

# AN OUTLINE OF EDUCATIONAL RESEARCH



EDITORS

DR. SHYAMSUNDAR BAIRAGYA  
JAYANTA METE

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# **AN OUTLINE OF EDUCATIONAL RESEARCH**

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FOREWORD

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Editors: DR. SHYAMSUNDAR BAIRAGYA and JAYANTA METE

### ■ **RED'SHINE PUBLICATION**

232, Bilton road, Perivale, Greenford

Passcode: UB6 7HL London, UK.

Call : +44 7842 336509

In Association with,

**RED'MAC INTERNATIONAL PRESS & MEDIA. INC**

India | Sweden | UK

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Text © *Editors*, 2021

Cover page ©RED'SHINE Studios, Inc, 2021

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ISBN: 978-1-257-00505-5

ISBN-A: 10.257/005057

DIP: 18.10.1257005057

DOI: 10.25215/1257005057

Price: £ 15

First Edition: June, 2021

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Printed in UK | Title ID: 90937394

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## Chapter- 6

# Defining and Formulating a Research Problem

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Sukanya Mullick

*"If we know what it was we were doing, it would not be called research, would it?"*

*-Albert Einstein*

Long before one starts to create a research proposal, the researcher needs to identify a research problem to address. This chapter discusses the concept of research problem, characteristics and purpose of a research problem, criteria for selection of a research problem and finally, how to formulate a research problem has been clearly described in this chapter. After reading this chapter the researcher will definitely develop a clear idea of defining and formulating a research problem and it will be definitely useful to the researcher. Research problem identification may be stated as that which helps to develop an awareness about the existing social problems or a concept or phenomenon that needs to be studied in order to get a deeper understanding on it. Problems or topics can be identified by a researcher by observation, exploration or from skill and knowledge base.

### **Definition of a topic**

A topic is that the main organizing principle guiding the analysis of a research study. Topics facilitate writing and it focuses on what we want to say. Topics forms the basis of any research study and it is the central subject matter of a study as it helps the researcher

to investigate. Topic also states the procedure through which the researcher arrive at other topics of conversation and discover new knowledge.

**Research Topic:** Research topic is a broad concept or idea from which the problem can be identified and is expected to investigate.

### **What is a problem?**

According to **Kerlinger**, 'A problem may be a question or statement that asks what relation exists between two or more variable. The answer to question will provide what is having sought within the research.

**R.S. Woodworth** defines problem as 'a situation for which we have no ready & successful response by instinct or by previous acquired habit. We must find out what to do', i.e. the solution are often acknowledged only after an investigation.

### **Concept of Research Problem**

A research problem may be concerned with specific areas that needs attention, or it may include some difficulties or contradiction, or knowledge gap that the researcher wants to address in his/her research work. One might work on immediate real-life problems the objective of which is to bring about change in the existing condition, or it can be a theoretical problems which helps in developing knowledge.

A is topic selected generally to study, address or investigate, whether descriptively or experimentally. Research Problem is the focus or reason for conducting a research. It is typically an area of concern, phenomenon, or challenge that one is genuinely interested in and least somewhat familiar and one that needs meaningful understanding and deliberate investigation.

A problem that the researcher will select depends on the broad area of his/her interest and the type of research that the researcher wants to pursue.



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Research problems in social science may be classified into four types-

- a. **Casual Research Problem-** Generally such type of problems is concerned with sense of right and wrong in question of conduct or conscience by analysing moral dilemmas through the application of general rules and careful distinction of special cases.
- b. **Difference Research Problem-** When two or more phenomenon is compared and contrasted this kind of problem statement is used by the researcher.
- c. **Descriptive Research Problem-** Descriptive research problem generally helps in discovering unstudied area issues that are hidden but needs immediate attention. It generally the significance of a situation or a specific phenomenon or a state.
- d. **Relational Research Problem-** The idea behind purpose such investigate is to see specific qualities or characteristics that may be connected in some way. Such kind of problem suggests relationships of some sort between two or more variables that needs to be investigated.

