

## **Formulation of Research Problem and Hypothesis**

One of the most difficult phases of any research project is the choice of a suitable problem. The beginner is likely to take a very long time in making his choice. In this first step of any research the research worker should not take a hasty decision. Every problem, which comes to his mind or even that suggested by a more experienced person, may not be a fit research problem. The identification of a good research problem should be considered a discovery in itself.

Identification of a research problem is the first step in scientific inquiry. A problem in simple words is some difficulty experienced by the researcher in a theoretical or practical situation solving this difficulty is the task of research.

The problem defines the goal of the researcher in clear terms. Thus, without a problem, research can not proceed because there is nothing to process from and proceed toward. In social sciences, quite a number of researchers may be faced with this problem, i.e., the problem of not being able to see a problem.

Personal values play an important role in the selection of a topic for research. Social scientists with different values tend to choose different topics for investigation. Of course, personal values are not the only determinants in selecting a topic for inquiry. Social conditions do often shape the preference of investigators in a subtle and imperceptible way.

There are also a number of powerful and overt inducements to selection of one topic rather than another. Societies differ in respect of premium they place on the work in different fields. These differential premia affect the choice of research topics. In a given society, it may bring greater prestige to do research on a deadly disease rather than on say, the patterns of socialization.

The selection of a topic for research is only half a step forward.

### **How to Proceed?**

The formulation of the problem consists in making various components of the problem explicit.

Says John Dewey: It is a familiar and significant saying that a problem well put is half-solved. To find out what the problem or problems are which a problematic situation presents. Is to be well along in inquiry. To mistake the problem involved is to cause subsequent enquiry to be irrelevant. Without a problem, there is blind groping in the dark.

There are three principle components in the formulation of a problem.

- The originating questions (what one wants to know?)
- The rational- theoretical or practical (why one wants to have the questions answered?)
- The specifying questions (possible answers to the originating) questions in term of that satisfy the rationale.)

### **The Originating Questions**

- Represent the beginning of certain difficulties or challenges

- Are formulated in such specific indicate where exactly the answers to them can be searched for.
- Constitute the initial phase in the process of problem formulation.
- May be formulated in terms of broadly delimited categories of social variable but do not indicate specifically which particular variables in each class might be germane to the issues.
- Usually derive from a general theoretical orientation rather than a definite theory.

### **Rationale of Questions**

- Is the statement of reasons why a particular question is worth putting a cross .
- States what will happen to other parts of knowledge or practice if the question posed is answered, i.e., how the answer to the question will contribute to theory and/ or practice.
- Helps to effect a discrimination between scientifically good and scientifically trivial questions.

### **Specifying Questions**

- Culminate the process of formulating a research problem
- Involve the breaking down of originating question in to several specifying questions related to particular aspects and their consequences.

### **Necessary Conditions for Formulating a Research Problem**

We may now list some of the conditions that experience has proved to be conducive to formulation of significant research problems.

#### **Systematic Immersion in the Subject matter through first hand observation**

The researcher must immerse him/her self in the subject matter area with I which he/ she wishes to pose specific problem. This exercise helps a great deal in suggesting to the researcher the specific questions that may be posed for the study to answer. This process is know as pilot survey, preliminary survey o'r exploratory study.

#### **Study of Relevant Literature on the Subject.**

This would help the researcher to know if there are certain gaps in the theories (his/her research will then be to bridge this gap) or whether the prevailing theories applicable to the problem are in consistent with theoretical expectations and so on. This is also an aspect of exploration.

#### **Discussions with persons having rich practical experience in the filed of study.**

This is often known as an experience survey, which again is an exercise at exploration. These people help in sharpening the focus of attention on specific aspects with in the field.

#### **Sources of Research Problem**

The research problem may be selected from the following sources:

- Theory of one's own interest
- Daily problems
- Technological changes
- Un explored areas
- Discussions with other people

A research may select a problem for investigation from a given theory in which he has considerable interest. In such situations the researcher must have thorough knowledge of that theory and should be sufficiently inquisitive to explore some unexplained aspects or assumptions of that theory.

Research problem can also be selected on the basis of daily experience of a researcher. Everyday problems constantly present something new and worthy of investigation and it depends on the worthy of investigation and it depends on the sharpness of the researcher intellect to knit his daily experiences in to a research problem.

Technological changes in a fast changing society are constantly brought forth new problems and new opportunities for research. What is the impact of a changed technology on the existing socio economic set up, always interests the researcher and tempts him to under take such studies as are revealing regarding the impact of new technology on the existing system.

Research problems can be both abstract and of applied interest. These may also be selected from those areas which have not been explored so far. Such area may be theoretical or empirical in nature.

Some times the researcher while discussing the interest with some other people may come across a problem that can be researched by the investigator. The problem may relate to any source as discussed above. In the same way reading assignments in text books, special assignments, research reports and term papers may also suggest some additional areas of needed research. Many research articles suggest some additional areas of needed research. Many research articles suggest problem for further investigation that may prove fruitful.

### **Criteria of a Good Research Problem**

Factors to be taken in to account in the choice of research problem are both external and personal. External criteria involve such issues as newness and significance for the area, availability of data and method and administrative and institutional cooperation personal criteria include such consideration as interest, training, cost and time. The following are move detailed list of criteria for the choice of research problem.

