

ASANSOL ENGINEERING COLLEGE



CA-1 ASSIGNMENT

TOPIC : Research formulation and design motivation and objective

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INTRODUCTION TO RESEARCH FORMULATION

- **Definition :** Research formulation is the process of defining the research problem, setting objectives, and designing a systematic approach to investigate the problem.
- **Importance :**
 - Provides clarity and focus to the research.
 - Ensures the study is feasible and achievable.
 - Helps in avoiding irrelevant research paths.
- **Key Components :**
 - Problem identification.
 - Hypothesis formulation.
 - Research design.

Research Motivation

➤ What is research motivation?

- The underlying reason why a researcher chooses a particular topic or problem to study.

➤ Types of Research Motivation :

- **Personal Interest** : Passion for a particular subject.
- **Societal Needs** : Addressing issues affecting a community or society.
- **Scientific Advancement** : Contribution to new knowledge and innovation.
- **Industrial and Commercial Benefits** : Research that leads to business growth or product improvement.

➤ Importance of Motivation :

- Helps maintain researcher's enthusiasm.
- Ensures the research stays focused and goal-driven.

RESEARCH OBJECTIVES

- ❑ **Definition:** Research objectives define what the researcher aims to achieve.
- ❑ **Types of Objectives :**
 - **General Objectives:** Broad goals that set the research direction.
 - **Specific Objectives:** Well-defined aims that contribute to achieving the general objective.
- ❑ **Example :**
 - **General Objective :** "To study the impact of social media on consumer behavior."
 - **Specific Objectives :**
 1. To analyze consumer engagement patterns on social media platforms.
 2. To evaluate the effect of social media marketing on purchasing decisions.
 3. To compare the influence of different social media platforms on buying behavior.

RESEARCH DESIGN

- **Definition :** A structured framework outlining how research will be conducted.
- **Key Elements of Research Design :**
 - ❑ **Research Approach :**
 - Qualitative (focuses on understanding experiences and opinions).
 - Quantitative (focuses on numerical data and statistics).
 - Mixed-methods (combination of both qualitative and quantitative approaches).
 - ❑ **Data Collection Methods :**
 - Surveys, interviews, observations, experiments.
 - ❑ **Sampling Techniques:**
 - Random, stratified, purposive sampling.
 - ❑ **Data Analysis Techniques:**
 - Statistical analysis, thematic analysis, content analysis.

STEPS IN RESEARCH FORMULATION AND DESIGN

1. **Identify the Research Problem** : Clearly define what issue the research aims to address.
2. **Review Existing Literature** : Understand what research has already been conducted on the topic.
3. **Define Research Objectives** : Set clear, achievable, and measurable objectives.
4. **Develop a Hypothesis (if applicable)** : Formulate assumptions or predictions to be tested.
5. **Choose a Research Design** : Select appropriate methods and techniques.
6. **Select Data Collection Methods** : Decide how data will be gathered.
7. **Plan Data Analysis Techniques** : Determine how data will be analyzed and interpreted.
8. **Ensure Ethical Considerations** : Address issues like consent, privacy, and bias

CHALLENGES IN RESEARCH FORMULATION AND DESIGN

- **Defining a Clear and Feasible Research Problem :**
 - The problem should be specific, relevant, and researchable.
- **Lack of Sufficient Literature or Data :**
 - Ensuring enough background information exists to support research.
- **Choosing the Appropriate Research Method :**
 - Selecting between qualitative, quantitative, or mixed methods.
- **Time and Resource Constraints :**
 - Managing deadlines and available resources effectively.
- **Ethical Considerations and Biases :**
 - Avoiding plagiarism, ensuring confidentiality, and maintaining objectivity.

CONCLUSION AND KEY TAKEAWAYS

- **Research formulation and design are crucial for producing valid and reliable results.**
- **Strong motivation and clear objectives guide meaningful research.**
- **A well-structured research design ensures systematic and logical study execution.**
- **Overcoming challenges requires careful planning, adaptability, and ethical considerations.**
- **Good research starts with a clear vision and ends with impactful findings.**

REFERENCES

- **University of Southern California - Research Methods Guide**

<https://libguides.usc.edu/researchmethods>

- **Harvard University - Research Design and Methodology**

<https://guides.library.harvard.edu/researchmethods>

THANK YOU

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