



**International Journal of Biology, Pharmacy
and Allied Sciences (IJBPAS)**
'A Bridge Between Laboratory and Reader'

www.ijbpas.com

FRAMING A RESEARCH STUDY – A REVIEW TO HELP PhD SCHOLAR

SUMA GR¹ AND SUMA S^{2*}

1: Assistant Professor, Department of Chemical Engineering, Siddaganga Institute of Technology, Tumkur

2: Reader, Department of Orthodontics, JSS Dental College and Hospital, JSS Academy of Higher Education and Research, JSS Medical Institutions Campus, SS Nagar, Mysuru

*Corresponding Author: Dr. Suma S; E Mail: dr.suma@jssuni.edu.in

Received 25th Jan. 2023; Revised 24th Feb. 2023; Accepted 3rd April 2023; Available online 15th June 2023

<https://doi.org/10.31032/IJBPAS/2023/12.6.1030>

ABSTRACT

The main components in development of research question include those which “Relate to states of Nature,” meaning, they denote the hypothetical conditions of what the lives of people might have been like before societies came into existence and those which “Relate to relationship between different variables”. This review helps the researcher to frame a research study with the basic knowledge.

Keywords: Research Study, Hypothesis, PhD Scholar

DEFINITION OF RESEARCH

The word research comes from the obsolete French word “Recherche” which means to search in depth and to investigate thoroughly. In a very generic perspective, the study aims at discovery. According to Zora Neale Hurston, “Research is formalized curiosity. It is poking and prying with an intend to contribute to the existing body of knowledge”.

IMPORTANCE OF RESEARCH

Research facilitates

- ✓ Effective management
- ✓ Effective decision making
- ✓ To generate accurate information
(The gathered information should be systematic and decision makers should emphasize with an objective investigation rather than intuitive)

FEATURES/CHARACTERISTICS OF RESEARCH [1]

- ✓ Research starts with a problem, presented in the form of question
- ✓ Research attempts to identify a problem, stated in clear, unambiguous terms
- ✓ Research requires a plan. It categorized into aim, objective and key question
- ✓ Research deals with the primary problem through appropriate sub problems
- ✓ Research seeks direction through appropriate hypothesis and draw upon apparent assumption
- ✓ Research deals with facts and their meanings

PURPOSE OF RESEARCH

The purpose of the research can be studied as aims and objectives of the research.

Aim of the research

- ✓ To achieve skillfulness or to get different opinions by investigating a problem which is not clearly defined
- ✓ To establish the relationship with something which occurs or is related
- ✓ To test the hypothesis of reasonable liaison between variables and assessing the plausibility by using sample data

Objectives of the research [2]

Objectives may range from general to specific. The general objective underlines

tasks aimed at in a generic and overall perspective, whereas the specific objectives split up the generic objective into smaller specific sequential questions addressing the various aspects of the problem.

General objectives of the research

- ✓ To explore the new ideas
- ✓ To gain insight into the occurrence of a phenomenon
- ✓ To understand the characteristics of an individual, situation or event correctly and with accuracy
- ✓ To identify the frequencies of occurrence of event
- ✓ To test the relationship between two or more variables

Specific objectives of the research

Specific research objectives essentially focus on answering the 3W and H questions by understanding problems constraints.

These include what, why, when and how

What: This element talks about what are the problems and what critical areas the research shall focus. Clarity at this level involves through insight into aims, objectives and the problem overview.

Why: This element involves an assessment of current scenario and why it has led to this choice of problem. It could hint at possible lacunae in formation and decision-making which research intend to answer. This step would involve a review of available literature to understand the problem scenario

and identify and describe variables connected to it.

When: Includes every research is prone to be impacted with the time frame constraint, this step talks about the inquiry set up and its efficacy as linked up to specific scenario.

How: This element is one of the most critical elements since the blueprint or the research design starts here. Based on the problem, its aims and objectives, we would establish the data sources, the research instrument, quantitative statistical measures to be deployed, the evaluation techniques and the presentation techniques.

CRITERIA TO CONSIDER FOR SELECTION OF A RESEARCH QUESTION

- ✓ A unique topic to avoid duplication of studies
- ✓ Researcher's interest in the topic
- ✓ Subject area and expertise of the research
- ✓ The urgency to address the problem
- ✓ Significance of the topic
- ✓ Resource availability
- ✓ Availability of enough data on the data for initial theoretical understanding
- ✓ Applicability of the methodology in the specific context
- ✓ Ethical considerations of the topic

SOURCES FOR RESEARCH QUESTION [3, 4]

For an established investigator the best questions usually emerge from the findings and problems which has observed in their own prior studies and in those workers in the field. A new investigator has not yet developed this base of experience. The following are the sources where we can find research question formulation.

