Selecting a Research problem



What is research problem?



• A difficulty experienced by researcher for which he/she tries to seek solution.



What we need to understand?

- Need to formulate the research problem
- How to identify the research problem
- Steps in formulating the research problem
- statement of problem
- Formulating research question / hypotheses
- Identify research objectives
- delimit the Scope of research
- Expected outcome of research

Your research problem

- What is your area of interest?
- Where could you look for help in deciding upon a specific research problem?
- What criteria will you apply when deciding upon a specific research problem?
- How could you narrow down your research problem?
- How might your value-judgments (preconceived ideas) affect your research endeavors?

DO YOU KKNOW THE DIFFERENCE?

- What is the difference between research problem, research topic & research purpose
- research problem is a general educational issue, concern, or controversy addressed in research that narrows the topic.
- research topic broad subject matter addressed by the study
- **research purpose-** objective of study
- Research Questions specific questions the researcher would like to answer

Research problem

- A problem is an interrogative sentence or statement that tells us about the relationship that exists between two or more variables
- the problem concerns with a broader area of the field of study,
- the topic is the definition of the problem that delimits the scope of problem.

Identify Problem



Research problem

- Area Teacher Education
- Pre service

In- service

- ➤ Curriculum
- Teaching learning process
- School experience programme
- ➤ Quality
- > Management
- > Teachers' content & pedagogical knowledge,etc.

Selection of Problem

- Identify broad area
- Narrow down and identify the problem
- Formulate the problem(operationalize problem)
- Identify key variables
- Define key variables.

Narrowing the range of Res problem

On whom

• Students/ teachers, parents, curriculum...

Step 2

Step 1

• At what level

• Primary/secondary/higher

Step 3

• On what

Psychology/admin, mathematics, science

Narrowing research problem



Step 6

- Whether the boys perform better than girls in mathematics?
- Whether use of TLM will facilitate positive attitude in children towards mathematics

Sources of research problem

- professional experience
- Professional literature: books, journals, encyclopaedia, survey of educational researches, psychological abstracts, and research reports, Encyclopaedia of Educational Research, Dissertation Abstract International, and the Handbook of Research on Teaching, Psychological Abstracts
- Academic discussion
- Situational needs
- Social and technological advancements : recent developments in education ,
- Policies & priorities : *policies, schemes etc.*
- Interface between Theories and Practice (the theory generated by different disciplines like psychology, sociology, philosophy and economics etc).
- Innovations and technological changes

Criteria for Selecting a Problem

- Interest
 - Most important
- Significance
 - Theoretical value
 - Practical value
 - Timeliness
 - External review
- Manageability
 - Expertise, time, resources
 - Free from personal bias

analyse a problem

major steps to analyse a problem:

- Collect all the facts related to the problem.
- **Determine** the relevance of collected facts.
- Trace the relationship between facts that might reveal the key to difficulty.
- Propose various explanations for the cause of difficulty.
- Trace relationship between facts and explanations.
- Question assumptions underlying the analysis of the problem.
- Analyse and isolate unrelated facts which are not concerned with the problem.

Characteristics of good topic

- 1. Interesting keeps the researcher interested in it throughout the research process
- 2. Researchable can be investigated through the collection and analysis of data
- **3.** Significant contributes to the improvement and understanding of educational theory and practice
- 4. Manageable fits the level of researcher's level of research skills, needed resources, and time restrictions
- 5. Ethical does not embarrass or harm participants

Characteristics of good topic

- Have some degree of originality or the extension of existing knowledge;
- Add to the existing source of knowledge in a meaningful way;
- Economically viable and not much time consuming.

Defining the problem

You must adhere to the following rules:

- Be sure that the topic chosen is neither too vague nor too broad in scope.
- State the problem in a question form, which requires a definite answer.
- Identify the variables involved in the problem viz., independent, dependent, moderator, control and intervening variables.
- Carefully state the limits of the problem, eliminating all aspects and factors, which will not be considered in the study.
- Define all special terms in describing the variables indicated in the statement of the problem.

