Centre for Distance and Online Education

Punjabi University, Patiala

Class : M.A. 1 (Education) **Semester : 1**
Paper : III (Methodology of Educational Research-1)
Medium : English **Unit : 1**

Lesson No.

1.1 : Educational Research : Meaning, Characteristics, Scope, Purpose and Steps. Types of Research : Fundamental, Applied and Action Research

1.2 : Survey of Related Literature : Meaning, Need, Purpose, Sources and Techniques

1.3 : Areas of Research and Priority Areas of Research in India

1.4 : Research Problem : Its Selection, Definition, Statement and Sources

1.5 : Hypothesis - Meaning, Importance, Criteria, Formulation, Types and Verification

Department website : www.pbidde.org

PAPER-III METHODOLOGY OF EDUCATIONAL RESEARCH I

Subject code: EDUM1103T

Max. Marks: 100
External: 70
Internal: 30

(A) COURSE OUTCOMES

On completion of this course, the students will be able to:

- Conceptualize the meaning and process of research in education.
- Judge upon and chose an apt research method after consulting various sources.
- Sharpen the research problem and process.
- Analyze various strategies of conducting educational research.
- Identify various priority areas in educational research.
- conduct and organize a good review of related literature
- Formulate different types of hypotheses based on the review of related literature.
- Have apt statistical reasoning related to a research problem.
- Interpret results obtained through different techniques of analysis of data
- Draw generalizations on the basis of results of a research study
- Evaluate the quality of a research

(B) SYLLABUS

SECTION – A

Educational Research: meaning, nature, types, purpose, steps and limitations, Related literature: Purpose, sources and organization of related literature, Priority areas of educational research, Research problem: Its selection, definition, statement and sources, Hypothesis: its meaning, types, importance, formulation and testing.

SECTION - B

Quantitative measurement and levels of measurement, frequency distribution, graphical representation of data through frequency polygon, histogram, cumulative frequency curve, ogive, Measures of central tendency-mean, median, mode, Measures of variability — range, quartile deviation, standard deviation, Normal probability curve- itsproperties and uses.

(C) BOOKS RECOMMENDED

Aiken, L. R., & Gary, G. (2011).*Psychological Testing and Assessment* (12th edition). New Delhi: Pearson.

Anastasi, A., & Urbina, S. (2008).*Psychological Testing.* New Delhi: Prentice Hall of India Pvt. Ltd.

Best, J. W., & Kahn, J. V. (2010), *Research in Education*, New Delhi: Prentice - Hall of India

Pvt. Ltd.Cohen, L., & Morrison, K. (2002), *Research Methods in Education*, New York:

RoutledgeFalmer.

Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches.*

London: SagePublications.

Garrett, H. E. (2011). *Statistics in Psychology and Education* (11th Indian print). Chandigarh: VishalPublishers.

Koul, L. (2009). *Methodology of Educational Research* (4th Ed.). New Delhi: Vikas Publishing House Pvt. Ltd.

Koul, L. (2020) Methodology of Educational Research (5th Ed). Nodia: Vikas Publishing.Meenakshi, (1992). *A First Course in Methodology of Research*, Patiala: Kalia Parkashan.

Patnak, R. P (2018) Methodology of educational research. New Delhi: *Atlantic Publishers* & Distributors Sandhu, P. K. (2012). *Research in Education and its Implications*. Patiala: Publication Bureau of Punjabi University.Sansanwal, D. N. (2020). *Research methodology and applied statistics*. Delhi**:** Shipra Publications.

Sharma, Y. K. (2011). *Methodology and Techniques of Educational Research*. New Delhi: Kanishka Publishers andDistributors.

Singh, P. (2005). *Handbook of Measurment and Evaluation*. New Delhi: Doaba House,

Online Recourses:

- https://research-methodology.net/research-methodology/research-types/
- http://www.alzheimer-europe.org/Research/Understanding-dementiaresearch/Types-of-research/Research- methods
- http://archives.gadoe.org/DMGetDocument.aspx/Types.of.Research.Methods.SERVE%20Center.pdf?p=6CC6799F8C1371F6C790A38569315032FE8B3FDBE6A7D64BCE3B4886D72BD474&Type=D
- www.moshimc.go.tz/storage/app/uploads/public/.../5948ce2946762166969016.pdf
- www.studylecturenotes.com/social-research.../selection-of-research-problem
- https://en.wikipedia.org/wiki/Sampling_(statistics)

(D) EVALUATION

External Examination	**70 Marks**
Time	3 Hrs
Internal Assessment	**30 Marks**
Attendance	6
Written Assignment/ project work	12
Two Mid - term Examinations	12

(E) INSTRUCTIONS FOR THE PAPER-SETTER

The question paper will consist of three Sections: A, B, and C. Section A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. Section C will consist of 10 questions of 3 marks each which will cover the entire syllabus uniformly and carry 30 marks in all.

(F) INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the sections A and B and the entire section C.

M.A. (EDUCATION) SEMESTER-I PAPER-III

METHODOLOGY OF EDUCATIONAL RESEARCH-I

LESSON NO. 1.1 Author : Dr. T.R. SHARMA

Educational Research: Meaning, Characteristics, Scope, Purposes and Steps, Types of Research: Fundamental, Applied and Action Research

Structure of the Lesson

1.1.1 OBJECTIVES

After reading this lesson, the students will be able to:

1. Understand the meaning of research.
2. Explain the educational research.
3. Understand the characteristics of research.
4. Describe the scope of educational research.
5. Explain the purposes of research.
6. Understand the steps in educational research.
7. Describe the types of research.

1.1.2 INTRODUCTION

Research means careful search or inquiry after or for, to discover or collect old facts etc. by scientific study of subject, course of critical investigation (Concise Oxford Dictionary)

"Research is a careful inquiry of examination in seeking facts or principles, a diligent investigation to ascertain something", (Webster New International Dictionary). In simple words, research deals with inquiry, discovery, study, investigation and/or search. Inquiry may be into an affair like, leakage of a question paper, discovery of a new fact, new relationship between or among different facts, new interpretation of some formula or relationship, study of some ancient, medieval or modern development, investigation into problems and issues like mass failures or truancy and search for truth or reality or correctness of something, but all this is in objective and systematic manner and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles, or theories, resulting in prediction and possibly ultimate control of events.

1.1.3 EDUCATIONAL RESEARCH

If the field of inquiry, discovery, study, investigation, search or establishing new relations or interpretations of known laws or principles to new situation pertains to education it is called Educational Research, Georg. G. Mouly says, "The systematic and scholarly application of the scientific method, interpreted in its broader sense to the solution of educational problems or any systematic study designed to promote the development of education as a science can be considered educational research." Fuller meaning of research can be grasped, if we go over definitions of research by some celebrated scholars in the field of education.

1. Verma says : Research is not merely search repeated. Research is an intellectual activity which brings to light new knowledge and/or corrects previous errors and misconceptions and adds in an orderly way to the existing course of knowledge but re-statement of knowledge or experience is not research. Howsoever brilliant and original restatement can never be designated as research. Knowledge differs from experience in being orderly, systematic and insightful. In experience, we are simply exposed to

certain events or observations. They occur in their own haphazard manner. In research, such observations are ordered, they are analyzed to answer certain crucial questions and these answers are carefully stated. Scientific Research is increment of knowledge. Knowledge gained by research is the knowledge of the highest order. Such knowledge is scientific in the sense of being objective, impersonal and of the general validity. The knowledge which accrues from research is a matter of rational understanding, common verification and experience and is free from the researcher's personal subjectivity.

Research does not report facts, but seek to describe their generality and relationship in the time and space. It is the relations of the facts, their bearing on each other, their mutual interaction in the secondary and derived body of facts which the scientists try to describe.

Research does not mean mere acceptance of all that has passed for knowledge. It can equally reopen settled issues and offer new solutions. Research is thus no reporter of the past.

In short, research is the typical process by which scientific knowledge is advanced in an orderly manner by unitary quanta of sufficient size on the basis of previous knowledge and necessary assumption regarding the nature of the field. It is a highly specialized activity and so technical in nature that even the understanding of its results requires a high degree of proficiency in the subject concerned.

Research is a point view, an attitude of inquiry or a frame of mind. It asks questions which have hitherto not been asked and seeks to answer them by following fairly procedures.

1.1.4 MEANING AND DEFINITIONS AND NATURE OF RESEARCH

"Research is literarily speaking a kind of human behaviour an activity in which people engage themselves." By this definition, all intelligence human behaviour involves some research. In education, teachers, administrators scholars or others are engaged in educational research when they systematically (and purposefully) collect information about schools, school children, the social matrix in which school or a school system determined, the characteristics of the learner or the interaction between the school and the public.

Clifford Woody says "Research is not merely a search for truth, but a prolonged, intensive, purposeful search. Research comprises of defining and redefining problems, formulating hypotheses or suggested solutions, collecting, organizing and evaluating data, making deductions, and at last, carefully testing, reaching conclusions and to determine whether they fit into the formulating hypothesis."

Research is an urge, a seeking to know deeply, fully and correctly what is unknown to answer a question, hitherto unanswered or answer vaguely or incompletely, to solve a problem baffling the man through a systematic unbiased scientific process and to produce results which are variable anywhere by anyone and which may be formulated into a generalization.

According to Travels : "Educational research is that activity which is directed towards development of science of behaviour in educational situations".

Rummel explains: "Research is an endeavour over hundreds of verify knowledge. It is an intellectual process that has developed over hundreds of year, ever changing in the purpose and always in the search of truth".

Cook says: "Research is an honest exhaustive intelligent searching for facts and their meanings or implications with reference to a given problem.

R.M. Hutching: "Research in the sense of the development, elaboration, and refinement of principles, together with the collection and use of the empirical materials to aid these processes in one of the higher activities of a university and one in which all its professors should be engaged".

