

Chapter three

Research Process

Before starting the details of research methods, it is appropriate to have a brief overview of the research processes.

Research processes consist of a series of actions or steps, which are necessary to successfully carry out research activities. The research process consists of a number of closely related activities. These activities (steps) can overlap continuously rather than following a strictly prescribed sequence. The first step can determine the nature of the last step to be undertaken. These steps are not separate and distinct they do not necessarily follow each other in any specific order kothari (1990)

However, the following order of steps provides a useful procedural guideline regarding processes.

- Identification and formulating the research process
- Extensive literature survey
- Developing working hypothesis
- Preparing the research design
- Determine sample design
- Collecting data
- Execution of the project
- Analysis of the data
- Hypothesis testing
- Generalization and interpretation
- Reporting the result

Research process consists of **series of actions or steps necessary to effectively carry out research and the desired sequencing of these steps.**

- Research originates with a question or problem?
- Research requires clear articulation of a goal.
- Research requires a specific plan for proceeding.

- Research usually divides the principal problem into more manageable sub problems.

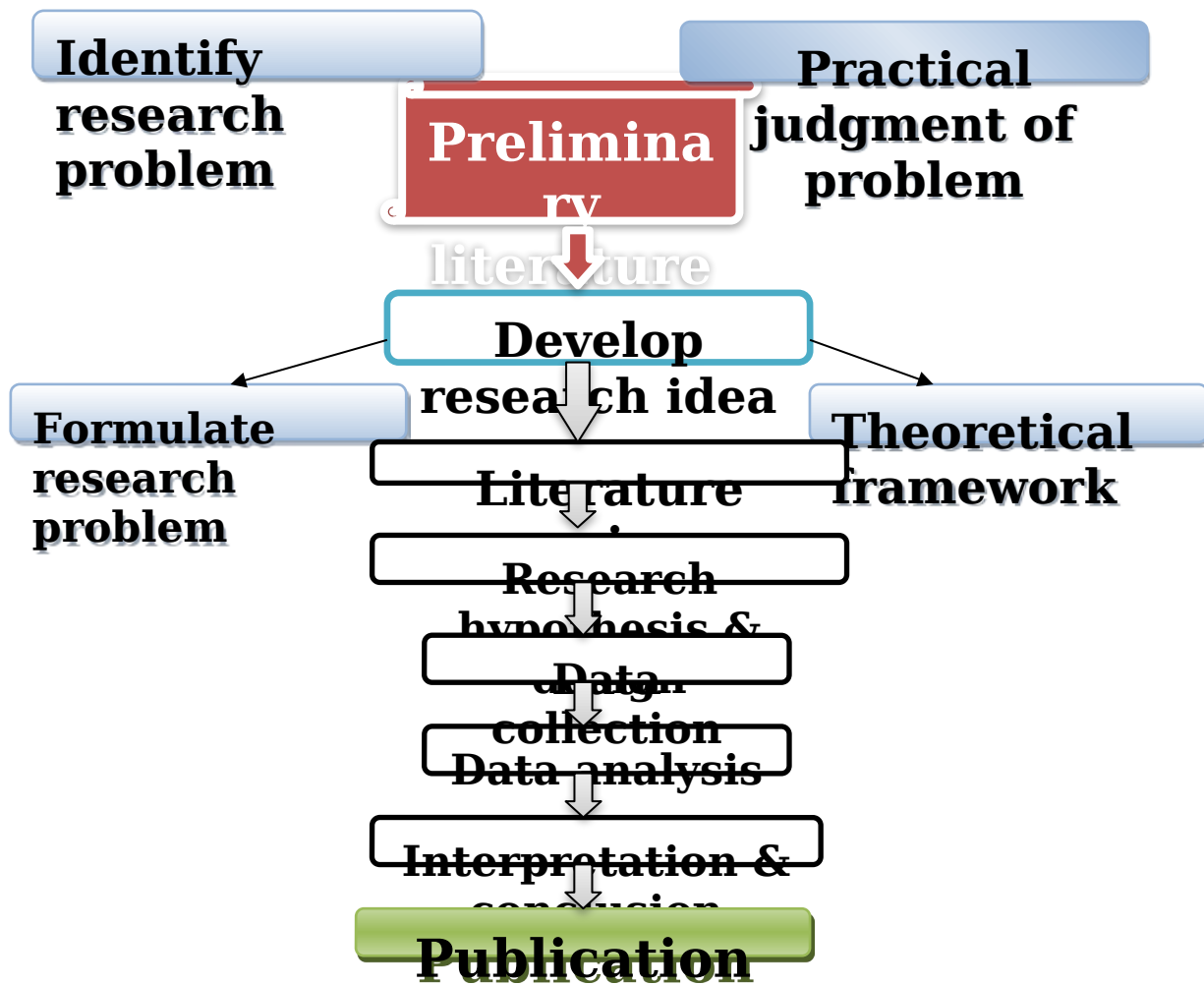
Exp: Main problem: **How do I get from town A to town B?**

Sub problems: 1. what is the most direct route?

