
Research Problem Formulation Guide

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ABSTRACT

The desire to solve problem and acquire knowledge has always been the utmost reason for research. Although curiosity and challenges play an equally big role too. But no matter the reason, the bottom line is the quest for the acquisition of knowledge to solve problem. Knowledge can be obtained from either traditional wisdom or scientific disciplines. Traditional sources of information usually lack any standardized authenticity checks while scientific facts is backed with empirical evidence. Scientific acquisition of knowledge follows certain predetermined steps of research with problem definition being the bed rock of such research. A well-defined problem statement opens other research processes. This article present guidelines to the attainment of a well refined problem formulation.

Keywords: Research problem, Formulation, Guide, Literature review, Research design

Introduction

Research is a way of gathering dependable and useful information solely for the provision of answers to meaningful societal problems through the application of scientific procedures. A research must follow systematic scientific steps to its conclusion. The formulation of a research process consists of six main components. The procedures are as follows: 1) problem area identification; 2) problem definition and identification 3) review of the literature; 4) choice of research design; 5) collection of data; 6) inference and conclusion.

The first and most important stage of any research process is the problem formulation. It is likened to the foundation of a building, every other structure and construction of the research is anchored on it (Akhtar, 2014). Problem formulation gives an insight of what is expected of the research. It is more like identifying a destination prior to beginning a journey. A clearer and well-formulated research problem leads to a clearer easier research output. In order to identify relevant topics for research problems and gaps, it is necessary to do a first review of the existing literature and the current state of the research. With the knowledge base, the personal interests of the researchers also play an important role in identifying topics that match their interests (Alvan, 2000).

What is a research problem?

A research problem refers to some difficulty which a researcher experiences in the context of either a practical or theoretical situation and wants to obtain a solution for same (Khazode, 1995). It is the topic we would like to address, investigate, or study, whether descriptively or experimentally.

It is the focus or reason for engaging in our research. It is typically a topic, phenomenon, or challenge that we are interested in and with which we are at least somewhat familiar. An adequate knowledge of the problem of the research is of immense importance to the researcher. Therefore, it is crucial that researchers accurately identify the problem they want to study.

Sources of Research problem

Sources of research could be broadly broken into three major parts, mainly from experience, deduction from theory and relevant literature.

- i. Experience, such as personal experiences gained from professional endeavors or general life encounters.
- ii. Prevalent theories: Common theories: There are certain notions that are widely held in society. To ascertain the circumstances and settings in which they might or might not hold true, these need to be examined using a range of particular hypotheses. Both scientific and popular conceptions can provide ideas for study challenges in this way.
- iii. Literature review: Questions that are raised by others or that come to mind while reading can be turned into study topics by reviewing the literature and gaining inspiration from books and articles.
- iv. Government priorities: various government organizations also publicize research topics.
- v. Imagination: Sometimes, news media provide an ever-growing potential source of research problems for sociologists e.g. methods used by T.V. for creating awareness among women and adopting modern views.
- vi. Research conducted by others: participation in conferences and seminars for professionals might occasionally ignite researchers' thoughts.

1. Identification of Problem Area

The first step in the formulation of the research problem is to decide on a broad subject area on which the researcher has thorough knowledge. Researcher knowledge in that particular subject area will facilitate his/her decision on the research problem. Dissect the subject area into sub-areas, this way you will be able to select one area of your interest and convenience. Once a problem is isolated, the researcher should be able to determine if the problem is worth investigating. Although there is no simple rule to determine the suitability of the problem, however, certain criteria could be used to facilitate researcher choice. These criteria can be divided into Internal and External (Mohd, 2014).

Internal Criteria consist of:

- i. **Researcher's interest:** In order for the researcher's interest in the problem to be sustained for the research, it must both pique his curiosity and fascinate him.
- ii. **Researcher's knowledge and experience:** The problem should originate from the researcher's area of expertise, and he should comprehend the subject's theoretical, conceptual, and practical aspects well.
- iii. **The issue should be sufficiently unique:** A researcher needs to be creative and flexible in order to prevent repetition.
- iv. **Researchers own resources:** Finance and time should be taken into consideration by researcher to enable stable completion of project.

External Criteria consist of:

- i. **The problem's research-ability:** The issue should be one that can be improved upon to allow the scientific method to be used to find solutions to the issues it raises.
- ii. **Originality of the problem:** The issue must be original. It is pointless to invest time and effort in an issue that has already been adequately researched by others.
- iii. **Importance and urgency:** The number of issues that need to be looked into is infinite, but there are comparatively few research projects now underway.
- iv. **Facilities:** Research requires certain facilities such, as well equipped library facility, suitable and competent guidance, data analysis facility, etc. Hence the availability of the facilities relevant to the problem must be considered. Problems for research, their relative importance and significance should be considered.
- v. **Usefulness and social relevance:** Above all, the study of the problem should make a significant contribution to the concerned body of knowledge or to the solution of some significant practical problem. It should be socially relevant.

2. Problem Identification and Definition (*Problem Formulation*)

After the selection of a significant problem, the next stage is for the researcher to proceed to formulate the problem in such a way that it can be subjected to empirical investigation. A well formulated problem should narrow the scope of the study to a specific question in clear terms and should clarify the problem be solved without ambiguity.

