

The research problem.

Educational research starts with the selection of a problem. Following are the fields in which one may look for problems for research:

- a. The classroom, school, home, community and other agencies are the obvious sources.
- b. Social developments and technological changes are constantly bringing forth new opportunities for research.
- c. Records of previous research should also be consulted. This includes encyclopaedia of educational research, dissertations and similar publications.
- d. Classroom discussions, seminars and exchange of ideas with the faculty members and fellow scholars and students will suggest many stimulating problems to be solved.
- e. Consultation with an expert, researcher supervisor, researcher guide or a senior scholar will also be helpful.

Criteria for good research problem.

- a. **Novelty.** The problem should be sufficiently original so that it does not involve duplication.
- b. **Interesting.** The problem should be interesting for the investigator himself. If the problem seems to him dull and boring, there is little hope that he would do justice to it.
- c. **Importance.** It should be significant enough. If it is not worthwhile, it would be in vain. It should add to the development of education as a discipline.
- d. **Feasibility.** The problem should be feasible or suitable for the researcher. He should possess the necessary competence, knowledge and understanding. He should be skillful enough to develop, administer and interpret the necessary data gathering devices and procedures. He should have good knowledge of necessary statistical techniques.
- e. **Availability of data.** The researcher should ensure the availability of valid and reliable data gathering devices and procedures. Only then will he be able to arrive at dependable conclusions.
- f. **Availability of cooperation.** Researcher must be sure that he will get all possible cooperation from spheres he is going to collect data.
- g. **Availability of guidance.** Researcher should select a problem where he could get guidance.

Formulation of hypothesis.

Educational research should make the use of carefully formulated hypothesis. This may be formally stated or implied.

Hypothesis. Hypothesis is the pre-assumptive statement of a proposition or a reasonable guess based upon the available evidences, which the researcher seeks to prove through his study.

Importance of hypothesis.

1. It provides direction to the researcher. It defines what is relevant and what is irrelevant.
2. It sensitizes the investigator to certain aspects of the situation which are relevant from the stand point of the problem at hand.
3. It is a guide to the thinking 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.
5. It prevents blind research. It also prevents indiscriminate gathering of data which may turn out to be irrelevant.
6. It places clear and specific goals before us. These clear and specific goals provide the investigator basis for selecting samples and research procedures.
7. It serves the function of linking together related facts and information and organizing them into one comprehensible whole.
8. It enables the investigator to understand with greater clarity his problem as well as the data which bear on it.
9. It serves as a framework for drawing conclusions.

Types of hypothesis. According to B. W. Tuckman following are the forms of hypothesis:

- a. **Question form.** A hypothesis stated as a question represents the simplest level of empirical observations. It fails to fit most definitions of hypothesis. It frequently appears in the lists. There are cases of simple investigation which can be adequately implemented by raising a question, rather than dichotomizing the hypothesis forms into acceptable/rejectable categories.
- b. **Declarative statements.** A hypothesis developed as a declarative statement provides an anticipated relationship or difference between variables. Such a hypothesis developer has examined existing evidence which led him to believe that a difference may be anticipated as additional evidence. It is merely a declaration of the independent variables effect on the criterion variable.
- c. **Directional hypothesis.** A directional hypothesis connotes an expected direction in the relationship or difference between variables. This type of hypothesis developer appears more certain of anticipated evidence. If seeking a tenable hypothesis is the general interest of the researcher, this hypothesis is less safe than others because it reveals two possible conditions. First that the problem of seeking relationship between variables is so obvious that additional evidence is scarcely needed. Secondly, researcher has examined the variables very thoroughly and the available evidence supports the statement of a particular anticipated outcome.
- d. **Non-directional / Null-hypothesis.** This hypothesis is stated in the null form which is an assertion that no relationship no difference exists between or among the variables. Null hypothesis is a statistical hypothesis testable within the framework of probability theory. It is a non-directional form of hypothesis.

Important conditions for formulating hypothesis. Following are some important points for formulating hypothesis:

- a. **Richness of background knowledge.** A researcher may deduce hypothesis inductively after making observations of behaviour, noticing of trends or probable relationships. For example, a classroom teacher daily observes student behaviour. On the basis of his experience and his knowledge of behaviour in school situation, teacher may attempt to relate the behaviour of students to his own, to his teaching methods, to changes in the school environment and so on. From these observations, relationships, the teacher may inductively formulate a hypothesis that attempts to explain in such relationships.
- b. **Versatility of intellect.** Hypothesis is also derived from deductive reasoning from a theory. Such hypotheses are called deductive hypotheses. A researcher may begin his study by selecting one of the theories in his own area of interest. After selecting the particular theory, the researcher proceeds to derive a hypothesis from his theory.
- c. **Analogy with other situations.** Analogy with other situations also leads the researcher to clues that he might find useful in the formulation of hypothesis and for finding solutions to the problems. Suppose a new situation resembles an old situation in regard to factor 'x'. This will greatly help the researcher to deal with factor 'y' and 'z'.
- d. **Conversation and consultation.** At times conversation and consultation with colleagues and experts from different fields is also helpful in formulating important and useful hypothesis.

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