### Sources of Problems

It is sometimes very challenging on the part of the researcher to find a problem that is researchable not because there is lack of problems or issues but there is a serious problem on the part of the researcher to choose a correct problem which is unique in character and does not duplicate the work of other researchers and it should also focus on the area of concern that is practical which can it helps in improving the condition or conditions in some cases or any difficulty which needs to be resolved. The following can be the source of a research problem-

#### a. Theory Deductions

This refers to the deduction from social philosophy or generalizations which are embodied in life and in society that the researcher is conversant in. The deductions from human behavior are

then placed within an empirical frame of reference through research. From a theory, the researcher can work out a research problem or hypothesis stating the expected findings in certain empirical situations. One can then design and carry out a systematic study. Investigation is conducted to assess whether empirical data confirm or reject the hypothesis, and hence, the idea.

**b. Interdisciplinary Approach**

Problems can be generated from other disciplines outside one's primary area of study. It may come from any academic movement. It is a very intellectual and insightful approach on the part of the researcher to frame such an area of investigation. This can be done by detailed and intense review of related literature from related disciplines that can real and unexplored idea for analysis. When a research problem is selected through interdisciplinary approach it offers an opportunity to provide a more comprehensive understanding of a very complex issue that any single discipline cannot explain single headedly.

**c. Opinion from Researchers**

Research Problems can be identified from formal interviews or informal discussions with experts in different fields such as teachers, doctors, lawyers, business leaders, health care providers social workers etc., who paves the way to identify practical real- life problems that is yet to through light on or is ignored within academic circles. This approach provides some practical knowledge and helps to provide insight into new directions for future research and also to make research findings more relevant and actual.

**d. Experiences Related to Personal Life**

Experiences can be a very rich sources of problem that a researcher can never underestimate and can consider a problem for investigation. The experiences of individuals can be thought critically or about the frustrations an individual is facing while living in the



society that may include family or personal problems or occupational problems. These can provide new avenues to explore.

**e. Pertinent Research Review**

A thorough review of related literature can provide vivid picture about the gaps that exists in understanding a problem or an issue that has not been explored. Review of related literature may help a researcher to locate the gaps in knowledge, or the methodologies used in previous studies can be adapted to solve other problems. A similar study can be conducted in different areas or applied in different situations or with different sample groups. If a researcher studies the conclusions of the research studies thoroughly then in the conclusion there are implications pointed out by other researchers showing suggestions for future research, then the researcher might get valuable suggestions for identifying new problems to study.

**Characteristics of a Good Research Problem**

Some of the characteristics of research problem are as follows-

- **New ways of thinking:**

Leedy and Ormrod (2010) describe research as a process that should encourage new ways of thinking in new ways, or encourage further research in the field. If the research problem does not contribute new knowledge to the field or topic it should not be considered research worthy. The study must make advancements within the field and in some cases pave the way to explored ideas.

- **Feasible:**

It should be feasible (ie, investigated without expanding an undue amount of time, energy or money).

- **Ethical:**

It should be ethical. It should not involve physical or psychological harm or damage to the human beings or to the natural or social environment of which they are a part.

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- **Significance:**  
It should be significant (ie, the research will contribute significant knowledge to mankind). It should be logical and should have sound rational.
- **Clarity:**  
The research problem should be clear so that others can easily understand the nature of the problem being studied. The research problem should have a single interpretation in order that people cannot get distracted. The problem should be free from any ambiguity.
- **Well defined:**  
Well defined problem paves the way for a successful research. Sometimes researcher poses the problem in such a way that it gives a doubtful impression. So, the research problem has to be well defined and well phrased it should have to be easy to understand. It should have a single meaning.
- **Language:**  
The language of research problem should have to be simple. A researcher should use technical terms only when it is necessary otherwise the language should be lucid and clear which is easily comprehensible.
- **Title:**  
The research problem should follow the rules of titling. For example, it may be written in a sentence case but mostly it is seen that the title follows the title case. The researcher must read the rules of titling before writing it down.
- **Current relevance:**  
Current relevance should also be considered by the researcher while selecting a research problem. A problem which is impractical or obsolete will not be beneficial for anyone. It is the duty of the researcher to find out the benefits of the problem before it is actually studied.