- 1. Mastering the literature:** It is important to master the published literature in an area of study, scholarship is a necessary ingredient to good research. A new investigator should conduct a through search of published literature in the area of study.
- 2. Being alter to new ideas and techniques:** in addition to the medical literature as a source of ideas for research questions, attending specialty conferences is an important source for getting new ideas as the presenters are given opportunities for scientific presentations. A skeptical attitude about prevailing beliefs can stimulate good research questions. The application of new technologies often generates new insights and questions about familiar clinical problems which in turn can generate new paradigm.
- 3. Keeping the imagination roaming:** careful observation of patients has

led to many descriptive studies and is a fruitful source of research questions. Teaching is also an excellent source of inspiration, ideas for studies often occur while preparing presentations or during discussions with inquisitive students. There is a major role for creativity in the process of conceiving research questions. There is also a need for tenacity for returning to a troublesome problem repeatedly until a resolution is reached out feels comfortable.

- 4. Choosing appropriate guide/mentor:** Nothing substitutes for experience in guiding the many judgements involved in conceiving the research question. Therefore, an essential strategy for a new investigator is to apprentice themselves to experienced mentor who has time and interest to work in particular research area.

CHARACTERISTICS OF A GOOD RESEARCH [4, 5]

The characteristics of a good research question, assessed in context of the intended study design, are that it be, Feasible, Interesting, Novel, Ethical and Relevant (FINER)

- 1. FEASIBLE:** It is best to know the practical limits and problems of the study in early on before wasting

much time and efforts along uncomfortable lines. It can be considered under the following headings number of the subjects, technical expertise, cost in time and money and manageable in scope.

A. Number of the subjects: Many studies do not achieve their intended purposes because they cannot enroll enough subjects. A preliminary calculation of the sample size requirements of the study early on can be quite helpful. If the number of subjects appear insufficient, the investigator can consider several strategies like

- ✓ Expanding the inclusion criteria
- ✓ Eliminating unnecessary exclusion criteria
- ✓ Lengthening the time frame for enrolling subjects
- ✓ Acquiring additional sources of subjects
- ✓ Developing more precise measurement approaches
- ✓ Inviting colleagues to join in a multicenter study
- ✓ Using a different study design

- B. Technical expertise:** The investigators must have the skills, equipment and experience needed for designing the study, recruiting the subjects, measuring the variables and in managing and analyzing the data. Consultants can help to shore up technical aspects that are unfamiliar to the investigator.
- C. Cost in time and money:** It is important to estimate the cost of each component of the project, bearing in mind that the time and money needed will generally exceed the amount projected at the outset. Early recognition of a study that is too expensive or time consuming can lead to modification or abandonment of the plan before expensing a great deal of efforts.
- D. Manageable scope:** problem often arise when an investigator attempts to accomplish too much, making many measurements at repeated contacts with a large group of subjects in an effort to answer many research questions. The solution is to narrow the scope of the study and focus only on the most important goals.
- 2. INTERESTING:** An investigator may have many motivations for perusing a particular research question because it will provide financial support, logical, important next step in building a career or getting at the truth of the matter is interesting. However, it is wise to confirm that the research question is not only finds interesting, speak with mentors and outside experts before devoting substantial energy to develop a research plan or great proposal that peers and funding agencies may consider dull.
- 3. NOVEL:** Good clinical research contributes new information. The novelty of a proposed study can be determined by thoroughly reviewing the literature, consulting with experts who are familiar with ongoing research and searching list of projects that have been funded using the NIH Computer Retrieval of Information of scientific Projects (CRISP). Although novelty is an important criterion, a research question need not be totally original, it can be worthwhile to ask whether a previous observation can be replicated, whether the findings in one population also apply to other or whether improved measurement technique can clarify the relationship