One may note in these definitions a similarity of opinion; the same thing has been said differently, In a nutshell we may that educational research is a scientific investigation or inquiry into hitherto unsolved or partly solved problems or unanswered, or partly answered questions, by individuals or group of individuals, institutions, based on carefully and objectively collected data, facts or evidence. Some essential attributes of research are as follows. They constitute what is known as "Nature of Research".

(a) It starts with a question or a problem

(b) It formulates hypotheses.

(c) It systematically and orderly collects facts, data or evidence connected with the problem or question.

(d) It analyses the data without bias or prejudice and establishes relations among various variables.

(e) It formulates generalizations and test hypotheses.

(f) It verifies conclusions and arrives at laws, and builds theory.

1.1.5 CHARACTERISTICS OF EDUCATIONAL RESEARCH

A perusal of definitions of research given in the foregoing pages reveals that research is an expert, systematic accurate investigation which starts with a problem proceeds towards collection of evidence as desired by the formulated hypothesis (hypotheses) through the use of reliable and valid tools and, after careful, unbiased analysis of collected facts very patiently and thoroughly, draws inferences, conclusions and generalizations suggesting solution of the problem in hand. John. W. Best has enlisted the following characteristics of research:

1. Research is directed towards a solution of a problem. It may attempt to answer a question or to determine the relation between two or more variable.
2. Research emphasizes the development of generalizations, principles or theories that will be helpful in predicting occurrences. Research usually goes beyond the specific objects, groups, or situation investigated and infers characteristics of a target population form the sample taken. Research is more than information retrieval or simple gathering of information.
3. Research is based on observable experience of empirical evidence. Certain interesting questions do not lead themselves to research procedures because they cannot be observed particularly in the field of philosophy and religion. Research rejects revelation and dogma as methods of establishing knowledge and accepts only that which can be verified by observation.
4. Research demands accurate observation and description. The researcher uses quantitative, numerical measuring devices, the most precise means of description. The researcher selects or devises valid data gathering instruments or procedures and employs appropriate mechanical, electronic or psychometric devices to refine human observation, recording computation, and analysis of data.

5. Research involves gathering new data from primary or first hand source or using existing data for a new purpose. Teachers frequently assign the so called research projects that involve writing a paper dealing with the life of a prominent person. The students are expected to read encyclopedias, books, or periodical references and synthesize the information in a written report. This is not research, for the data are not new. Merely reorganizing or restating what is already known and had already been written, valuable through it may be as a learning experience, is not research. It adds nothing to what is already known.
6. Although research activity may at times be somewhat random and unsystematic, it is more often characterized by carefully designed procedures and rigorous analysis. Although trial an error are often involved, research is rarely blind, shotgun investigation trying something to see what happens.
7. Research requires expertise. The researcher knows what is already known about the problems and how have to investigated it. He has searched the related literature carefully. He is thoroughly grounded in the terminology, the concepts and the technical skill necessary to understand and analyze the data that he gathers.
8. Research strives to be objective and logical, applying every possible test to validate the procedures employed, the data collected, and conclusions reached. It attempts to eliminate personal bias. There is no attempt to persuade or to prove an emotionally held conviction. The emphasis is on testing rather than on proving the hypothesis. Although absolute objectivity is an elusive as pure righteousness, the researcher tries to suppress the bias and emotion in his analysis.
9. Research is characterized by patient and unhurried activity. It is rarely spectacular and the researcher must expect disappointment and discouragement as he pursues the answer to difficult questions.
10. Research is carefully recorded and reported. Each important term is defined, limiting factors are recognized, procedures are described in detail, references are carefully documented, results are objectively recorded, and conclusions are presented with scholarly caution and

restraint. The written report and accompanying data are made available to the scrutiny of associates or other scholars. Any competent scholar will have the information necessary to analyze, evaluate and replicate the study.

11. Research sometimes requires courage. The history of science reveals that many important discoveries were made inspite of the opposition of political and religious authorities. The polish scientist Copernicus (1473-1543) was condemned by church authorities when he announced his conclusion concerning the nature of the solar system. His theory that the sun, not the earth was the centre of the solar system was in direct conflict with the older ptolemtic theory.

Modern researchers in such fields as genetics, sexual behaviour and even business practices have aroused violent criticism from those whose personal convictions, experiences, or observations were in conflict with some of the research conclusions.

1.1.6. SCOPE OF EDUCATIONAL RESEARCH

Scope of education has no limits. Likewise for research also only the sky is the limit. Neither education nor educational practices are an importable commodity. Education grows and develops in the soil of its origin. As such for every nation, for every region, for every discipline and for every individual, there is need for research in education suiting local conditions, needs, aspirations, capacities and cultures.

In the words of Walter, R. Borg, "although research is in its infancy, in a short span it has already produced much useful knowledge and brought great changes in educational practices and in the thinking of the educators." Therefore, research is the promoter of educational reform. What a wide field of work for educational research. P.V. Young has observed that the primary goal of research is to understand social life and thereby gain a greater measure of control over social behaviour. As such it is a controlling factor of social behaviour and control is much needed today.

Research provides better understanding of the teaching-learning process and the conditions in which it is most successfully carried out. In India, the process of teaching and learning which involves parents, teachers, students, curricula, evaluation techniques, values and so on has not been

properly understand and carried out. Hence the need for educational research.

Free, universal and compulsory primary education for all children upto the age of 14 has been provided in the Constitution of India, under article 45 of the directive principles. The promise made by the government was to be fulfilled till 1960 but we have not been able to achieve the goal so far, and are yet miles behind our targets. Only research has to answer the cause of his failure and suggest remedies.

Education is an activity, a process, a skill and this complex skill is based upon conceptual frame of theory. Knowledge of the factors involved in education is necessary if a task is to be successfully accomplished. Education therefore, has two sides of it, firstly the corpus of knowledge on which this activity called education is based and secondly the skill or the technique aspect of the work. In the corpus of knowledge, we include facts about the mind of the man, its growth and development, facts about its capacities or special gifts, facts again about is behaviour at large or in special situations and even facts about the educational policies of different countries. The size of knowledge is indicated by the existing literature on various aspect of this hydra headed subject and by the volume of research which is continuously in highly specialized research journals.

In its scientific aspect, education must study the data pertaining to it, viz. the child, the things to be learned and the process including the teacher, and it is research which will ensure such a study. So research is firstly to acquire knowledge about education and then educational process.

Education is a means of attaining certain objectives and these objectives gradually undergo changes. Therefore, if we conceive of education as a process, then in the changing social world constant revision of objects will be necessary. This revision cannot be considered without research.

In the third place, constant research is necessary in education to keep it from becoming a mere mechanical habit with both the teacher and learner. To maintain the vitality and resilience of the process of education, we need the encouraging principle of research.

Research is also needed when any new theory or principle is to be practiced on a large scale. As a pilot study, the new theories are experimented on a smaller scale. This also calls for research in education.

For example, Punjab introduced English as subject of study from primary classes w.e.f. 1998-99 session in all the 13000 primary schools. This should have been done first, on experimental basis in selected schools.

Finally, research has disciplinary effect on the personality of the researcher. It makes better man of him Firstly, it teaches him to distinguish between personal impression and verified objectives fact between opinion and knowledge. He comes to realize that truth is at the bottom of the well and is to be got at by trying carefully and conscientiously. It makes him sure-footed and he is not hasty in arriving at conclusions.

Research has good influence on those who engage in it. They develop an enquiring turn of mind. They have not merely a questioning mind but also questioning spirit and a hunger for scientific knowledge and a desire to add to it.

In the case of an ordinary teacher, research mind is merely a necessity because he must try daily to improve his techniques and methods of instructions and education and must periodically evaluate in the scientific spirit.

In the end, it must be said that the spirit of research is the characteristics of most useful human activities and things to cultivate for its own sake. Its finest flowering is seen of course, in its rigorous application to specialised fields of knowledge. In the field of Research India does not rank anywhere the first twenty nations of the worlds. Most research done in India is dubious, insincere and involving duplication and copying.

1.1.7PURPOSE OF EDUCATIONAL RESEARCH : The purposes of educational research fall into the following broad/groupings.

i) to gain familiarity with a phenomenon or to achieve new insights into the problems of education. Such type of research is also called exploratory research.

ii) to portray accurately the characterization of a particular individual, situation or a group of teachers, students, schools, colleges, universities etc. such type of research is also called descriptive research

iii) to determine the frequency with which something occurs or with which it is associated. The studies with this view are called diagnostic research studies.

iv) to test the hypothesis of a causal relationship between variables, such studies are known an hypothesis testing research studies.

1.1.8 STEPS IN EDUCATIONAL RESEARCH: Following are the basic steps of educational research :

1. Establishing a Research Problem : It involves identifying the field of enquiry, specifying the exact question, defining and delimiting its scope and evaluating its meaningfulness or worth in terms of individual, social and academic suitability criteria.

2. Hypotheses Making : This implies formulating of a number of tentative explanations or solutions which provide a potential answer to the question. In formulating hypotheses, the researcher should keep in mind that the hypotheses are tentative generalizations about the nature of the difficulty under consideration, calling attention of fundamental relationship or possible solutions.

3. The methods to be used : The selection of research method to be used is a important in research process. The research methods are generally, historical, descriptive, and experimental. The method used in the study is dictated by the nature of the problem and its requirements.

4. Data Collection : It refers to the nature of the sample to be chosen for study, selection and development of data, gathering devices such as psychological tests, questionnaire, rating scales, interviews, observation, check lists etc.

5. Analysis and Interpretation of Data : It includes selection of appropriate statistical and other techniques to be used for processing the data collected for study.

6. Reporting the Results : It is characterized by carefully formulated inferences, conclusions, or generalizations The researcher must be able to report his procedures, findings and conclusions in a concise form.

1.1.9 TYPES OF EDUCATIONAL RESEARCH: The basic types of research are as follows

1 Basic Research

2 Applied Research

Basic research is designed to add an organized body of scientific knowledge and does not necessarily produce results of immediate practical value. Applied research is undertaken to solve an immediate practical problem and the goal of adding to scientific knowledge is secondary.