An important factor in problem formulation is the choice of definition of the key concept in the problem. A concept is defined nominally or operationally. A nominal definition of a concept is the description of one concept with another concept. While operational definition is nominal definition but in terms of some metric terms (Adebayo, 2003). To shed further clarity, an example of an “aggression” research was presented by Selltiz, Wrightsman, and Cook (1976). The researcher needs first define the term "aggression" in order to develop a research question from this topic. In this instance, aggression might be defined as actions that have the potential to inflict physical harm, as well as snide words or irate accusations. To give such a notional definition in research, however, is just insufficient. A single form of aggressiveness, such as physical aggression between people, can be the researcher's exclusive focus. The researcher has somewhat but not quite sufficiently narrowed down his topic by doing this. An operational definition of the idea at hand is necessary for an issue to be more clearly described. This is because the concept's presence or absence can be indicated by certain observable or quantifiable variables. As a result, the initial issue may now be expressed as follows: How do various parenting philosophies affect students' ability to exhibit aggression? Or how much different cultures discourage physical aggression?

Formulation of Research Question and Objective

The creation of research questions is an additional component of problem formulation. The direction for the data collection and the specific focus of the conclusions drawn from the study's findings are provided by the research question and objectives. Establishing the scope of the research, or deciding what needs to be examined and how much, is the primary purpose of the research question. Developing a research question is a laborious and intellectually demanding process (Saunders & Lewis, 1997). The expertise and personal qualities of the researcher are crucial; there is no easy formula to help them formulate meaningful questions regarding a particular field of study (Trivedi & Shukla 1998). Here are some suggestions that might be useful:

Technique of Developing Research Questions

- i. Record all questions that occur in mind after reading literature or after discussions with others or after thinking on various aspects of study.
- ii. Review these questions whether each question is necessary and deletes those which are outside the scope of the study. This will also remove overlapping between questions (Khanzode, 1995).
- iii. Clarify the questions on the basis of this nature i.e. separate what, why and how questions.
- iv. Examine the scope of the questions. Depending on the time and money available for the study, the scope cannot be too ambitious. Only such areas are to be chosen which would be manageable within the time and resources.
- v. Separate major or key questions from subsidiary questions (Ahuja Ram, 2010).

Formulation of Objective

Your research question's objectives are declarations of what you plan to do to get the answer. The sequential actions you must take to address your research issues are known as objectives (Dolin, 2010). They ought to be specific, measurable, achievable, attainable, realistic, time bound (SMART).

How to formulate objectives

For proper formulation of objective, the following step should be followed:

- i. Cover the different aspects of the problem and its contributing factors in a coherent way and in a logical sequence;
- ii. Make sure objectives are clearly phrased in operational terms, specifying exactly what you are going to do, where, and for what purpose;
- iii. Should be realistic considering local conditions;
- iv. Use action verbs that are specific enough to be evaluated (Examples of action verbs are: to determine, to compare, to verify, to calculate, to describe, and to establish). Avoid the use of vague non-action verbs (Examples of non-action verbs: to appreciate, to understand, or to study).

3. Literature Review

An extensive literature search is a prerequisite for any research project; it is quite frustrating to discover, after conducting research, that the knowledge gap the investigator is attempting to fill has already been addressed and published before the investigator even began the project (Bhatti, Akhtar, Umbreen, Raza, Syed, Ejaz, Kiran, 2012). A thorough literature review in the field of research is therefore crucial. A survey of the literature can point to related studies and offer solutions for problems that are comparable. Basic information to begin with in a specific field could be found in textbooks. Critical information could be found in journals and theses as they review relevant material. Theses and journals can provide you with information from sources you were unaware of. Additionally, you might learn about important scientific figures whose works and research you are unfamiliar with.

4. Research Design

Upon deciding the research problem and having a clear idea of the related literature, the next step is to select and plan the research design, subjects as well as identify data collection techniques. Research design is crucial as it provides overall structure for the research procedure, the data that a researcher collects and the data analysis that the researcher conducts.

5. Data Gathering

The data collection technique specified at the design stage is adopted for use. Depending on the research qualitative or quantitative data collection method can be use.

Data Processing and Analysis

Typically, in any field research methodology, the data collected need to be analysed and computed to provide inferential and interpretation on the problem. If the research question involves quantitative approach, statistical methods are used to analyse. The analysed data will then be presented in tables and graphs. A researcher interprets the data in relation to the research questions based on the analysis performed. For the qualitative approach, information is coded, justified and presented with valid reasoning.

6. Implications, Conclusions and Recommendations

Implications and conclusion are important justifications that every researcher should take note as part of the research process. The novelty of the work and contribution of new

knowledge are seen in the implications and concluding part of the entire research. Recommendations normally highlight a few potential research questions derived at the end of the research process and to foster new research continuation based on the findings.

Conclusion

Problem formulation is the first and most important step before starting a research. In this step a clear statement of problems of entire research is defined. After determining the area for research one must have to follow these serial patterns- the problem is to be explained in a common way, Thus it is of utmost importance that researchers spend adequate time with the problem formulation stage to obtain a well formulated project.

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