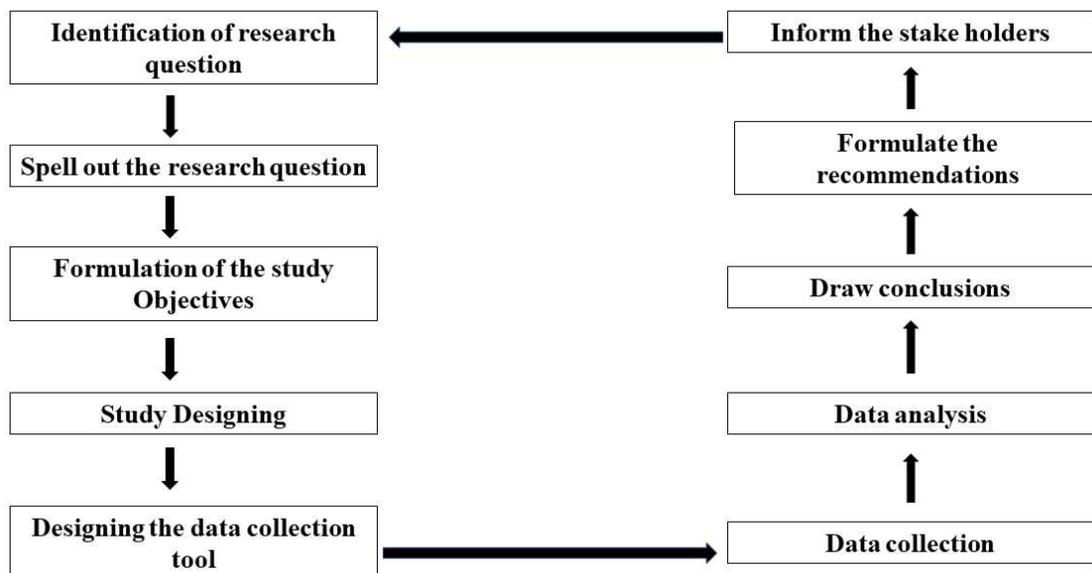
between known risk factors and a disease.

4. **ETHICAL:** A good research question must be ethical. If the study possesses unacceptable physical risk or invasion of privacy, the investigator must seek other ways to answer the question. If there is uncertainty about whether the study is ethical, it is helpful to discuss it at an early stage with a representative of the institutional review board.
5. **RELEVANT:** Among the characteristics of a good research question, none is more important

than its relevance. A good way to decide about relevance is to imagine the various outcome that are likely to occur and consider how each possibility might advance scientific knowledge, influence practical guidelines and healthy policy, or guide further research.

LIFE CYCLE OF THE RESEARCH [6]

The research process consists of a sequence of actions or steps necessary to carry out research and the devised progression effectively. The following are the order related to research process.



IDENTIFICATION AND FORMULATION OF THE RESEARCH QUESTION

The main components in development of research question include those which “Relate to states of Nature,” meaning, they

denote the hypothetical conditions of what the lives of people might have been like before societies came into existence and those which “Relate to relationship between different variables”. All researchers aimed at decision making go through a series of stages for development of research questions, they include

1. Formulation of research problem
2. Evaluation of research problem
3. Delimitation/Statement of research hypothesis
4. Translating the research question to objectives

1. FORMULATION OF RESEARCH

PROBLEM: A research problem is statement about an area of concern, a condition to be improved, a difficulty to be eliminated or a troubling question that exists in scholarly literature, in theory or in practice that points to the need for meaningful understanding and deliberate investigation. The process of formulating a research question includes series of seven basic steps.

- ✓ Identify the broad study area
- ✓ Dissect the broad study area into subareas
- ✓ Markup the interest
- ✓ Point out the research question under the area of interest
- ✓ Set out the research
- ✓ Assess the objectives
- ✓ Check back

2. EVALUATION OF THE RESEARCH

PROBLEM: Before we go on research work, we should review all steps in formulating a research question and all the things we have done till now for the purpose of the research study. Done in four different stages.

- ✓ Is the problem researchable
- ✓ Is the problem new
- ✓ Is the problem significant
- ✓ Is the problem feasible in particularly?
 - Research competencies
 - Interest and enthusiasm
 - Financial considerations

3. DELIMITATION/STATEMENT OF RESEARCH HYPOTHESIS:

In this phase, we have to limit and clarify the topic or refine it to make it earlier researchable without refinement, it is difficult to take hold on problem. According to Whitney (1964) “TO define a problem means to put a fence around it, to separate it by careful distinctions from like questions found in related situation of need. Done in three different stages, which includes

- ✓ Statement of problem: the topic should be in the form of statement or question and which should be brief and clear
- ✓ Define operational definitions: Write the main words in topic along with the definition

- ✓ Formulate the hypothesis: Needs to formulate hypotheses which needs to be tested

4. TRANSLATING THE RESEARCH QUESTION TO OBJECTIVES:

Translating research refers to studies of how to translate findings from the ivory tower into the “Real world”. Translational research comes in two main flavors, which are

- ✓ Applying basic science findings from laboratory research in clinical studies of patients (T1)
- ✓ Applying the findings of these clinical studies to alter health practice in the community(T2)

CONCLUSION

- ✓ All studies should start with a research question.
- ✓ One key ingredient for developing research is scholarship that is acquired by a thorough and continuing review of the work of other.
- ✓ Good research arises from published articles, attending conferences, critical thinking about clinical practices, applying new methods to old issues, through teaching and day dreaming.
- ✓ By adhering to FINER, criteria for good research question.

- ✓ Research should be developed into one-page written study plan in early stage itself.
- ✓ Developing the research question and study plan is an iterative process.
- ✓ Focus on single primary objectives.
- ✓ Always aim finally to translate research either into T1 or T2.

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