

Identification of Research Problem

DEFINING THE RESEARCH PROBLEM

Problem definition is a clear and precise statement of the questions that are to be investigated.

The starting point of any research is to formulate the problem and mention the objectives before specifying any variables or measures. This involved defining the problem in clear terms. Problem definition involves stating the general problem and identifying the specific components of the research problem. Components of the research problem include:

- a) The decision maker and the objectives
- b) The environment of the problem
- c) Alternative courses of action
- d) A set of consequences that relate to courses of action and the occurrence of events not under the control of the decision maker and
- e) A state of doubt as to which course of action is best

Problem formulation is perceived as most important of all the other steps, because of the fact that a clearly and accurately identified problem would lead to effective conduct of the other steps involved in the research process. Moreover, this is the most challenging task as the result yields information that directly addresses the management issue, though, the end result is for the management to understand the information fully and take action based on it. From this we understand, that the correctness of the result depends on how well the research takes on, at the starting point.

MEANING

Problem formulation refers to translating the management problem into a research problem. It involves stating the general problem and identifying the specific components of research problem. This step and the findings that emerge would help define the management decision problem and research problem.

Research problem cannot exist in isolation as it is an outcome of management decision problem. The management decision problem may be, for example, to know whether keeping Saturday a working day would increase productivity. The associated research problem for the above example may be the impact of keeping Saturday a working day on employee morale. The task of the researcher is to investigate on employee morale. Hence, it is understood that the researcher is perhaps, a scientific means, to solve the management problem the decision maker faces.

Components of Research Problem

- There must be an individual or a group which has some difficulty.
- There must be some objective(s) to be attained at. If one wants nothing, one cannot have a problem.
- There must be alternative means (or the courses of action) for attaining the objectives one wish to attain. This means that there must be at least two means available to a researcher for if he has no choice of means, he cannot have a problem.
- There must remain some doubt in the mind of a researcher with regard to the selection of alternatives. This means that research must answer the question concerning the relative efficiency of the possible alternatives.
- There must be some environment to which the difficulty pertains.

Sources of Research Problem

1. **Personal Experiences:** Personal observation of researcher
2. **Day-to-Day Problems:** Day-to-day experience of researcher
3. **Critical Appraisal of Literature:** Data, facts and figures from books, journals, etc.
4. **Previous Research:** Data from former researchers of the same problem
5. **Existing Theories:** Previous data related to the same problem
6. **Consumer Feedback:** Suggestions and ideas from consumers
7. **Unexplored Areas:** Identification of the areas in which no work has been done
8. **Social issues:** Prevailing issues in the society like poverty, education, etc.
9. **Brainstorming:** Discussing the problem among interested people

PROBLEM IDENTIFICATION PROCESS

The techniques involved in identification of a Research Problem are crucial part of a research study and must in no case be accomplished hurriedly. However, in practice this, a frequently overlooked which causes a lot of problems later on. Hence, the research problem should be defined in a systematic manner, giving due weightage to all relating points. The technique for the purpose involves the undertaking of the following steps generally one after the other:

1) Statement of the problem in a general way

First of all the problem should be stated in a broad general way, keeping in view either some practical concern or some scientific or intellectual interest. For this purpose, the researcher must immerse himself thoroughly in the subject matter concerning which he wishes to pose a problem. In case of social research, it is considered advisable to do some field observation and as such the researcher may undertake some sort of preliminary survey or what is often called pilot survey. Then the researcher can himself state the problem or he can seek the guidance of the guide or the subject expert in accomplishing this task. Often, the guide puts forth the problem in general terms, and it is then up to the researcher to narrow it down and phrase the problem in operational terms. In case there is some directive from an organizational authority, the problem then can be stated accordingly. The problem stated in a broad general way may contain various ambiguities which must be resolved by cool thinking and rethinking over the problem. At the same time the feasibility of a particular solution has to be considered and the same should be kept in view while stating the problem.

2) Understanding the nature of the problem

The next step in defining the problem is to understand its origin and nature clearly. The best way of understanding the problem is to discuss it with those who first raised it in order to find out how the problem originally came about and with what objectives in view. If the researcher has stated the problem himself, he should consider once again all those points that induced him to make a general statement concerning the problem. For a better understanding of the nature of the problem involved, he can enter into discussion with those who have a good knowledge of the problem concerned or similar other problems. The researcher should also keep in view the environment within which the problem is to be studied and understood.