The other types of researches are:

(i) Descriptive and Analytical : Descriptive research includes surveys and fact finding enquires of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. The researcher has no control over the variables, he can only report what has happened or what is happening.

In analytical research, the researcher has to use facts or information already available and analyze these to make a critical evaluation of the material.

(ii) Applied and Fundamental : Applied research aims at finding a solution for an immediate problem facing the society or an industrial organization whereas fundamental research is mainly concerned with generalization and with the formulation of a theory. The central aim of applied research is to discover a solution for some pressing practical problem whereas basic research is directed towards finding information that has a broad base of application and thus, adds to the already existing organized body of scientific knowledge

(iii) Quantitative and Qualitative : Quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity. Qualitative research is concerned with qualitative phenomenon i.e. relating to involving quality or kind. It aims at discovery the underlying motives and desires using in depth interviews for this purpose.

(iv) Conceptual and Empirical : Conceptual research is that which is related to some abstract idea or theory. It is used to develop new concepts or reinterpret existing ones. Empirical research based on experience or observation alone, without any regard for system or theory. It is data based research, coming up with conclusions which are capable of being verified by observation or experiment. This can also be called as experimental research. Here, it is necessary to get the facts at first hand, at source and

actively to go about doing certain things to stimulate the production of desired information. Empirical research is appropriate when proof is sought that certain variables affect other variables in some way.

(v) One time and Longitudinal Research : When research is confined to a single time period, is one time research whereas when it is carried over several time periods, is longitudinal research.

(vi) Field Setting or Laboratory Research : If the environment in which research is to be carried out, is a field or a big area is field setting research whereas if it is to carried out in a laboratory, is called laboratory research.

(vii) Clinical or Diagnostic Research : Follow case study methods or in-depth approaches to reach the basic casual relations. Such studies go deep into the causes of things or events that interest us using very small samples and very deep probing data gathering devices.

(viii) Exploratory or Formalized Research : It deals with the development of hypotheses rather than their testing whereas formalized research studies are those with substantial structure and with specific hypotheses to be tested.

(ix) Conclusions Oriented and Decision Oriented Research : In conclusion oriented research a researcher is free to pick up a problem, redesign the enquiry as he proceeds and is prepared to conceptualize as he wishes. Decision oriented research is always for the need of a decision maker and the researcher is not free to embark upon research according to his own inclination.

(x) Action Research : Stephen M. Corey is called the father of action research. Action research is applied research of a lower order. If fundamental research is highly specialized, rigorous procedure-bound activity dealing with formulation of theories and laws, and if applied research is less specialized, less rigorous procedure-bound activity dealing with testing of theoretical concepts in actual situations, then action research is only involves the application of steps of scientific method to classroom problem on a smaller sample by perhaps a single teacher without any constraints. Action research does not deal with obtaining specific knowledge concerning the subject involved in the study.

In the words of Stephen M. Corey, most of the study of what should be kept in the schools and what should go out and what should be added, must be done in hundreds of class rooms and thousands of American communities. The studies must be undertaken by those who may have to change the way in which they do things, as a result of the studies. Our schools cannot keep up the life they are supposed to sustain and improve unless teachers, pupils, supervisors, administrators and school patterns continuously examine what they are doing single and in groups. They must use their imagination creatively and constructively to identify the practices that must be changed to meet the needs and demands of modern life and courageously try out those practices that give better promise and methodically gather evidence to test their work.

"This is the process I call action research. I hold no special brief for the same, but it has some currency and is sufficiently descriptive".

The most important point is that classroom teachers and local supervisors would make better decisions and engage in more effective practices if they are able and willing to conduct research as a basis for these decisions and practices. The process by which practitioners attempt to study their problems scientifically in order to guide, correct and evaluate their decisions and actions is called action research.

Action research as the name suggests is research in the "Action", "Activity", "Deeds" and "Doings" involving teaching, learning, guidance etc. of Teachers. By doing research on his activities and actions he/she must endeavour to improve what he/she is doing.

Action research is intended to solve a practical problem faced by the teacher in the classroom. Action research approach seems to be appropriate and promising for all kinds of professional workers in education so long as their desire is to improve their own professional behaviour. Action research is not sophisticated or rule-bound. It does not call for a specialised training and precise apparatus. Its findings are based on small samples and are applicable on such samples alone. It affects quick improvement in teaching practices.

But action research is relatively of an inferior quality. George G. Mouly has rather reacted strongly against action research. He says, "Action research can become case of the blind leading the blind and the problem is further aggravated by the fact teachers generally are too close to their problems too

untrained in scientific objectivity to be rigorous and objective in their approach". In the Indian context Mouly is perhaps very correct

Short in text questions

What do you mean by research?

……

……

write the types of Research?

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1.1.10 Summary

In this chapter we will discuss about the research, their types Functions, purposes which is very important for educational process……

1.1.11 Key concepts

Research: research is the scientific method which means search again and again

Quantitative a n d Qualitative : Quantitative research is based on the measurement of quantity or amount. Qualitative research is concerned with qualitative phenomenon.

1.1.12: self check excercise

Q1) Research means inquiry, discovery, study, investigation and search. Yes/No

Q2) Research is based on observable experience of empirical evidence. Yes/No

Q3) Research never requires courage. Yes/No

Q4) In research, the emphases is on proving the hypothesis rather than testing. Yes/No

Q5) Stephen M.Corey is called the father of the action research. Yes/No

Q6) Action research is intended to solve a practical problem faced by the teacher in the classroom. Yes/No

Answer Key: Yes,Yes,No,No,Yes,Yes

1.1.13 SUGGESTED QUESTIONS:

Q1) Define Research. Discuss the scope of educational research.

Q2) Why is research necessary in the field of education? Give Example.

Q3) What are the different types of research? Explain the need of Action Research.

1.1.14 SUGGESTED BOOKS AND WEB SOURCES:

1. Aggarwal, J.C. : Educational Research, New Delhi: Arya Book Depot, 1976.

2. Best, John W. : Research in Education, New Delhi, Prentice Hall of India Pvt. Ltd., 1989.

3. Das-gupta, S. : Methodology of Social Science Research, New Delhi : Impex India 1972.

4. Meenakshi : First Course in Methodology of Research, Patiala : Kalia Parkashan, 1992.

5. Rush Robert, R. : Research in Education-An introduction, London University Press Ltd., 1992.

6. Tandon, B.C. : Research Methodology in Social Sciences, Allahabad : Chaitanya Publishing House.

1. en.wikipedia.org, 2. books.google.co.in

LESSON NO. 1.2 AUTHOR : DR. LOKESH KOUL

SURVEY OF RELATED LITERATURE : MEANING, Need, Purposes, Sources and Techniques

Structure of the Lesson

1.2.1 OBJECTIVES

After reading this lesson,the students will be able to:

1. Define the meaning of review.
2. Understand the importance of the review.
3. Explain the sources of related literature.
4. Describe the different types of techniques of related literature.

1.2.2 INTRODUCTION

The review of the literature involves locating, reading and evaluating reports of research as well as reports of casual observation and opinion that are related to the individual's planned research project. Survey of related literature means a careful perusal of researches already done and write-ups published or lectures delivered on issues directly or indirectly connected with the problem being proposed for investigation. It means having a

soaking into the waters of knowledge which has relevance to the study in hand.

1.2.3 NEED OF THE REVIEW

Research takes advantage for the knowledge which has accumulated in the past as the result or constant human endeavour. It can never be undertaken in isolation in the work that has already been done on the problems which are directly or indirectly related to the study proposed by a researcher. A careful review of research journals, books, dissertations, theses, and other sources of information on the problem similar to or related to the one being investigated is one of the important steps in the planning of any research.

1.2.5 PURPOSE OF THE REVIEW

Although the general purpose of the review is to help the research worker develop a thorough understanding and insight into previous work and the trends that have emerged the review can also have other advantages.

1. The review of related literature enables the researcher to define the limits of his research investigation. It helps the researcher to delimit and define his problem. The knowledge of related literature gives the researcher an up-date knowledge of the work which others have done and enables him to state the objectives clearly and concisely.
2. By reviewing the related literature, the researcher can avoid unfruitful and unless problem area. He can select those areas in which positive findings are likely to result, so that his endeavours may add to the knowledge in a meaningful way.
3. Through the review of related literature, the researcher can avoid unintentional duplication of well established findings. It is of no use replicating a study when the stability and validity of its results have already been established.
4. The review of the related gives the researcher an understanding of the research methodology with which his study is to be conducted. It helps the researcher to know about the size of sample, tools and instruments which proved useful and promising in the previous studies. Another advantage of the related literature is to provide an insight into statistical methods through which the validity of results is to be established.

5. The final and important specific purpose of reviewing the related literature is to know about the recommendations of previous researchers for further research which they have listed in their studies.
6. Related literature also provides the findings with which the researcher can compare and contrast his own findings.
7. Related literature itself is a part of research, it makes a useful chapter of the thesis.

1.2.6 SOURCES OF REVIEW OF RELATED LITERATURE

There are various sources from which literature for review may be obtained. These sources can be broadly classified into these heads. (1) Books and Text material; (2) Periodical Literature and (3) General references.

1. Books and Text Book Material

The most useful list of books published in the English language includes the Cummulative Books, index and Review Index and Books Review Digest. Subject Guide to Books Indicates that books are in print or press or are forth-coming books. National Union Catalogue is also useful for this purpose. There are a number of publications that locate specific reference which cover particular areas of knowledge. The Cummulative Book Index is Published monthly to provided the references.

"The sources of information in the social sciences" organized by subject areas and indexed by author and title, is another work that contains a comprehensive list of reference and monographs.

