educates the researcher about what studies have been conducted in the past, how these studies were conducted, and the conclusions in the problem area.

Review of Literature

- Related Study
- To avoid Duplication
- For identifying the structure of study

For analysing the common methodology (And there is a choice for innovation)

Sources

1. **Primary:** First-hand information
Example: Field Studies, Interviews, Census Data etc.
2. **Secondary:** Broadcasted sources of data; Publish data

Example: Books, Periodicals, News Reports etc.

Step 4: Developing the Objectives

- Completing review gives a better understanding of one's topic contribution—they are aware of what is known and unknown about the topic— need of modifying objectives accordingly.

- Objectives should be complete and clearly specified.

Research objectives are of two types:

1. **Primary objectives:** The main aims of the study.
These are also known as specific objectives.
2. **Secondary objectives:** The aims which will be achieved along with main objectives.
These provide support for main objectives.
These are also known as general objectives.

Step 5: Identify Variables and Formulate Hypothesis

- In research, the focus is usually on trying to understand the relationship between two activities or to analyze the effect of one activity on another. These activities are the **variables**.
- After identifying the variables, assumptions have to be made, which will be checked through data analysis.
- These assumptions or tentative statements is known as **hypothesis**

Step 6: Prepare the Research Design

- **Research Design:** "The arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure."
- Here we finalize other details such as what kind of data is required, what will be its time period, and about data collection, what will be the sample size, how will data be analyzed, and so on.

Step 7: Carry out Sampling

- **Sampling:** A process used in statistical analysis in which a predetermined number of

observations are taken from a larger population.

- The methodology used to sample from a larger population depends on the type of analysis being performed.

Step 8: Data Collection

- The actual study begins with the collection of data.
- A critical step in providing the information needed to answer the research question.
- Every study includes the collection of some type of data—whether it is from the literature or from subjects—to answer the research question.
- Data can be collected in the form of words on a survey, with a questionnaire, through observations, or from the literature.

Step 9: Data Analysis & Hypothesis Testing

- The researcher finally has data to analyze so that the research question can be answered.
- In the instrumentation plan, the researcher specified how the data will be analyzed.
- The researcher now analyzes the data according to the plan.
- The results of this analysis are then reviewed and summarized in a manner directly related to the research questions.

Step 10: Generalisation & Interpretation

- **Generalisation:** A statement about a group of people or things that is based on only on a few, considered as representatives of the whole
- **Interpretation** involves making "inferences pertinent to the research relation" (Calderon & Gonzalez, 1993), investigated from where generalizations are drawn

Step 11: Write the Research Report

- In a research report the researcher has to explain:
 1. The topic of research
 2. Its objectives, variables, hypothesis, as well the methods that have been used in the research

3. What data was required, sources of data, data analysis, and
4. The generalizations and interpretations of the study.

STYLE OF A RESEARCH REPORT

Introduction to Academic Research Report

- A formal document presenting the findings of a research study
- Follows a specific structure and writing style to maintain clarity and consistency
- Academic research reports play a crucial role in sharing research outcomes with the scholarly community.

Components of an Academic Research Report

1. **Title Page:** Includes the title, author's name, institution, and date of submission.
2. **Abstract:** A concise summary of the research study's purpose, methodology, findings, and conclusions.
3. **Introduction:** Provides background information, research objectives, and the problem statement.
4. **Literature Review:** A critical analysis of existing research relevant to the study.
5. **Methodology:** Describes the research design, data collection methods, and data analysis procedures.
6. **Results:** Presents the findings of the study in a clear and organized manner.
7. **Discussion:** Interprets and analyzes the results, relating them to the research objectives.
8. **Conclusion:** Summarizes the study's main findings and implications for future research.
9. **References:** A list of all the sources cited in the report.

Writing Style and Language:

- Academic research reports should use a **formal and objective writing style**.
- Avoid first-person pronouns (I, we) and prefer **passive voice** for a more neutral tone.
- Use **clear and concise language**, avoiding jargon and unnecessary technical terms.

- **Present ideas logically** and coherently, using appropriate headings and subheadings.
- **Proper citation is essential** to acknowledge the sources of information
- Essential for clear and effective communication of research findings
- A well-presented research report enhances the **credibility** and **impact** of the research.