

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), COIMBATORE  
POST GRADUATE AND RESEARCH DEPARTMENT OF ECONOMICS  
MASTER OF BUSINESS ECONOMICS- FIRST YEAR- RESEARCH METHODOLOGY  
Prepared by: Dr. P.R. Ramani, Assistant Professor of Economics.

Unit:2 Identification of research problem

Research problem refers to some difficulty the researcher experiences in the context of a theoretical or practical situation and wants to obtain a solution for the same.

Formulation of a research problem means the translating and transforming the selected Research problem into a scientifically researchable question.

Sources of Research problem.

Reading, brainstorming, review of literature, academic experience, field reality, consultation, intuition.

- Need for defining the problem

This is the starting point in research. A clearly defined research problem is important. It guides the researcher on the selection of data sources, methods, tools, interpretational techniques and time-economic cost effective completion of a research.

- Hypothesis: meaning and definition

When a researcher observes known facts and takes up a problem for analysis, he first has to start somewhere and this point of starting is Hypothesis. In other words, one has to proceed to formulate a tentative solution. These supposed solutions constitute the Hypothesis. The collection of facts (data) will be fruitful if they are either for or against this proposed solution. The tentative explanation or solutions are the very basis for research process.

1. George A. Lundberg “ a hypothesis is a tentative generalization the validity of which remains to be tested..... In its most elementary stage the hypothesis may be very hunch, guess, imaginative data, which becomes the basis for action or investigation”.

2. Goode and Hatt defined it as “ a proposition which can be put to test to determine validity”.

3. Rummel “ a hypothesis is a statement capable of being tested and thereby verified or rejected”

- Types

1. Descriptive Hypothesis These are propositions, they describe the characteristics of a variable. The variable may be an object, person, organisation, situation or event. For ex. “The rate of unemployment among arts graduates is higher than that of commerce graduates”.

2. Relational Hypothesis These are propositions which describe the relationship b/w two variables. The relation suggested may be positive or negative for ex. ‘Families with higher income spend more for recreation’.

3. **Causal Hypothesis** Causal Hypothesis states that the existence of, or a change in, one variable causes for leads to an effect on other variable. The first variables is called independent variable later the dependent variable.
  4. **Common Sense Hypothesis** These represent the commonsense ideas. They state the existence of empirical uniformities received through day to day observations.
  5. **Analytical Hypothesis** These are concerned with the relationship of analytic variables. These hypothesis occurs and the higher level of abstraction.
  6. **Null Hypothesis** Null means 'Zero' When a hypothesis is stated negatively. It is called Null Hypothesis. The object of this hypothesis is to avoid the personal bias of the investigator. In the matter of collection of data. A null hypothesis is used to collect additional support for the known hypothesis.
  7. **False Hypothesis** A hypothesis which is bound to be unsatisfactory when verified is called a false hypothesis.
  8. **Barren Hypothesis** A hypothesis from which no consequences can be deducted is called a Barren Hypothesis. It is a hypothesis which cannot to test. Ex. The child fell ill because a wicked women's eye felt upon it. This is a baseless hypothesis because it cannot be verified.
- **Characteristics**
    1. **Conceptual Clarity** A hypothesis should be conceptually clear. It should consist of clearly defined and understandable concepts
    2. **Specificity** A hypothesis should be specific and explain the expected relation between variables and the conditions under which these relations will hold.
    3. **Testability** A hypothesis should be testable and should not be a moral judgement. It should be possible to collect empirical evidences to test techniques.
    4. **Availability of techniques** Hypothesis should be related to available techniques. Otherwise they will not be researchable therefore the research must make sure that methods are available for testing his proposed hypothesis.
    5. **Consistency** Hypothesis should be logically consistent. The propositions derived should not be contradictory
    6. **Objectivity** Scientific hypothesis should be free from value judgment. The researcher system of values has n o placing Research.
    7. **Simplicity** A hypothesis should be as simple as possible. The more insight the researcher has into a problem, the simpler will be his hypothesis.
  - **Formulation and testing of hypothesis**  
**Formulation of hypothesis:**  
A research hypothesis is a statement of expectation or prediction that will be tested by research.  
**hints for the formulation of hypothesis:**
    - 1. To be familiar with the topic. And it should be researchable with sufficient materials.
    - 2. research hypothesis has two elements, "hypothesis" and "thesis". A research will or could prove or disprove a theory or understanding . this can be used for application.
    - 3. Avoid judgmental words in hypothesis. Value judgments are subjective and are not appropriate for a hypothesis.
    - 4. A hypothesis must involve an issue or question that are familiar and lelevant to the discipline and topic.
    - 5. hypothesis is clearly understood and defined

- 6. Specify, if appropriate, variables to be taken for comparison.
- 7. Know that your hypothesis may change over time as your research progresses.

Hypothesis testing:

Science does not admit anything as valid knowledge until satisfactory test confirm the validity. A hypothesis should be subjected to rigorous test and Type I and Type II errors should be eliminated.

- Chi square test and t test

**Chi-Square Test** of Independence determines whether there is an association between categorical variables. It is a non-parametric test.

Parametric test assumes a normal distribution of the population. While the non-parametric assumes no specific distribution. So it is called distribution free.

Chi-square is a measure of divergence between the expected and observed frequencies. As such if there is no difference between expected and observed frequencies the value of Chi-square is 0.

- Level of significance

Level of significance signifies the confidence level of researcher on the results. Generally, five per cent level of significance is used. Some times, one per cent level is also chosen. More is the per cent, the higher is the chance for the rejection of a true hypothesis and vice versa

- One tailed and two tailed tests

Both the tests spell the confidence of the researcher in the findings. It reflects the truthfulness representation of samples for its population. Surely, there will be a deviation between the population mean and sample mean. If it is 5 per cent significance, it means there is a chance of rejection of true hypothesis in 5 out of 100 times.

A one-tailed t- test

It is used when testing for the possibility of the relationship in one direction and completely disregarding the possibility of a relationship in the other direction.. The one-tailed test provides more power to detect an effect in one direction by not testing the effect in the other direction.

Two-tailed t-test

When using a two-tailed test, testing for the possibility of the relationship in both directions is tested. The t value may take either positive or negative values.

(Kindly refer to your reference study materials supplied for detailed description)