### **Purpose of a Research Problem**

Without a well- defined research problem, the researcher will end up with a lot of difficulty that is the research may end up repeating what other people have already said or the research that might be conducted will be without a clear purpose. A problem helps the research study to be focused and manageable. Sometimes it is seen that a problem is very interesting and there are too many things to say on the problem, but it is not a sufficient reason for a basis for academic or any type of research. So, for a good research work there is a need of a problem in order to do a study that contributes to new and relevant insights.

The research problem is an area that the researcher wants to explore and to provide an answer to the problem that a researcher wants to solve. It is much similar to a destination before the journey is under taken and it can be very simple or very complex in terms of its nature. A researcher can select a problem from various sources such as literature review, from his area of interest, skill, creativity and motivation with respect to the subject of study.

A research problem helps in narrowing the topic down to something that is reasonable for conducting a study. Creswell, 2012) defined research problem as “a general educational issue, concern, or controversy addressed in research that narrows the topic” p. 60).

A research problem, as mentioned previously, is the issue being addressed in a study. The issue can be a difficulty or conflict to be eliminated; a condition to be improved; a concern to handle; a troubling question, a theoretical or practical controversy (or a gap) that exists in scholarly literature.

If a problem tends to explain or predict the connections, relationships or comparisons between the variables, it suits quantitative research. On the other hand, if the problem tends to explore or understand a phenomenon, it may be appropriate to qualitative research.



### 3.1 Difference between Qualitative and Quantitative Research Problem

The table below shows the differences between quantitative and qualitative research problem-

Quantitative Research Problem	Qualitative Research Problem
<ul style="list-style-type: none"> <li>Explains or predicts the connections, relations or comparisons between variables</li> </ul>	<ul style="list-style-type: none"> <li>Explores, understands, describes, generalizes, discovers phenomenon</li> </ul>
<ul style="list-style-type: none"> <li>Contains independent and dependent variables</li> </ul>	<ul style="list-style-type: none"> <li>Learn and describe individual's views</li> </ul>
<ul style="list-style-type: none"> <li>Measures variables for getting quantified data</li> </ul>	<ul style="list-style-type: none"> <li>Assess a process over time</li> </ul>
<ul style="list-style-type: none"> <li>Test's theories or broad explanations</li> </ul>	<ul style="list-style-type: none"> <li>Generate theories based on participants views</li> </ul>
<ul style="list-style-type: none"> <li>Generalizes results to a large number of people</li> </ul>	<ul style="list-style-type: none"> <li>The results cannot be generalized</li> </ul>

### Difference between Qualitative and Quantitative Research Problem

#### Criteria for Selection of a Research Problem

There are generally two factors which are associated with the criteria of problem selection. There are certain external criteria which involves the importance of problem in the field, availability of data, help received from the administrations from where the data will be collected and tools for data collection etc. Other than these are certain personal reasons which may be the interest of the researcher or the time and cost involved.

Proper selection of research problem /title may depend on the following-

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1. The inclination and motivation of the researcher plays a very important role in selection of a problem for his or her research work.
2. While selecting a problem the researcher needs to pay attention to certain factors like money, time, transportation facility, availability of data etc., and if the selection of the problem is done in any incorrect way, then the energy, effort and money of the researcher will be an absolute wastage.
3. The topic or problem that is selected must have some relative importance. The practical usefulness of the problem will give the researcher motivation to work on it.
4. The researcher must have a sound knowledge about the topic that the researcher selects. His/ her knowledge will give key direction to the investigation.
5. While selecting a problem time frame should be kept in mind. Some topics are very broad and complex and just requires a little more time while others may be short and simple requiring less time. So, the researcher should carefully keep in mind the time frame while selecting the problem.
6. While selecting a problem the researcher must survey whether the data will be available to him or her and then the topic should be selected.
7. Urgent problems of concern should be selected as such issues can provide immediate solutions and provides benefits to many.
8. The culture of the area also plays a vital role in selection of the problem.

**R.L. Ackoff** has discussed the five components of a research problem as under:-

1. **Research consumer:** -According to him, there may be individuals or groups who may have some difficulty or problem and these people may be researchers themselves. There may be



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other participants in the problem and all are affected with the decisions taken by researcher consumers.