3) Surveying the available literature

All available literature concerning the problem at hand must necessarily be surveyed and examined before a definition of the research problem is given. This means that the researcher must be well-versed with relevant theories in the field, reports and records as also all other relevant literature. He must devote sufficient time in reviewing of research already undertaken on related problems. This is done to find out what data and other materials, if any, are available for operational purposes. "Knowing what data are available often serves to narrow the problem itself as well as the technique that might be used." This would also help a researcher to know if there are certain gaps in the theories, or whether the existing theories applicable to the problem under study are inconsistent with each other, or whether the findings of the different studies do not follow a pattern consistent with the theoretical expectations and so on. All this will enable a researcher to take new steps in the field for extension of knowledge i.e., he can move up starting from the existing premise. Studies on related problems are useful for indicating the type of difficulties that may be encountered in the present study as also the possible analytical

shortcomings. At times such studies may also suggest useful and even new lines of approach to the present problem.

4) Developing the ideas through discussions

Discussion concerning a problem often produces useful information. Various new ideas can be developed through such an exercise. Hence, a researcher must discuss his problem with his colleagues and others who have enough experience in the same area or in working on similar problems. This is quite often known as an experience survey. People with rich experience are in a position to enlighten the researcher on different aspects of his proposed study and their advice and comments are usually invaluable to the researcher. They help him sharpen his focus of attention on specific aspects within the field. Discussions with such persons should not only be confined to the formulation of the specific problem at hand, but should also be concerned with the general approach to the given problem, techniques that might be used, possible solutions, etc.

5) Rephrasing the research problem

Finally, the researcher must sit to rephrase (reshape) the research problem into a working proposition. Once the nature of the problem has been clearly understood, the environment (within which the problem has got to be studied) has been defined, discussions over the problem have taken place and the available literature has been surveyed and examined, rephrasing the problem into analytical or operational terms is not a difficult task. Through rephrasing, the researcher puts the research problem in as specific terms as possible so that it may become operationally viable and may help in the development of working hypotheses.

FORMULATION OF RESEARCH HYPOTHESIS

Once the problem to be answered in the course of research is finally instituted, the researcher may, if feasible proceed to formulate tentative solutions or answers to it. These proposed solutions or explanations are called hypotheses which the researcher is obliged to test on the basis of fact already known or which can be made known.

If such answers are not formulated, even implicitly, the researcher cannot effectively go ahead with the investigation of his problem because, in the absence of direction which hypotheses typically provide, the researcher would not know what facts to look for and what relation or order to search for amongst them.

The **hypotheses guide the researcher** through a confusing Jungle of facts to see and select only those that are relevant to the problem or difficulty he proposes to solve. Collection of facts merely for the sake of collecting them will yield no fruits.

To be fruitful, one should collect such facts as are for or against some point of view or proposition. Such a point of view or proposition is the hypothesis. The task of the inquiry or research is to test its accord with facts.

Lundberg aptly observes, “The only difference between gathering data without a hypothesis and gathering them with one, is that in the latter case, we deliberately recognize the limitations of our senses and attempt to reduce their fallibility by limiting our field of investigation so as to prevent greater concentration for attention on particular aspects which past experience leads us to believe are irrelevant as insignificant for our purpose.”

Thus, “after internalizing the problem, after turning back on experience for possible solutions, after observing relevant phenomena, the scientist may formulate a hypothesis.”

MEANING

“A **Hypothesis** is an imaginary statement, a tentative proposition about relation between two or more phenomena or variables”. It is a tentative generalization, the validity of which remains to be tested.

Hypothesis could be termed as tentative answers to a research problem. The structure of a hypothesis involves imaginary statements relating to two or more variables. They are deduced from theories, directly from observation, intuitively, or from a combination of these.

Hypothesis could be viewed as statements that indicate the direction of the relationship or recognition of differences in groups. However, the researcher may not be able to frame hypotheses in all situations. It may be because that a particular investigation does not warrant a hypothesis or sufficient information may not be available to develop the hypotheses.

