



## HANDOUT #4

EM200 Methods of Research  
Engr. Reynaldo P Ramos, PhD

Saturday  
CED Building

### 1. STATEMENT OF A PROBLEM (RESEARCH QUESTION)

The construction of a problem is the basis of research because research deals with a problem to seek a solution. It is this statement of a problem directs the researcher to the path for solution which to be explored.

The difference between the statement of the problem and research problem is that: **research problem is concerned with the functioning of the broader areas of the field which is to be studied, whereas statement of a problem is the verbal form of the problem.** The statement of a problem is the definition of the problem which remains delimits the task of a researcher. To identify a problem, the researcher should: (a) determine the field of research, (b) select the field of his/her mastery and specialization, (c) review the research conducted in the area, and (d) consider the priority field of the study.

A statement of a problem should be stated clearly in an interrogative sentence of statement (question form) that asks what relation exists between two or more variables. A statement of a problem and hypothesis are similar: both state "relationships" but problems are interrogative and hypotheses are "declarative"; but hypotheses are more specific than problems which are usually closer to the actual research operations and testing (empirically tested).

Delimiting a problem means restricting a problem in terms of variables, area, sample, methodology, tools and techniques, and statistics. This is also based on some assumptions.

### 2. ASSUMPTIONS ABOUT THE RESEARCH PROBLEM

Assumption means taking things for granted so that the situations is simplified for logical procedure. It means "restrictive conditions before the argument can become valid. Assumptions are made on the basis of logical insight and their truthfulness can be observed on the basis of the data or evidences. The following are the major purposes of assumptions.

- a. It makes the research work feasible
- b. It delimits the scope of the problem
- c. It established the proper frame of reference
- d. It sets forth certain conditions of the study
- e. It aids in the development of testable hypotheses
- f. It helps in establishing the population and extent of generalization

### 3. FORMULATING HYPOTHESIS

A hypothesis is a tentative assumption drawn from knowledge and theory which guides in the investigation of the other facts and theories that are as yet unknown.

A hypothesis is not necessary to be stated in question form. It could be in a declarative statement; or it also connotes the expected direction in the relationship or difference between variables.

"Will there be any correlation between the scholastic achievement and self-concept of high school students?"

"There will be a significant difference between the self-concept and scholastic achievement of high school student."

"High intelligence students learn better than low intelligence students."



“The urban people are more fashionable than the rural people.”

“There is no significance relationship between intelligence and achievement of students.”

***Thus, hypothesis is a tentative generalization, the validity of which remains to be tested. It is a statement that explains or makes generalizations about a set of facts or principles, usually forming a basis for possible experiments to confirm its viability.***

#### **4. KINDS OF HYPOTHESIS**

- a. Question hypothesis – stated as a question (interrogative form)
- b. Declarative hypothesis – declares the relationship or difference between variables. It is merely a declaration of the independent variables effect on the dependent (criterion) variable
- c. Directional hypothesis – connotes the expected direction in the relationship or difference between variables
- d. Non-directional hypothesis – is much preferred than directional hypothesis because it ascertains (determines/establishes) that no relationship or no difference exists between or among the variables
- e. Null hypothesis – it states that no relationship exist between two or more variables
- f. Operational hypothesis – it depicts the relationship between the variables along with the information about the statistics and the tools to measure the variable

***NOTE: In experimental investigations, hypotheses have to be explicit (clear). They have to be expressed in comparative and correlational studies. While in descriptive and historical investigations, hypotheses are seldom expressed if not entirely absent. Thus, the subproblems or specific questions raised before the start of investigation and stated under the statement of the problem serve as the hypotheses. Overall, hypotheses are formulated from the specific research questions upon which they are based. Research question is a formally stated question intended to provide indications about something, and it is not limited to investigating relationships between variables (factors). Research question is generally used in situations where a researcher is unsure about the nature of the problem investigation.***

#### **LIST OF REFERENCES:**

- Ariola, M.M. (2016). *Principles and Methods of Research*, Manila, Philippines: Rex Book Store
- Calderon, J.F. and Gonzales, E.C. (2016). *Methods of Research and Thesis Writing*, Mandaluyong City, Philippines: National Bookstore
- Jha, A.S. (2011). *Research Methodology*, New Delhi, India: S.B. Nangia APH Publishing Corporation
- Tayle, S. (2005). *Research Methods and Writing Research Proposals*, Cairo: Center for Advancement of Postgraduate Studies and Research in Engineering Sciences, Cairo University.