2 Periodicals

A periodical is defined as a publications issued in successive parts, usually at regular intervals and as a rule, intended to be continued indefinitely. These include Year Books Documents, Almanacs, the Cumulative Book Index, International Abstracts, Journals, Newspaper, Magazines, International Index to Periodicals.

Periodicals are generally placed in shelves in the periodical section. Their effective use is predicted on the sue of an index to identify the articles on subject matter under the study.

** Directly relevant is the Dictionary of Education, Carrter V.F Goode (New York; McGraw Hill Inc. 1959)

The Education Index has served as a comprehensive index of practically all publication in the area of education. These are;

(i) Education Index, New York, published monthly.

(ii) Canadian Education Index, Ottawa published by the Council of Education.

(iii) Current Index of Journals in Education New York, published monthly.

(iv) Index of Doctoral Dissertations International. Ann Arbor, published annually, Consolidates all dissertations accepted by American, Canadian and European Universities.

(v) Bibliographic Index, New York which indices by subject current bibliographies of published books and educational periodicals both in English and Foreign Languages.

Some of the Educational Journals:

(i) The Educational Trends.

(ii) Journal of All India Association for Education Research.

(iii) Population Educator

(iv) The Psychological Review

(v) Psycho-Lingua

(vi) Praachi journal of Psycho Cultural Dimension

(vii) International Educator.

3 Abstracts

Another types of reference guide is the abstract, review or digest. In addition to providing a systematized list of reference sources, it includes summary of the contents. Usually the brief summaries of research studies are given in the form of abstract e.g. Educational Abstracts in humanities.

ERIC Educational Documents Abstracts, Washington DC, is an annual publication which includes abstracts of all reports which appeared in "Resources in Education" for the year, Educational Abstract, psychological Abstracts and Sociological Abstracts include research studies in these disciplines.

4 Encyclopedias

Encyclopedias provide concise information on a number of the subjects

written by specialists. They provide a convenient source of information, and often include illustration and bibliographies. Only specialized Encyclopedias deals with restricted areas of knowledge.

Encyclopedia of Educational Research, New York is published, every ten years. It refers to important work on educational problems.

5 Almanacs, Handbooks, Year Books and Guides:

This general category of references include those publications that present rather detailed up-to date information on a variety of subjects, organized around a given theme. They are the types of reference that one consults to find specific information, often of a statistical nature. Generalized sources are listed first, followed by those with a more specialize emphasis.

World Almanaee's Book of Facts. New York : It is a source of miscellaneous information on various subjects. Handbook of research on Teaching, Chicago provides comprehensive research on teaching in depth and extensive bibliographies.

'Education year Book, New York : It is an annual publication which includes statistical data on major educational issues and movements with an extensive bibliographies and reference guide.

'Year Book of Higher education : It provides up-to information on all aspects of higher education in U.S.A., Canada and Mexico.

"Mental Measurement Year Book", Highland Park : It provides the most comprehensive summary on psychological measurement and standardized test inventories, it is published every four years.

6 Reference on International Education

This type of publication deals with education outside the United States.

"The World Year Book of Education' New York, it is issued annually and prepared under the joint responsibility of University of London and Teachers College of Columbia University. Each issue is devoted to some aspect of international education.

'International Year Book of Education' Geneva. This Yearbook presents English and French review of Educational development for the previous year in the United States, Canada and more than 40 countries. India stands included in the list.

'Educational Documentation Information. 'Geneva : It is a quarterly issue which provides short-descriptive articles on national, international institutions, documentation and research.

'International Handbook of Universities, Paris. This book describes universities and other higher institutions of learning in more than 120 countries of the world and British Common Wealth. It provides information about facilities, history, structure, academic year admission, scholarship degree programme, libraries, teaching, staff, publication and language of instruction. There is also publication 'Common Wealth Universities yearbook' Edinburgh which provides information of Universities in 23 Common Wealth Countries.

'Higher education in Developing Countries', Cambridge : It is a selected bibliography of students, politics and higher education.

7 Specialized Dictionaries

There are specialized dictionaries of education which include terms, worlds and their meanings.

Dictionary of Education, New York : this educational dictionary covers technical and professional terms. Foreign educational terms used in comparative educational writing are also included.

Government in India has also prepared a 'Dictionary of Education' which includes meanings of technical and professional terms from English to Hindi.

The educational worker often needs information about another educator or a prominent person outside the field of education. This information is essential to conduct an educational research, it requires biographical references.

8 ERIC (Educational Research Information Centre)

The current knowledge explosion makes selective data retrieval the key of research enterprises as well as to effective educational practices. The major developments in this regard as they related to the educational literature are ERIC (Educational Research Information Centre) and SRIS (School Research Information Services). ERIC is an attempt to facilitate information exchange and to increase the value of research to the educational community by simply making its results readily available in

usable form. A related service in SRIS was initiated to provide ERIC type coverage of educational materials.

In our country, NCERT has established a separate ERIC cell to facilitate educational research.

9 Microfilms

The development of the microfilm has been one of the most significant contributions of library services that provide economy and convenience in the storing and displaying scholarly material.

A microfilm is a sheet of a film that contains micro-images of printed material. A copy of film 4"x6" card carries the material of the hundred printed pages 9"x11" size. There are many document reproduction services that supply microfilms to libraries upon special order.

Super and Ultra Microfilm is the development in the field of micro-printing. It has transformed the process of storage of published material for libraries of the future. A super microfilm has been developed that contains upto 1000 pages of printed material on a single 4"x6" transparent card, the equivalent of two or more books. And even more spectacular development in the ultra-microfilm or micro fitche that contains upto 3200 micro dots on single card 4"x6". When projected, each dot contains the equivalent of several pages. Thus seven to ten volumes can be included on a single 4"x6" transparent card, Reader printer makes hard copy printout of any pages in a few seconds.

10 Dissertations and Theses

The theses and dissertations, which embody the bulk to present educational research, are usually housed by the institutions and universities that award the authors their degrees. Some times these studies are published in whole or in part in educational journals. The related dissertations and thesis are the main of review of literature. The entry dissertations and thesis in the issue of the bibliographic index is the most comprehensive listing of sources of the research in progress.

11 Newspapers

The current newspapers provide upto date information and speeches, reports conference material, new development's in the field education. Current events and educational news are also reported in newspapers.

News is also one of the important source of review of literature.

Exploring the literature moves a researcher to the frontiers of knowledge where he can evaluate new findings in his field. He finds gaps in knowledge and contradictory findings and is thus able to identify needed research. He will be familiar with methods and bibliographies that may prove useful in his own investigation.

1.2.7 TECHNIQUES OF REVIEW OF RELATED LITERATURE

The non-expert should begin by reviewing the conceptual literature, for it is more comprehensive than research literature and will provide a better over view of issues. An excellent place to begin with is the general text in the problem area, in an encyclopedia or review of recent works. In education, we have excellent general texts, in almost all areas, as well as general encyclopedias like the encyclopedia of Modern Education and the Encyclopedia of Educational Research, and more specific works like the Encyclopedia of Child Care and Guidance or the Yearbooks of the National Society for the study of education.

When the research problem has been specified, the researcher should take stock of his reading to date, particularly appraising its relevance in the light of the newly specified research problem. He would like to ascertain whether the conceptual literature already reviewed provides a through conceptual framework for the specific problems that he has now decided upon, or whether further work is needed in the conceptual literature, he may have to move on to new research literature, begin to see what, where, and how of previous research on his specific research problems.

We in education are fortunate in having available several basic tools to use for reviewing professional literature, such as Education Index, Child Development Abstracts, Psychological Abstracts, Sociological Abstracts and parallel tools such as the cumulative Book index, and the Reader's guide to periodical literature.

In fact, there are guide books on how to locate education information. These are the most frequently used indexes and abstracts with a brief summation of the main function, purpose and organization of each. The researcher not already familiar with all these sources should make it a point to become familiar with each of the sources listed, since at some point in most of the research, any or all of them might be useful.

The non-expert begins this phase of his review by using the index as abstract most relevant to his problem area. For example, for the researcher interested in developing a research project in the area of teacher-education in elementary school, the most relevant index is the Education index. As noted in the list above, this is an alphabetical topical index issued every month which lists under each topic recent relevant books and journal articles, the non-expert would take a specific problem on teacher-education, listing several related terms like "teaching-practice", "criteria of admission" and identifying teaching skills and go to the Education Index, pick up the most recent bound volume, look under these headings and copy every title appearing there which seems to have relevance for the problem.

1.2.8 SOME HINTS FOR MAKING REVIEW OF LITERATURE

Some hints are provided here on how to review the literature. Firstly, additional library sources will be helpful such as specialized dictionaries** and biographical references. The dictionaries, of course, are most useful in formulating research definitions, in making certain that we understand that all the concept that we discover in the literature. It is a good policy to verify our understanding of all important terms and concept, even those with which we are familiar. We may have enough grasp of a term to use it in conversation yet we may not understand it enough to use it in research. The listing of these and dissertations provide the most complete and current contact with a large part of the research done in colleges and universities, much of which is not published and thus even indexed or abstracted.

A second hint is to realize that reviewing the literature is essentially the library phase of the project, and so we must become thoroughly conversant not only with the way in which libraries in general function, classify and catalogue, but also with the way in which the specific library in which we work does these things. Obviously, we must be thoroughly familiar with the general catalogue and library of Congress cataloguing system. The simplest procedure is to thoroughly familiarize ourselves with the rules and techniques of the libraries in which we shall do our bibliographic research. Most libraries have staff available to give an overview of the procedure and rationale by which the library material is catalogued and organized, and we should take advantage of this facility. Trial and error at this stage is needless, wasteful and should be avoided.

The third, hint is to recognize that there are only two criteria for good bibliographic research, namely accuracy and consistency. Therefore, from the very beginning of the review of literature it is necessary to being recording the essential information accurately and in exactly the same way.