Criteria for Formulation of Hypothesis

There exist two criteria for formulation of a good hypothesis. **First**, it is a statement about the relations between variables. **Secondly**, it carries clear implications for testing the stated relations. Thus, these couples of criteria imply that the hypotheses comprise two or more variables which are measurable or potentially measurable and that they specify the way in which they are related. A statement which fails to meet these criteria is no scientific hypothesis in the true sense of the term. However, there are legitimate hypotheses, formulated in factor analytic studies.

The following examples may be cited in order to justify how the couple of criteria apply to hypotheses:

1. More intelligent persons will be less unfriendly than those of lower level of intelligence.
2. Group study contributes to higher grade achievement.

In the first hypothesis, we visualize a relation stated between one variable, 'intelligence', and another variable 'unfriendliness.' Furthermore, measurement of these variables is also easily imaginable. In the second example, a relation has also been stated between the variables 'group study' and 'grade achievement.' There exists the possibility of the measurement of the variables are thus there is implication for testing the hypotheses. Thus both the criteria are satisfied.

Sources of Hypothesis

A hypothesis may be formulated through a number of sources. Following are the main sources of hypothesis:

1. **Personal Experience:** Individual reactions and suggestions
2. **Imagination & Thinking:** Creative thinking and imagination
3. **Observation:** Personal observation of researcher
4. **Scientific Theory:** History of science and personal experiences of scientists
5. **Previous Study:** Collection of previous facts and current facts
6. **Culture:** Cultural systems like traditions, family system, norms, values, region, education system, etc.

Characteristics of a Good Hypothesis

- A hypothesis should be **verifiable** means that it can be either true or false by comparing with the facts of experience directly or indirectly.

- A hypothesis should be **relevant** means it must provide an answer to the problem for which it is created.
- A hypothesis must **accurately predict future events** and have **explanatory power**.
- A hypothesis must be in **accordance with our previous knowledge**.
- A hypothesis **does not go against the traditionally established knowledge**.
- A hypothesis should be **simple, clear, definite and certain**.
- A hypothesis should be **related to available methods techniques** used to measure the concepts and variables.

TYPES OF RESEARCH HYPOTHESIS

Various types of hypothesis are:

- **Simple Hypothesis:** Simple hypothesis is that one in which there exists relationship between two variables one is called independent variable or cause and the other is dependent variable or effect. Example, Smoking leads to cancer.
- **Complex Hypothesis:** Complex hypothesis is that one in which as relationship among variables exists. Example, Smoking and other drugs leads to cancer, tension, chest infections, etc.
- **Associative Hypothesis:** Associative Hypothesis predicts an associative relationship between the independent variable and the dependent variable.
- **Casual Hypothesis:** Causal Hypothesis predicts a cause and effects relationship or interaction between the independent variable and dependent variable.
- **Directional Hypothesis:** Directional Hypothesis predicts the direction of the relationship between the independent and dependent variable. For example, children aged four years eating proper food over a five year period are having higher IQ level than children not having a proper meal. This shows the effect and the direction of effect.
- **Non-Directional Hypothesis:** Non -directional Hypothesis predicts the relationship between the independent variable and the dependent variable but does not specify the directional of the relationship. Example, teacher student relationship influence student's learning.
- **Relational Hypothesis:** A relational hypothesis is a statement about the relationship between two variables with respect to some case.

- **Explanatory Hypothesis:** A hypothesis is framed to give positive explanation in support of the effect. For Example, an advocate may explain the cause of a crime in such a manner that B is now regarded as the culprit in place of the common understanding that A is a culprit.
- **Descriptive Hypothesis:** A descriptive hypothesis is a statement about the existence, size, form, or distribution of a variable.
- **Analogical Hypothesis:** When we formulate a hypothesis on the basis of similarities (analogy), it is called an analogical hypothesis.
- **Null Hypothesis:** It provides the statement which is contrary to hypothesis. It's a negative statement, and there is no relationship between independent and dependent variable. The symbol is denoted by "HO".
- **Statistical Hypothesis:** Statistical Hypotheses are the statements derived from a sample. These are quantitative in nature and are numerically measureable. For Example, the market share of product X is 70%, the average life of a tube light is 2000 hours, etc.