2. How far do I travel on the high way?

3. Which exist do I take to leave the high way?

- Research is guided by the specific research problem, question or hypothesis.
- Research **accepts certain critical assumptions**.
- Research **requires the collection and interpretation** of data in an **attempt to resolve the problem** that initiated the research.
- Research is by its nature **cyclical**.



Defining Research Problem and Hypothesis

In research processes, the first step happens to be identifying and properly defining a research problem. The researcher must find any social, economic, business problem and formulate it into research problem. The problem identified initially may be stated in broad general way and then gradually the ambiguity will be resolved.

The feasibility of a possible particular solution has to be considered before formulating the problem. The best way of understanding a problem is to

discuss it with colleagues or those of having some experiences in the matter.

What is a Research Problem?

A research problem, in general, refers to some difficulty, which a researcher faces (experiences) in the context of both theoretical and practical situation and wants to obtain a solution for the same. We say a research problem exist, if the following conditions are met:

1. There must be an individual or group or organization which has some difficulty/the problem
2. There must be some objectives to be attained at
3. There must be an alternative means or actions for obtaining the objective (s) one wishes to attain. This means that there must be two or more means or actions available for/to researcher for if he has no choice of means, he cant' have a problem
4. 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.
5. There must be some environment (s) to which the difficulty pertains.

Defining Research Problem

"The problem clearly stated is a problem half solved." In other words, defining a problem involves the task of laying down boundaries within which a researcher shall study the problem with a pre-determined objective(s) in view. This statement emphasis that a research problem needs to be specified explicitly and needs to be narrowed down to the workable size

Why is it important to state & define the problem?

- Because a clear statement of the problem :
 - ★ Is the **foundation for further development of the research proposal** (objectives, methodology, work plan, budget, etc)

- ★ **Makes it easier to find information & reports of similar studies** from which your own study design can benefit.
- ★ Enables you to systematically point **out why the proposed research on the problem should be undertaken & what you hope to achieve with the study results.**

While selecting a research problem or a subject for research follows the following points:

- i. **Subject which is overdone** should not be normally chosen
- ii. **Provocative subject** should not become the choice of an average researcher.
- iii. Too narrow or **too vague problems** should be avoided.
- iv. The **subject selected** for research should **be familiar** and **feasible** so that the related research material or sources of research are within one's reach
- v. The importance of the subject, the qualifications and the training of a researcher, the costs involved, the time factor must also be considered.

In other words, before the final selection of a problem is done, a researcher must ask himself the following questions:

(a) Whether you are **well equipped in terms of your background to carry out the research?**

(b) Whether the study **falls within the budget** he can afford?

(c) Whether the **necessary cooperation can be obtained** from those who must participate in research as subjects?

vi. The **selection of a problem must be preceded by a preliminary study.**

This may not be necessary when the problem requires the conduct of a research closely similar to one that has already been done

Techniques involved in defining the problem

The techniques of defining a problem involve the undertaking of the following steps:

1. Understanding the origin and nature of the problem 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.
2. Survey and examining the available literature related to the problem thoroughly. This helps to know what data and other materials, if any are available for operational purpose and to narrow the problem as well as the technique that might be used.
3. Developing idea through discussions with colleagues and other experienced personalities. This quite often known as an experience survey. Discussions with such people help the researcher:
4. Rephrasing the research problem (reformulation of the problem) in to analytical or operational propositions. At this stage, the researcher is required to put the problem in specific terms as possible. So that it may become operationally viable and may help in the development of working hypothesis.

Evaluation of the Problem

Before the final decision is made on the investigation of the problem, the feasibility of the problem has to be tested with regard to personal suitability of the researcher and social value of the problem. In short, the research problem should be evaluated in terms of the following criteria:

- ❖ **Is the problem researchable?** Some problem cannot be effectively solved through the process of research. Particularly research cannot provide answers to philosophical and ethical questions that don't show the relationship existing between two or more variables.

- ❖ **Is the problem new?** As much as possible, the research problems need to be new. One should not target his investigation to the problem that has already been thoroughly investigated by other researchers. To be safe from such duplication, the researcher has to go through the record of previous studies in a given field. However, there are times where by a problem that has been investigated in the past could be worthy of study. A researcher may repeat a study when he/she wants to verify its conclusions or extend the validity of its findings in a situation entirely different from the previous one.
- ❖ **Is the problem significant?** The question of significance of the problem usually relates to what a researcher hopes to accomplish in a particular study. What his /her purpose in undertaking to solve the particular problem selected/chosen? What new knowledge does he/she hopes to add to the sum total of what is known? And what value is this knowledge likely to have? When all this questions are answered by the researcher the problem should be considered for further investigation. The major dimensions are academic awareness and policy.
- ❖ **Is the problem feasible for the particular researcher?** In addition to the above points, the feasibility of the research problem should also be examined from the point of view of the researcher's personal aspect.
 - o **Research competency:** the problem should be in an area in which the researcher is qualified and competent. The researcher has to make sure that he/she is familiar with the existing theories, concepts, laws and related to the problem. He/she must also posses the necessary skills and competence that may be needed to develop, administer, and interpret the necessary data gathering tools. What is more, he needs to consider whether he has the necessary knowledge of

research design and statistical procedure that may be required to carry out the research through its completion.