A fourth hint is to copy direct questions and not paraphrases or an author remarks on the bibliography cards. It is impossible at the early stages of research to know in what form we will want to use an idea abstracted from the literature. If we have it transcribed directly, we can use it later in our report either as a quotation or even as a paraphrase. If, however, we only paraphrase it in the first instance and later want to use the whole quotation we have to make a wasteful and unnecessary trip back to the library, when quotation is put down on the bibliography card, we should be certain to note the page number of the book or journal on which it appears, this will be needed in referring to the quoted remark.

Through this library phase of the research, we should be overcomplusive in our-note taking. If we err, it is far better to err on the side of writing too much than on the side of writing too little. Later on, it is not possible to consult the library as the time left is precious and is needed for activities like data analysis and report writing. There is no time to return to the library to simplify some note or to verify a half remembered quotation. We should at every stage of the project, make a note and keep a record of every information seeking activity in which we engage. This includes correspondence, conversations and discussions appropriate techniques or methodology with consulting experts. Remember that until the research project is completed and the report written, it is impossible to know what will not ultimately prove to have relevance.

We should also be aware throughout our work on the literature that we have to recognize the material obtained through the review under different subheads. This means that as we keep in mind what we seek seven major areas of information :

1. Support for the need of study, its success potential, and its potential significance.
2. Delineation of the major theoretical points of view.
3. Summary of research results.

4. Clue for the hypotheses of the proposed study.
5. Rationale for each hypotheses.
6. Definitions, assumptions and limitations of the proposed problem.
7. Clues for methodology and instrumentation.

Final stage of the review of the literature is to write the report or the chapter-out line based on the review. There are two reasons why at leasta draft of this material should be written immediately after the review is completed. First of all, our thinking is fresh and complete. It may be astonishing to know how we forget when we delay writing, second the review is the foundations on which we build the structure of our study. By writing it at an early stage, we achieve the precisions which is very much needed in any research. With this achievement, we are ready to move onthe next step of research - process. It is very wrong policy to review the literature after completing the research.

(a) Suggestions for Library Use

Educational research studies can be classified into two categories, library research and field research. Philosophical and historical researches are known as library research in which review of literature is considered as method of research. Experimental research is the field research in which review of research is considered as an inquiry or technique research. In both types of studies, library is used for review of literature.

For the use of library effectively it is necessary to take notes and to sit for a longer time. For this purpose the students make use of such facilities as are available in the libraries.

The following facilities are available in all good libraries.

1. Typing facilities at nominal charges are these for the research scholars.
2. Photostat facilities for obtaining copies of maps; charts, diagram and of the figure or tables.
3. Dictating notes directly from references into a portable tape recorder for transcription later at one's own convenience.
4. Inter library loan facility. The research scholar can request the librarian to get on loan reference or unpublished thesis form another university library.

(b) Note taking

It is an art which can be acquired by practice and persisted effort. The following precautions are to be taken while taking notes from a library.

1. The researcher should be well acquainted with bibliography, reference, foot notes and notations used for reporting a research work e.g. Ibid, op. cit, loccit journal no, vol. etc.
2. The library notes should not be taken on note books or loose papers. We should make use of cards measuring 3"×5" or 4"×6"
3. We should see that the card includes only one topic or one reference or one study.
4. At the top of the card, library number should be noted down, after the author or editor, year of publication, title of the book or journal, publication edition or number and volume should be written.
5. Each card when ready should be fitted under a definite heading or topic marked at the top of the card.
6. Notes should be completed, legible and understandable, no gaps should be there.
7. Direct quotation should be carefully acknowledged.

(c) Precautions in Library Use

The following precautions are to be taken while making use of library for review of literature:

1. Avoid intellectual dishonesty and guard against the temptation of copying. Acknowledge the material you borrow from another work.
2. Guard against being conditional by the view-point of an earlier investigator and the temptation of blindly following his procedures.
3. No study needs to be repeated under similar conditions in a bid to secure an adequate check on the results of the first investigation.

Normative survey type of research, which deals with current conditions may be replicated at regular intervals in order to see the effect of change and developments.

4. Merely listing of pervious studies without reviewing them or without giving critical comments is not enough. A very brief of each

investigation, giving at least the results, method and sources of data and the year of research must be provided.

5. It is always helpful to arrange previous studies in chronological order so that the growth of the field is clearly known to researcher and readers.

6. A research should have a good group of library procedures which can be classified into three aspects;

(a) Preliminary Reading: for a bid's eye view of the whole thing

(b) Critical Reading: The references and the material which seem useful as a result of Preliminary reading are noted down and read and evaluated critically.

(c) Completion of Bibliography: The bibliography of references which are significant for the study should be read carefully and noted down systematically.

(d) Reporting Review of Literature

Generally, review of literature is reported in the second chapter of a thesis or dissertations. The purpose of reporting the review of literature is not to write down research abstracts one by one. The following procedures should be followed in reporting.

1. The researcher should be through the collected research studies. He should make an attempt to exhaust all sources of the related literature. He should then evolve a criterion for classifying the studies. The usual or traditional classification is - studies conducted abroad and studies conducted in India. The educational researches can be classified; according to the educational level (primary, secondary and college); or on the basis of variable of the study. Any classification that is logical, systematic and consistent will do.

2. After evolving a classification, these studies are arranged according to criterion. The review of each type of studies should be reported separately.

3. At the end of the review of literature, he should try to summarize in order to give a global picture of all the studies. After that he should relate his study to the studies reviewed and evolve gaps, if

any. In the end, he should show that his study is a derivation form these studies that is to supplement these studies or it is to fill up the gaps left by these studies.

(e) Suggestion for Reporting Review of Literature

The review of the literature is a continuing process. A researcher begins the review of literature even before selecting his problem of research. The review of the literature generally helps in identifying and selecting a new research problem. If the researcher has selected a problem on his own or as suggested by some expert, even then he has to review the related literature in order to finalize his own, delimit or word his own problem. After selecting and defining a problem, he has to formulate hypotheses for the problem. The review of the literature provides a rationale basis for these hypotheses. The review of method, sample, tools and statistical techniques is also obtained from the review of the studies. Again, the results and findings are discussed at length with the help of the review. The finding of earlier study may support his formulations or contradict them. He has to advance convincing reasons for it. Thus, the review of literature is put into use right form the stage of selecting the problem to that of reporting the findings of the study.

Another thing is that knowledge is increasing or advancing rapidly and research studies are on-going processes. A research scholar should remain in touch with the literature in the field throughout the period of his research so that he is up-to-date at the time of reporting review of literature and discussing his findings.

Short in text questions

Q1. What is mean of literature of review in research?

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……..

Q2. Write the sources of literature of review?

……

……..

1.2.9 Summary

In this lesson we talk about the literature of review in research. We discuss about sources, technique of literature review. The review of the literature provides a rationale basis for these hypotheses. The review of method, sample, tools and statistical techniques is also obtained from the review of the studies.

1.2.10 Key concept

Sources of related literature : (1) Books and Text material; (2) Periodical

Literature and (3) General references.

Techniques of related literature: education are fortunate in having available several basic tools to use for reviewing professional literature, such as Education Index, Child Development Abstracts, Psychological Abstracts, Sociological Abstracts and parallel tools such as the cumulative Book index, and the Reader's guide to periodical literature.

1.2.11 self check questions

Q1) The review of Related literature enables the researcher to define the limits of his research investigation. Yes/No

Q2) The survey of related literature helps the researcher to avoid duplication of well established findings. Yes/No

Q3) Books,periodicals,abstracts and encyclopedias are the examples of sources of review of related literature. Yes/No

Q4) Microfilms and newspapers are not the examples of sources of review of related literature. Yes/No

Q5) Techniques should be used for reviewing the related literature. Yes/No

Q6) The review of related literature involves locating, reading and evaluating reports of research. Yes/No

Answer Key: Yes, Yes, Yes, No, Yes, Yes

1.2.11 SUGGESTED QUESTIONS:

1. What is the importance of Related Studies in Educational Research ? Illustrate by stating a specific research problem as to how the review of the related literature can be helpful at various stages.
2. Describe the techniques which a researcher should adopt, to locate select and utilize the primary and secondary sources or information available in the library.
3. What library skills are required for a thorough survey of literature related to a research topic in education
4. Briefly discuss the various sources of Review of Literature.

1.2.12 SUGGESTED BOOKS AND WEB SOURCES:

1. Ary. D., Lucy C. Jacob and Asghar Rozavish, Introduction to Research in Education, New York: Holt, Rinehart and Wiston Inc. 1972.
2. Best, John W., Research in Education, New Delhi: Prentice Hall of India Pvt. Ltd. 1977.
3. Borg Walter Rand Gall M.D,Educational Research An Introduction Longman Inc.1560 Broadway, New York, 1983
4. Highway, T., Introduction to Research, Boston Hou Ghton Miffin Co. 1964.
5. Koul, Lokesh, Methodology of Education Research. Vikas publising House Pvt. Ltd. 1984.
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7. Travers, Robert M.W. An Introduction to Educational Research, New York: Macmillian publishing Co. Inc. 1978.
8. Turny, B and Robb, George, Research in Education : An Introduction Illionis : The Cryden Press Inc. 1911.
9. Van Dalen, Deoblod B Understanding Education research . New York McGraw Hill Books Co, 1973.

1. www.ehow.com 2.www.kidsgrowth.com

M.A. (EDUCATION) SEMESTER-I PAPER-III

METHODOLOGY OF EDUCATIONAL RESEARCH-I

LESSON NO. 1.3 Author : Dr. LOKESH KOUL

Areas of Research and Priority Areas of Research in India

Structure of the Lesson

1.3.1 OBJECTIVES

After reading this lesson,the students will be able to:

1. Understand the areas of research.
2. Define the most priority area: Universalisation of primary education.
3. Explain the need of Vocationalisation of education as an area of research.
4. Describe the field of Population Education.
5. Define the environmental education.