### **Originality**

It should be sufficiently so that it does not involve objectionable duplication. Ignorance of prior studies may lead a student to spend time a problem already investigated. The study should also employ the most recent data. Although originality is an important consideration, there is also a constant need for verification of the findings of the previous investigations, using newer and better devices and procedures. There is also a need for the testing of former findings under changed conditions.

## **Interesting**

The problem should be interesting for the investigator him self. If he is not interested in to, he will be able to face and overcome the obstacles which come at every step in research. His interest should be purely intellectual and should not be there only for a reward, material benefit, advancement in position, increased authority, etc.

## **Importance**

If it is not worth while, if adds to neither knowledge nor lead to any improvements in the current practices, it would be in vain set up as a discipline and to previous research findings in any way.

## **Immediate Application**

The investigator should ask himself question, will my research help in solving an urgent problem

## **Feasibility or Amenability**

The suitability of the problem for a particular research worker is the matter of its feasibility. The investigator should be able to carry it to a successful conclusion. He should possess the required competence, knowledge and understanding. He should be skillful enough to develop, administer, and interpret the necessary data gathering devices and procedures etc.

Feasibility issue of research includes the following

- Availability of data
- Availability of cooperation
- Availability of guidance
- Availability of other facilitates
- Experience and creativity
- Coverage and confidence

## **Formulating and Stating the Problem**

After the problem, has been selected it must be definitely formulated and stated in precise terms. The type of statement to be employed depends on the preference of the worker and the nature of the problem.

There are two alternative ways of stating a problem.

- Posing question (s)
- Making declaration statement (s)

One may choose any of these ways remembering that the question form has an advantage in sharpening and focusing the issue, but the declarative form is perhaps more common and both of the ways may be combined easily in an initial statement.

## **Definition of the Problem**

It implies the separation of the problem from the complex of difficulties and needs. It means to put a fence around it, to separate it by careful distinction from like questions found in related situations of need.

To define a problem means to specify it in detail and with precision. Each question and subordinate question to be answered is to be specified. Sometimes it is necessary to formulate the point of view or educational theory on which the investigation is to be based. If certain assumption is made they are explicitly noted.

It is important to define and elucidate the problem as a whole and further define all the technical and unusual terms employed in the statement.

### **Common Errors in Formulating Research Problem**

#### **Naming a Broad Field**

To choose the broad area of study instead of specific problem makes no justification .

#### **Narrowing or Localizing a Topic**

The problem should not be narrowed to such an extent that it becomes too small and insignificant from research point of view.

### **Lock of Precisions in the Instrument**

If the tools, tests, or devices, which are proposed to be used in data collection and analysis are not precise enough, they may result in another constant error.

### **Hypothesis**

The derivation of a suitable hypothesis goes hand in hand with the selection of a research problem. Hypothesis is a statement temporarily accepted as true in the light of what is, at the time, known about the phenomenon, and it is employed as a basis for action in the search of new truth. A hypothesis is a tentative assumption drawn from knowledge and theory which is used as a guide in the investigation of other facts and theories that are yet unknown. It is a guide, supposition or tentative inference as to the existence of some fact condition or relationship relative to some phenomenon which serves to explain such facts as already are known to exist in a given area of research and to guide the search for new truth. A hypothesis is a tentative supposition or provisional guess which seems to explain the situation under observation. A hypothesis states what we are looking for. A hypothesis looks forward. It is a proposition which can be put to a test to determine its validity.

### **Importance of Hypothesis**

1. It provides direction to research. It defines what is relevant and what is irrelevant. Thus it prevents the review of irrelevant literature and the collection of useless or excess data.
2. It sensitizes the investigator to certain aspects of situations which are relevant from the stand point of the problem in hand. It spells the difference between precision and haphazardness, between fruitful and fruitless research.

3. It is a guide to thinking process and the process of discovery. It is the investigator's eye a sort of guiding light in the world of darkness.
4. It focuses research without it research would be like a random and aimless wandering.
  1. It places clear and specific goals before us. These clear and specific goals provide the investigator with a basis for selecting samples and research procedures to meet these goals.

### **Characteristics of a Usable Hypothesis**

The criteria for judging the usability of the hypothesis are none other than those that help the hypothesis perform their designated functions vis-à-vis research and the growth of knowledge. Hence, a good useable hypothesis is the one which satisfies many of the following criteria.

- A hypothesis should be empirically testable
- A good hypothesis is in agreement with the observed facts.
- A good hypothesis does not conflict with any law of nature which is known to be true.
- A good hypothesis is expert.
- It should be so designed that its test will provide an answer to original problems which forms primary purpose of the investigation.
- It must be stated in final form early in the experiment before any attempt at verification is made.
- The hypothesis must be conceptually clear.
- The hypothesis must be specific

Advisedly, the hypothesis should be related to a body of theory or some theoretical orientation.

### **Difficulties in the Formulation of Hypothesis**

- Lack of knowledge and clarity of the theoretical frame work of the area in which the investigator chooses to work.
- Lack of ability to make use of the theoretical frame work logically.
- Lack of acquaintance with available research techniques. This results in failure of phrasing the hypothesis properly.
- Vagueness of the statement