- o **Interest and enthusiasm:** the researcher has to make sure that the problem really interests him/her. He/she must also be truly enthusiastic about the problem. If the problem is chosen properly by observing these points, the research will not be boring; rather it will be love's labor.
- o **Financial consideration:** research is an expensive endeavor, which requires a great deal of money investment. In this regard, the researcher should ascertain whether he has necessary financial resources to carry on the investigation of the selected problem. An estimate of the expenditure involved in the data gathering equipment, printing, test material, travel, and clerical assistance to be specified.
- o **Time requirement:** research should be undertaken within a given scope of time, which was allocated, with careful analysis of the prevailing situation. Each and every of research process require time. Particularly, it is worthwhile to plan for the time that will be needed for the development and administration of tools, processing and analysis of data and writing of the research report.
- o **Administration consideration:** the researcher has to pay attention to all administrative matter that is necessary to bring his/her study to its full completion. In this regard the researcher should consider kinds of data, equipment, specialized personnel and administrative facilities that are needed to complete study successfully. The researcher must assure whether the pertinent data are available and accessible to him/ her.

Hypothesis

Once the selection and definition of the problem have been accomplished, the derivation of working hypothesis is the most important step in the research process.

The word hypothesis is a compound of two words, 'hypo' and 'thesis'. Hypo means, under or below and thesis means a reasoned theory or rational viewpoint.

The term hypothesis is defined as a proposition that is stated in a testable form and predicts a particular relationship between two or more variables.

RESEARCH PROBLEM: "Factors that contribute to lower achievement of female students than males in ESLCE in A.A"

The following hypotheses could be derived from the above research problem:

H1. Female Students receive significantly less support to their education than that of their male counterpart.

H2. Female Students sustain significantly higher stereotypes in textbooks than do their male counterpart.

It should be noted that these hypothesis are taken as a tentative solutions to the problem with the understanding that the investigation in due course may lead either to their retention or rejection.

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Establishing a hypothesis should follow rules like:

- ✓ The variables must be clearly specified and measurable by some techniques we know
- ✓ The relationship between them must be stated precisely.

Importance of hypothesis

A well-grounded hypothesis provides the following advantages:

- Represents specific objective, which determine the nature of the data needed to test the proposition
- Offer basis for selecting the sample, the research procedure, and the statistical analysis needed

- Keeps the study restricted in scope thereby preventing it from becoming too broad
- Sets a framework for reporting the conclusion of the study

Source of Hypothesis

The inspection for hypothesis comes from a number of sources w/h includes the following:

1. Professional Experience: The daily life experience or the day to day observation of the relationship (correlation) between different phenomena leads the researcher to hypothesize a relationship and to conduct a study if his/ her assumptions are confirmed.
2. Past Research or Common beliefs: Hypothesis can also be inspired by tracing past research or by commonly held beliefs.
3. Through direct analysis of data or deduction from existing theory: Hypothesis may also be generated through direct analysis of data in the field or may be deducted from a formal theory. Through attentive reading, the researcher may able to get acquaintance with relevant theories, principles and facts that may alert him or her to identify valid for his/her study
4. Technological and social changes: Directly or indirectly exerts an influence in the function of an organization. All such changes bring about new problems for research.

Forms of Hypothesis

Statement of research hypothesis can take a declarative (positive) form, negative form, the null form, or the question form.

Positive:

Students who learn in small class size will perform significantly better in mathematics test than those who learn in large class size.

Negative:

Students who learn in small class size will not perform significantly better in math's test than those in large class size.

Null Form:

There is no significant difference between students who learn in small class size and those who learn in large class size in their mathematics performance.

Question Form:

Is there significant difference between students who learn in small class size and those in large class size in their math's performance?

In general, when a researcher makes a positive statement about the outcome of the study, the hypothesis takes declarative forms. When the researcher negates about outcome of the study, the hypothesis takes the negative form.

When the researcher makes a statement that no relationship exists, the hypothesis takes the null form. In the question form hypothesis, a question is asked as to what the outcome will be instead of stating what outcome is expected. It should also be noted that a working proposition stated either in declarative, negative, null, question form is a matter of preference by the researcher.

Qualities of a good research

1. **Good research is systematic**
2. **Good research is logical**
3. **Good research is empirical**
4. **Good research is replicable**