

Introduction to Research Methodology (RM)

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Learning Objectives

By the end of this presentation you will be able to:

- 1- Define and explain related concept and terms .
- 3 - Identify and explain the features of broad research classification.

MEANING OF “RE””SEARCH”

- Is a search for knowledge.
- The curiosity is the mother of all knowledge.
- It is actually a voyage of discovery to establish facts ... TO .. extend, correct or verify knowledge, through systematic methods ... for its advancement.

Definition of the term 'research':

- **Is a careful investigation or inquiry, through the search for new facts reaching to complete or incomplete solve of any research problem. OR to answer the research question.**

Definition of RM

- *A science of studying how research is done scientifically and Systematically to solve the “research problem” through logically adopting various steps.*
- *How a researcher systematically and scientifically styling a study journey to ensure valid and reliable results that address the research aim and objectives.*

Differences between Methodology and method??

- ***Methodology:** Is how you will solve the research problem. So, the planned and applied steps from the initial stage of the research process to answer your research question.*
- ***Method:** is the tool you will use to carry out the research technique and to collect the data (do survey, interview, experiment....) so applied during the later stage of the research planning.*

Why it is important to study RM?

It enables you To:

- *Make the research process smoothly, effectively, and more manageable.*
- *Provide scientifically sound findings.*
- *Assess methodology section (yours and others)*
- *Recognize the weaknesses or limitations of your project as well as its strengths.*
- ✓ *Every research has a limitation, it is perfectly acceptable to identify it before*



What are The Purposes Of Research?

Characteristics of Good Research:

- Objectives clearly defined
- Carefully planned design leading to a scientific results.
- Variables are identified wherever possible
- Complete frankness; flaws reported and their effect estimated
- Adequate and appropriate analysis of data.
- Carefully checked data for validity & reliability
- Conclusions confined & justified by the objectives.
- Guided by rules of logical reasoning
- **REPLICABLE** - Verified by replicating the study

Research Classifications

The research is broadly classified into two main classes

- **Pure/ Basic research:** Involves developing and testing theories and hypotheses that are intellectually challenging.
- **Applied research:** is done to solve specific, practical questions; for policy formulation, administration and understanding of a phenomenon.

Major types of Research Methods

Quantitative research

- Aim: To quantify
- Topic; identify Inc. Prev. attitude, association, theory.
- Sample size: larger
- Research value: val. & reliability
- Analysis: frequency, cross tabulation, statistics, association.

Qualitative research

- To describe
- Explore experiences, feelings, perception, meaning...
- Smaller
- Authenticity
- Narrative and descriptive inferences.

Mixed research

Which is better???

Classification of researches according to the purposes

1. To gain familiarity with a phenomenon
(*exploratory studies, qualitative research*)
2. To portray accurately the characteristics of a particular individual or group's condition
(*descriptive studies, hypothesis forming studies*)
3. To test a hypothesis of any relationship between variables
(*hypothesis-testing studies*).
4. To determine the frequency within which something occurs, or extent of disease diagnosis.
(*Circadian studies, diagnostic research studies*),



Additional references:

- Designing Clinical Research. 4th edition. Stephen B. Hulley, MD, MPH.
- Research methodology. Step by step guide for beginners. 3rd edition.