1.3.2 INTRODUCTION

The selection of problem suitable for research in education requires the researcher to identify the field in which he is able to make the most successful contribution. For this he should be well acquainted with the fields of education in which research can be made in terms of the content of research which consist of educational, psychology, philosophy of education, sociology of education, economics of education, comparative education, educational measurement and test development, curriculum construction, teacher education, educational technology, guidance and counselling, and educational administration and supervision and so on. The field of research in education also lies in the ladders of formal education. viz. pre-primary education, primary/elementary education, secondary education, higher education and adult education. Another important field is that of educational finance and planning and administration. Let us discuss these areas one by one.

1.3.3 AREAS OF RESEARCH

(i) Educational Psychology

Research in educational psychology has a great utility for teachers and educational administrators. The teacher has to understand the child to whom he is teaching, understand the teaching-learning process and constantly strive to improve his method of teaching. The usefulness of various theories of learning for designing conditions that produce effective learning in schools has been the central theme of researchers in recent years. There is need for research to find out the conditions conductive to effective learning, to delineate factors such as intelligence, aptitudes, creative abilities, attitudes, values, motivation, personality traits, need and adjustment of pupils etc., interests and all these are promising fields of research in psychology. The factors of home, society and culture that affect child-development, growth and learning also need research.

The problems arising within and outside school, which influence the effectiveness of the teacher in his task of improving situations are of great importance for a classroom teacher. The fundamental process for perception, learning and motivation and their application to the classroom situation need to be studied. The research in the methods of bringing up the child is important for understanding proper growth and development of

children. The research in the area of exceptional children is again of great significance. It includes the study of all children who are either handicapped in some way or are gifted. The handicapped children may include the physically handicapped, the mentally handicapped or the socially handicapped. Among the socially handicapped are the destitute and the delinquents. The gifted children are fast learners and exceptionally bright and have very high general mental ability or special abilities. The study of all such children is essential for determining ways and means of their proper location, care, rehabilitation, education and guidance, both from the individual and the social points of views. Research may be conducted in job information, careers and openings available for juvenile offenders, so that they can be suitably rehabilitated in the society to which they belong. For their education, training and up-bringing of such children, we need teachers who have certain special abilities, interests and personality traits and therefore, research is needed for finding out the means for selecting and training of such teachers.

The research findings will be helpful in finding out the ways for early identification of gifted children and the creative genius so that they are educated properly, and they grow at their own speed.

(ii) Philosophy of Education

With the changing political, social and economic values and with the impact of the modernization, we have think of the objectives of education that would suit our present-day need. The theory and practice of education can never attain perfection unless they are based on sound footing on a systematic philosophy. In view of the demand of a sound philosophical foundation of education, there is an imperative need for undertaking research into the various problems pertaining to different dimensions of philosophy viz. ethics, epistemology and metaphysics.

There is need for the development of a philosophy of education from the Indian stand-point as well. The aims and means of education are to be educational from the point of view of Indian concept of life. There is also a problem of value-crisis in India today and it is because of this problem that our entire system of education is drifting towards aimlessness. In this context, bold research efforts are needed so that educators in the country will rise to task of the reconstruction of national scheme of education and

its objectives of making a critical and through examination of the present set-up of values.

(iii) Sociology of Education

Due to quick and continuous spread of education in India, children from families of widely different socio-economic strata come together in our classroom; do their social interactions among themselves and with the objective of talking suitable measures for setting proper social relations which in turn lay the seeds of an egalitarian society that we wish to establish. Sociology is thus getting more importance these days.

(iv) Economics of Education

The major objective of research in the field of the economics of education is to apply effectively the relevant economic analysis to the field of education with a view to raise efficiency of educational system at different levels and to identify the role of the education in social and economic development of the country. Research studies aiming at determining the pattern of educational expenditure at various levels, grant-in-aid, capital outlays, unit costs and opportunity costs need to be conducted. There is also a need for economic evaluation of various educational programmes undertaken by the state and central governments. These include agricultural education, vocational education, adult education, and extension education.

(v) Comparative Education

Comparative study of educational system of various countries is a fruitful areas of research. Different parts of the world have come closer because of the conquest of space and distance. Due to this fact, peculiarities of particular system of education are fast disappearing and the problems of education are becoming common to almost all the countries. The attempted solutions might differ in their texture but the purpose behind these attempts remains essentially the same problems like education and national development in terms of economic growth, problems of education and reorganization of curriculum, the role of universities, comparative perspective needs to be undertaken.

Comparative research programme at the national level can be undertaken to cover all the states and union territories for the purpose of comparison, while the state level programmes can be confined to the comparative study on one or two other states, preferably the neighbouing states which have a

cultural affinity. In this context, inter-state studies in grant-in-aid system and administrative patterns would be fruitful. It is worth while to ask why Kerala has 100% literacy and Bihar has only 40% literacy.

(vi) Educational Measurement and Test Development

The main objective of educational measurement is the quantification of certain educational outcomes in the form of acquisition of certain attitude, behaviours and attainment in different subjects of study. This quantification is done with the help of tests measuring intelligence, aptitudes, personality traits, values, creative abilities achievement etc.

Research in educational measurement and test development is concerned with the critical evaluation of the existing forms of tests and the construction and standardization of valid and reliable tests for measuring the educational outcomes of teaching specific and outcomes of various educational activities.

Written examination and tests have commonly been used as the chief evaluation device and have dominated our educational system to a greater extent. These are often considered as the sole criterion for judging a student's competence for various activities. But the evils of the examination system in our country are too well known to be over emphasized. The crucial question, therefore, is not of the abolition of this system, but of making it a step in the process of teaching and learning. It is from this point of view that a number of examination reforms in the form of innovations have been suggested by various committees and commissions. It would be worth while to study the nature and effectiveness of these innovations at different levels of instructions. The U.G.C. has set up Examination Reform Centres in some Indian Universities and these centers have been working now for over ten years. Research is needed to find out their effectiveness if any.

(vii) Curriculum Construction

There are some areas of curriculum in which research is needed. One of these concerns is with the structure of subject matter of Mathematics and History. It is worthwhile to evolve simple and well-defined structures in various subjects of study that could be taught at particular age and grade-levels. Another area is concerned with the development of the techniques for making analysis of various psychological demands placed on the learner.

The learning of subject matter also falls within the area of curriculum research. General principles of curriculum construction, analysis of curriculum in various subjects, organization of curriculum adoption of curricula to the local needs, effects of the examination on curriculum organization, adaptation of curricula to children's mental abilities and physical development, analysis of text books, concept development in various subjects, effectiveness of various teaching methods, human relations curriculum development, study habits, duration of school work, revision and modernization of curricula are some important aspects of curriculum research mentioned in a UNESCO bulletin in (1951). In view of the changing social conditions in India, there is an urgent need to change the existing curriculum so as to make it more suitable to the needs of student at different levels of instruction. It is only through research that we are able to assess the needs of students and devise an effective curriculum. The curricula prepared by NCERT have been tried in many states. Time is ripe now to find how will or why they have been received.

(viii) Teacher Education

The task of identifying meaningful and measurable criteria of teacher effectiveness is crucial in the field of teacher education, especially when there seems to be no unanimity among researches on the criteria of teacher success or effectiveness. Teacher effectiveness is fundamental to all education and hence more research is needed in the field of teacher effectiveness so as to provide some criteria regarding the assessment and predictability of teacher effectiveness.

The course of teacher preparation in training colleges need changes in view of the new goals set by the society for the teacher. More research in the goals of teacher education and in the means of achieving those goals in terms of revised curriculum, syllabi and programmes is essential for the qualitative improvement of teachers preparation. Sufficient research is also needed with a view to bringing about modification to teaching behaviour through the use of interaction analysis, micro-teaching and simulation and such other modern teaching techniques.

(ix) Educational Technology

The term 'educational technology' refers to the software and hardware approaches towards providing instruction to children and adults. The

software approach is closely associated with the development of the self study teaching material like programmed texts, learning packages etc. The hardware approach stresses the use of motion picture, tape recorders, projectors and computers in the teaching learning process.

The development of software and hardware, their impact on the learning of students suggests various other important areas of research. Some research is also needed in different components of teaching-learning process viz. instructional objective, entering pupil behaviour, instructional procedures and evaluation of terminal behaviour of children.

(x) History of Education

The research in the field history of education is of immense importance because any aspect of educational lends itself to historical research. For example, we may trace the beginning and development of Basic Education in our country or study historically the development of nursery, primary, secondary, university or teacher education. We may also study histories of different aspects of education, such as history of examination system, public schools of national education etc. Historical research fills us with pride and acquaint us with our past and inspires us for further effort.

(xi) Methods of Teaching

There are some old, current popular and certain new or modern methods of teaching a subject. Constructive experiments and evaluation and criticism of a particular method of teaching or comparative and critical evaluation of two or more methods of teaching the same subject are necessary for improvement in the class teaching. For example, the effectiveness of the structural approach of a foreign language like English, can be compared through experiment with that of the traditional grammar-translation approach or the effectiveness of the discussion method of teaching a topic can be compared with that of the lecture method. As technology advances, teaching methods also register change. To quicken the process of change research is a sine-que-non.

(xii) Pre-primary Education

Pre-primary education in India has attained significant importance after independence. Research has shown that children, who have been to pre-primary school show better achievement at the primary school stage. Pre-

primary education has also been found useful for working mothers and children coming from slum areas and poor families. Therefore, research is needed to explore ways and means of providing pre-primary education more effectively and at a large stage by the government and other voluntary agencies to all types of children.

Some people are of the view that pre-primary education should be completely entrusted to private sector while others think that the responsibility for it should be largely assumed by the state. Research is needed to make a comparative study of the two points of view, taking into consideration the role played in education by the public and private sectors in the developing and the developed countries and the question of finance. The problems relating to the existing pre-primary school need to be investigated. Research will help in providing training facilities to pre-primary education. The problems relating to the objectives, curriculum, methods of teaching, and evaluation of children's performance at pre-primary stage need to be thoroughly investigated. Research is also needed in the financial and political dimensions of this stage of education.