Statement of the Problem

- very specific statement clearly identifies the problem being studied; will usually identify the key variables as well as give some information about the scope of the study
- May be in either question or declarative form
- May include inherent sub-problems, if appropriate
- Formulation of problem statement takes place after an initial review of related literature and the distillation process

Statement of the Problem

- A study of the Effect of mid-day meal programme on enrolment and retention of children'
- Whether midday meal programme effects the enrolment and retention of children in primary school.
- 'Effect of leadership behaviour of principal on school climate'

Statement of problem

- Karlinger (1983) has identified three criteria of good problems and problem statements:
- i) the problem should express the relationship between two or more variables;
- ii.) The problem should be stated clearly and unambiguously in question form, and
- iii) problem and problem statement should be such as to imply possibilities of empirical testing.

A well-written statement of problem

has following characteristics:

- clearly indicates the variables of research and the specific relationship between all related variables.
- defines all related variables operationally; operational definitions define concepts in terms of operations or processes.
- gives direction to rest of the plan.
- is accompanied by presentation of background of the problem, including justification for the study in terms of the significance of the problem(should have certain rationale)
- The statement of the problem must be brief but comprehensive.

Various terms & relationships

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Criteria for evaluation of Research Problem

- Researchable
- New
- Significant
- Interest & capabilities
- Feasibility & Availability of resources
- Availability of time
- Financial consideration
- Administrative considerations
- Ethical issues

A Research Question Must Identify

- 1. The variables under study
- 2. The population being studied
- 3. The testability of the question

Variables

- Independent variable (IV): Variable the experimenter/ researcher manipulates (i.e. changes) – assumed to have a direct effect on the dependent variable.
- **Dependent variable (DV)**: Variable the experimenter/ researcher measures, after making changes to the IV that are assumed to affect the DV.
- Extraneous variables These are all variables, which are not the independent variable, but could affect the results (e.g. dependent variable) of the experiment.

Types of Extraneous variables

- Situational variables: aspects of the environment that might affect the participant's behavior, e.g. noise, temperature, lighting conditions, etc.
 Situational variables should be controlled so they are the same for all participants.
- **Standardized procedures** are used to ensure that conditions are the same for all participants. This includes the use of standardized instructions

Types of Extraneous variables

- Person variables e.g. mood, intelligence, anxiety, nerves, concentration etc.
- The experimenter variable- unconsciously conveys to participants how they should behave this is called experimenter bias.

- Participants will be affected by: (i) their surroundings; (ii) the researcher's characteristics; (iii) the researcher's behavior (e.g. non-verbal communication), and (iv) their interpretation of what is going on in the situation.
- researcher can minimize these factors by keeping the environment as natural as possible, carefully following standardized procedures.

Operational variables

 Operational variables (or operationalizing definitions) refer to how you will define and measure a specific variable as it is used in your study.

Operational definition

- Effect of leadership behaviour of principal on teachers job satisfaction.
- A study of the Leadership behaviour of principal and teachers job satisfaction
- A study of mid day meal scheme and retention of students in school

Delimitations

- Delimitations define the scope of the study. That is, they set the boundaries of the study
- Normally under control of the researcher
- Examples
 - number and kinds of subjects
 - treatment conditions
 - tests, measures, instruments used
 - type of equipment
 - location, environmental setting
 - type of training (time and duration)

WHY RESEARCH QUESTIONS ARE CRUCIAL

- GUIDE YOUR LITERATURE SEARCH
- GUIDE YOUR DECISIONS ABOUT THE KIND OF
 RESEARCH DESIGN TO EMPLOY
- GUIDE YOUR DECISIONS ABOUT WHAT DATA
 TO COLLECT AND FROM WHOM
- GUIDE ANALYSIS OF YOUR DATA
- GUIDE WRITING-UP OF YOUR DATA
- PROVIDE **DIRECTIONS**

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