2. **Research – consumer’s objective:** - The research consumer must have some objectives that needs to be attained. If the researcher consumer has no goal, then there cannot be an existence of a problem.
3. **Alternative means to meet the objective:** - If the researcher wishes to attain an objective then there should be alternative means to attain it. In other words, the researcher must have at least two ways available in front of him/her. If there is no choice then there cannot be a problem.
4. **Doubt in regard to selection of alternatives:** -To decide on a problem the researcher must have some doubt as to which alternative or means to choose. Without such a doubt there cannot exist a problem.
5. **There must be one or more environments:** - There must be some environment to which the difficulty or problem exist. A researcher may have doubts as to which will be most efficient means in one environment. Some problems are specific to any one environment while others are quite general.

### Ways to identify a Research Problem

Choosing a problem is not quick and easy. Yet it should be broad enough to find adequate information. Before selecting a problem, the researcher must know how the research work should look like. There is no exact style or format of a research project.

One can use the following steps below to guide in the process of selecting a research topic. One must keep in mind the following while selecting a research problem:

1. The areas or issues on which research work has been immensely should not be chosen, because it will pose difficulty to throw any new light.
2. The problem should neither be too narrow nor too broad or vague in its nature.



3. The problem of the research should be practical and workable so that the researcher can easily have an access to related research materials.
4. Controversial problems must be avoided while selecting a research problem.

### **Formulation of research topic or problem**

The selection of any research problem must pave the way for-

- a. The sources of the research areas may be many and varied.
- b. **Selection of a research areas:** Selection of a research area may the following steps-

- Reviewing the literature & theories,
- Delimiting the research topic,
- Evaluating the research problem,
- Formulating final statement of research problem.

- c. **Process of Selection of a research area:** Any research problem begins with selection of a topic which is generally broad in nature. The topics are derived after intense literature review, experiences, and previous research studies and also theories in which the researcher is motivated and interested. When the researcher selects research problem it is not sufficient to just merely discuss regarding the problem but it requires enough training on the part of the researcher to do a detailed survey on the problem and then invest his time, energy and money on the project he/she is to undertake. Anyone who is facing the problem will definitely understand the problem better but it does not mean that a person who is not facing the problem will not understand the situation. But if the researcher does not understand the problem that is to be under taken, he may continue with the research work but cannot frame the appropriate objectives and also cannot fulfil them. Here comes the importance of literature review. Review of literature gives a comprehensive picture about what has already been done. The review provides an

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opportunity to plan the research work efficiently and effectively. Another very important step is delimiting the research topic. In this particular stage, the researcher clearly identifies the population, setting, variables etc., needed for the study. When the research problem is more or less selected certain factors should be given careful attention as to the time-limit, cost, availability of resource materials, subject matter, co-operation from the administrations and also support from experts on this area, ethical considerations and researcher's competence. After following all these steps, a statement of the problem can be formulated which can either be declarative or interrogative in form.

<p><b>Broad Area (Subject area of study)</b></p>	<p><b>Subject:</b> Education  <b>Specific areas in education:</b>                  Introduction to Education,                  Educational Philosophy,                  Educational Psychology,                  Educational Sociology, School                  Administration, Technology in                  Education, Population                  Education, Value in Education,                  Guidance and Counselling,                  Teacher Education</p>
<p><b>Specific Issue</b></p>	<p>Education beyond Face-to-Face                  Mode: Opportunities and                  Challenges</p>
<p><b>Research Title</b></p>	<p>“Effective use of Social Media                  for learning by undergraduate                  students of Social Science”</p>

Example to show how statements of problems can be framed. The title should clearly indicate the problem. A question or questions should be of the following forms such as a single question, several questions or a single question followed by several sub-questions. A



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declarative statement may be a single statement, a single statement containing several phrases, a series of complete statements, a general statement followed by subordinate statements.

### Conclusion:

In conclusion it may be stated that when research projects are undertaken careful attention should be paid to see that the terms used in the title are not vague or ambiguous. The researcher should keep in mind that he /she should begin from broad areas and gradually narrow it down by deciding on the purpose of the study and finally arrive at the specific topic or question. The research title or problem is such an important factor in the research study because the whole project is based upon it.

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232, Bilton road, Perivale,  
Greenford-UB6 7HL London, UK  
Call : +44 7842 336509  
Website: www.redshine.uk  
Email : info@redshine.uk

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ISBN 978-1-257-00505-5



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