(xiii) Primary Education

The Directive Principle contained in Article 45 of our constitution provides free compulsory and universal primary education to all children in the age group of 6-14 years, but inspite of efforts made by the government, the Constitution Directive has remained unfulfilled, and there is a constant demand that the states should make every possible effort to hasten the process of universal primary education. The research in the problems relating to primary education thus assumes special significance. The problems relating to children not attending the school, the causes that prevent their enrolment in schools, and the manner in which an educational programme could be organized for them should be explored. The causes of absenteeism of children, which threatens to fulfill the very purpose of opening large number of primary schools, is to be studied separately. Why is primary education not succeeding is an important question and need research and scientific exploration.

Case studies of truants need to be prepared to arrive at the cause is that prevail most commonly, with a view to eradicating those causes and making primary education more attractive and acceptable. Such researchers will

provide sufficient information about the nature of absenteeism and will also suggest remedial measures to meet them. Some research is also needed to investigate into the causes of wastages and stagnation among children belonging to different castes and regions especially the children belonging to socially and economically deprived groups. The success and effectiveness of part time education through non formal channels for the children coming from poor families may also be investigated. The selection procedures of candidates seeking admissions into teacher training institutions at primary stage as the relevance or the curriculum of these institutions need research. Research is also needed to study the service and working conditions of teachers at the primary school stage. The greatest need is to check the Drop-outs only research can answer the question "How"? The recent most question to be answered is how to make education a fundamental right a reality after 93rd constitutional amendment.

(xiv) Secondary Education

Secondary Education is concerned mainly with education of students of classes IX to XII. It covers the adolescent period of life which is full of stresses and strains. The research relating to this difficult, though important period could largely contribute to understanding of their education and be helpful in introducing some desirable changes in correct understanding of their education and be helpful in introducing some desirable changes in secondary education. The introduction of work experience at the secondary school stage has created a lot of problems. Therefore, some research studies should be undertaken to explore the implications of the work experience.

The utility of religious education and social service activities in the secondary school curriculum may be studied to assess their impact on the character development of students. Research into such aspects of part-time education, curricula, methods of teaching orientation of teachers for part-time courses, methods of consideration of time and funds, and utility of research problem.

1.3.4 PRIORITY AREAS OF RESEARCH:

Main Priority areas of research are:

1.3.4.1 Universalisation of Primary Education

This is an area of utmost priority. How can we provide primary education to

all children? The evaluation of existing programmes and schemes like Sarv Siksha Abhiyan, education for all and DPEP etc. is needed.

1.3.4.2 Vocationalisation of Education

Inspite of all our efforts we have not been able to vocationalise education at Secondary level. Most of the students prefer academic stream. There is an urgent need to find ways and means through research to encourage vocationalisation of education at secondary level.

1.3.4.2 Adult Education

This is another priority area of research. Through educational research we should know about educational needs of adult and problems/obstacles in the implementation of adult education programmes.

1.3.4.3 Women Education

Women literacy is low as compared to the men. Girl child is being discriminated in all spheres of life including education. There is a utmost need to locate real causes for this and find solutions.

1.3.4.4 Population Education

Education can help to control the population of India. Population is the mother of major problems of the country. Educated people have positive attitude towards small size family. How population education can be given?, at what level and what type of curriculum should be introduced ? All such questions need answers through research.

1.3.4.5 Environmental Education

There is an urgent need to protect the environment and education can play vital role in this regard. Therefore, there is an urgent need for research in this field.

The other priority areas of research are value education, special education, education of SC/ST and other deprived sections of the society.

The priorities in the educational research at the national level, from the point of view of the educational planners or administrators, may be very different from priorities at lower levels.

Educational Research and Innovations Committee (ERIC) of the NCERT has suggested some priority areas in educational research keeping in view the role of educational in the total programme of national development:

1. Priority may be given to the education of the children from the deprived classes.
2. Another priority area in the field of the education is the fulfillment of the Constructional Directive of Article 45 now 93rd Amendment making education as a fundamental right relating to the provision of free and compulsory education for all children upto the age of 14.
3. Studies should be conducted to evolve organizational and methods of self teaching so that children in school learn better and those who drop out from school are not left out of the country's educational effort.
4. Research is needed to explore the new techniques and alternative strategies of education.
5. Research is needed for the modifications in the existing educational structure to bring about national development at faster rate.
6. The interaction patterns in the classrooms, child development and process of learning also find place among the priority areas of educational research.
7. Value education at all levels has become the priority and it is the need of the society too, because of the levels has become the priority and it is the need of the society too, because of the rapid societal change in the country.
8. A lot of research in medical field has forced us to focus on the awareness of health problems and their remedial measures. Thus health education is attracting researchers too.

Short in questions

Q1. Write the priority area in education research?

……

……

Q2. What do you mean by adult education?

……

……

1.3.6 Summary

In the chapter, the students learn about the areas related to research. Discuss about the priority areas in the education research. The field of research ineducation also lies in the ladders of formal education. viz. Pre-primary education, primary/elementary education, secondary education, higher education and adult education. Another important field is that of educational finance and planning and administration.

1.3.7 Key concept

Areas of research: The selection of problem suitable for research in education requires the researcher to identify the field is aknoewn as the area of research.

1.3.8 self check questions:

Q1) In the research, the area of exceptional children is not of great significance. Yes/No

Q2) Comparative study of educational system of various countries is a good area of research. Yes/No

Q3) According to the changing social conditions in India, there is a need tochange the existing curriculum with the help of research. Yes/No

Q4) Through educational research we should know about the obstacles came in the field of adult education. Yes/No

Q5) Population and Environmental education are not the priority areas of research in India. Yes/No

Q6) The most important area of research is,how can we provide Primary education to all children. Yes/No

Answer Key: No,Yes,Yes,Yes,No,Yes

1.3.9 SUGGESTED QUESTIONS:

Q1) What are the various fields of educational research that need to be studied?

Q2) Justify the need of research at primary and secondary level of Education.

Q3) Enlist priority areas of educational research in India.

1.3.10 SUGGESTED BOOKS AND WEB SOURCES:

Koul, Lokesh	:	Methodology of Educational Research, New Delhi: Vikas Publishing House Pvt. Ltd., 1984.
Pal, S.S. and P.C. Saxena (Eds)	:	Quality Control in Educational research, New Delhi : Metropolitan Book Co. Pvt. Ltd. 1985.
Sukhia, S.P., Mehrotra P.V., Mehrotra R.N.	:	Elements of Educational Research, New Delhi : Allied Publishers Pvt. Ltd. 1983.
Travels, R.M.W.	:	An Introduction of Educational Research, New York, Macmillian Publishing Co. Inc.

1.www.wiziq.com , 2.www,blurtit.com

M.A. (EDUCATION) SEMESTER-I PAPER-III

METHODOLOGY OF EDUCATIONAL RESEARCH-I

LESSON NO. 1.4 AUTHOR : DR. (MRS.) S.K. BAWA

Research Problem : Its Selection, Definition, Statement and Sources

Structure of the Lesson

1.4.1 OBJECTIVES

After reading this lesson,the students will be able to:

1. Understand the criteria for selecting the problem.
2. Explain the steps in defining a problem.
3. Describe the statement of the problem.
4. Conceptualise the importance of these sources in selecting the problem.
5. Define the delimitations of the problem.

1.4.2 INTRODUCTION

The research process starts with thinking of a problem, identify it and select it. Several problems exists in the field but to choose the most suitable problem is one of the important task. It requires reflective thinking. A problem can not be solved effectively unless a researcher possesses the intellect and insight to isolate and understand the problem in proper perspective. It is the usual practice that researchers select the topic from different sources. They do not identify the problem rather a problem is made on the basis of a topic. It is very essential that the researcher should learn to recognize and define a problem. One should follow the following steps for identification:

1. To select a field of research in which one is keen to do the research work.
2. The researcher should develop mastery on that area.
3. He should review the researches conducted in the area to know the recent trend and studies being conducted in the area.
4. On the basis of review, he should decide the priority field of the study.
5. He should develop an insight in identifying the problem and employ his own experiences in locating the problem.
6. Take the help of the experts in the field.
7. He should pin-point the specific aspects of the problem which is to be investigated.
8. Tracing relationships between facts and explanations.
9. Locating irrelevant explanations which are not related to the problems.

After going through these processes, the researcher will be able to define or state the problem. But before defining the problem, the research should also keep in mind the criteria for selection of a problem.

1.4.3 CRITERIA FOR SELECTING OF A PROBLEM

To select a research problem it becomes important for the researcher to consider both external and personal criteria. The external criteria relates to the following matters.

1. Workable Research Problem : Many problems may not be effectively solved through the process of research. For example, philosophical or ethical issues cannot be solved through scientific or empirical research. The researcher should select a problem which requires the variables that can be defined and measured. Its answer can be found out empirically or scientifically.

2. Novelty of the Problem : One should not try to find the solution of a problem which had already been adequately investigated by other researchers. The researcher may waste time, effort and money to investigate such a problem, the results of which have already been given by the other investigators. Such duplications must be avoided. A researcher may repeat a study when he wants to verify its conclusions or to extend the validity of its findings in a situation entirely different from the precious one.

3. Significance of the Problem : The significance of the problem explores the application or implementation of the results. It solves the purpose of taking up the study. It shows the likelihood of filling the gaps in existing knowledge, to solve the inconsistencies in the previous research or reinterpret the known facts. This criteria increases the significance of the problem and only such problems having significance are worth to be researched.

4. Financial Considerations : The researcher must consider his own financial resources and the facilities or assistance provided by the institution. The problem should be financial feasible. He must know the estimate of the expenditure involved in data collection, equipment, test material, travel, printing and computer assistance of a particular problem to be studied. Only such problem should be undertaken which involves the affordable financial load.

5. Consideration of Time : While planning the research, time constraints should also be kept in mind. The problem can be investigated with little expenditure of time and energy. If the problem is comprehensive, cooperation from others can solve the time problem.

6. Cooperation of Administration: The researcher is supposed to consider the administrative facilities needed to complete the study. Permission to carry out the research from the authorities should be sought for smooth working of the research problem.

The Internal criteria for selection of the problem emphasizes the following points:

1. Competency of the Researcher : The problem should be in an area in which the researcher is qualified and competent. He must have the understanding of theories, concepts and research designs. He should possess the necessary skills to collect data and interpret it.

2. Interest, Intellectual Curiosity or Enthusiasm and Drive : The problem should be meaningful that arouses curiosity and develop interest in the research. Otherwise it can be a distasteful task and researcher may not drive satisfaction and enjoyment to do the work.

1.4.4 DEFINING A PROBLEM

To define a problem means to reach the core of the problem. According to Whiteny (1964) "To define a problem means to put a fence around it, to separate it by careful distinctions from like questions found in related situations of need. Defining a problem helps to narrow down it to a workable size. It gives a clear and precise direction to work on it.

1.4.4.1 NEED FOR DEFINING THE PROBLEM:

1. It gives direction to carry out the research.
2. It reveals the methodology of research.
3. It helps in exploring the more relevant variables to be studied.
4. It sets the limits of research.
5. The researcher can control the subjectivity or biases on the part of the research.
6. Defining of the problem helps in making the research more practicable.

While defining the problem, Hillway (1964) has suggested some rule to follow.

1. Topic chosen should not be vague or broad in scope.
2. To make the problem clearer and more understandable, state it as a question which requires a definite answer.
3. Carefully state the limits of the problem, eliminating all aspects and factors which will not be considered in the study.
4. Define any special terms that must be used in the statement of the problem.

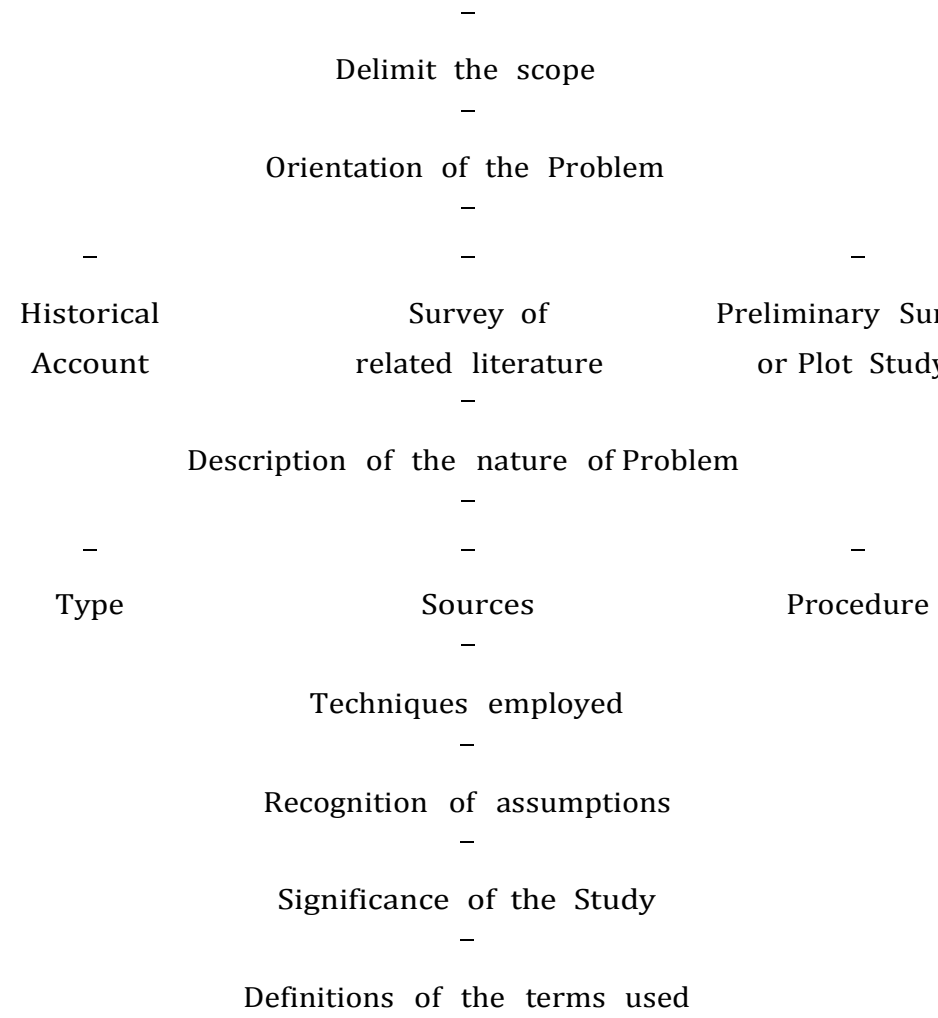
While defining the problem, the variables involved in it should be defined in

operational terms and should indicate a relationship between two or more variables.

1.4.4.2 STEPS IN DEFINING A PROBLEM:

1. In the light of the conceptual framework of the problem, delimit the variables involved in it.
2. Classify the elements of the problem in homogeneous group.
3. Evaluate the theoretical security of the problem.
4. Explore the practical difficulty in conducting the study.

1.4.4.3 ANALYSE THE MAJOR PROBLEM:



1.4.5 STATEMENT OF THE PROBLEM

Kerlinger has identified three criteria for statement of the problem.

1. A problem should be concerned with relation between two or more variables.
2. It should be stated clearly and unambiguously in question form.
3. It should be amenable to empirical testing.

1.4.6 DELIMITATION OF THE PROBLEM

A research study should be delimited keeping in mind the following aspects.

1. Variables to be studied.
2. Different levels under study like primary, secondary, university etc. or illiterate, upto matric, graduate or postgraduate.
3. Sampling area
4. Sampling size

1.4.7 SOURCES OF SELECTING A PROBLEM

The selection of a research problem is the critical step of the research process. It is one of the important responsibilities of the researcher to find out the most suitable problem for the research. The following sources may help the researcher to find the most feasible problem.

1. Personal Experiences : The personal experiences of the researcher help in identifying the research problem. This experience may be of classroom teaching, school environment, sharing thoughts with colleagues and experts in the field.

2. Help of the Experts : The another source of finding research problem is to take help from the experts. They can guide about the thrust areas and the significant problems emerging out of those areas.

3. Related Literature : The extensive study of the related literature helps to find out the suitable problem for research. The research work conducted by the researchers is available in the dissertations and theses. The researcher can think the related problem to be studied.

4. Technological and Social Changes : Technological and social changes bring forth new challenges and new problems. These changes demand new curriculum and new methods. The use of hardware and software in the class rooms, computer aided instructions, micro teaching,

team teaching and simulation etc. help to locate new problems. The impact of policies like liberalisation, privatisation and globalisation and other social changes need to be carefully evaluated through research.

5. Classrooms, Seminars and Conferences : Discussions in classrooms, seminars and educational conferences help to locate problems in the field of education. The teachers can discover interesting and worthwhile research projects in their classrooms.

6. Encyclopaedias : Encyclopaedias are prepared by the specialists and contain selected bibliographies and present a critical evaluation and summary of the work that has been done. Some of the references of Encyclopaedias have been given below:

1. The Encyclopaedia of Education.
2. Encyclopaedia of Modern Education.
3. Encyclopaedia of Educational Research.
4. The International Encyclopaedia of Education.
5. The Encyclopaedia of Comparative Education and National Systems of Education.
6. International Encyclopaedia of the Social Sciences.
7. Encyclopaedia of child care and guidance.
8. Encyclopaedia of Social Work.
9. Encyclopaedia of Philosophy
10. The Encyclopaedia of Higher Education
11. Encyclopaedia of Educational Development and Planning.

7. Educational Index

Some of the educational indices are given below which also help in providing information on adult education, business education, educational administration, higher education, exceptional children, religious education and teacher education.

1. Education Index
2. Canadian Education Index
3. Current Index to journals in Education
4. ERIC Educational Documents Index

5. Index of Doctoral Dissertations International
6. British Education Index
7. International Guide to Educational Documentations
8. Index to Selected British Educational Periodicals

8. Abstracts

The most useful reference guide for research are abstracts. An abstract of the study covering objectives, sample and main findings are given. Some of the abstracts are given below:

1. The review of Educational research
2. Research in Education
3. Psychological Abstracts
4. Education Abstracts
5. Indian Education Abstracts
6. Educational Administration Abstracts
7. Dissertation Abstracts International

9. Research Journals

The professional periodicals and year books also include reviews of research and the problems on which the research is being conducted. The research journals in education also provide the information regarding the current topics being researched and the detailed discussions of the research conducted by various scholars. Some of the journals have been mentioned below:

1. Journal of Educational Research
2. Journal of Psycho-Lingua
3. The Educational Review
4. Indian Educational Review
5. Journal of Psychological Researches
6. Journal of Education and Psychology
7. Praachi Journal of Psycho-Cultural Dimensions
8. The Education Quarterly

9. Journal of Educational Planning and Administration
10. University News
11. Journal of Higher Education
12. Educational Trends
13. Journal of Psychometry and Education
14. Behavioural Scientists
15. Perspectives in Education
16. Journal of Distance Education

10. Newspapers and Pamphlets also provide current and upto date information which may be useful for finding a problem to be researched. Government Documents are rich source of information and are available in national, regional, state and local govt. offices. Monographs provide information on ongoing research like Supplementary Educational Monographs, Educational Research monographs and Lincoln School Monographs.

11. Computer-generated Related Literature

Many libraries provide a print out of the abstract or lists of reference material from the CD of Dissertation Abstracts International. DAI till date has been provided on CD's. Besides search window can help to get any material through internet. Different websites are also providing research information. A few of them have been given below.

1. www.central group.net
2. www.indiapage.com
3. www.hwwilson.com
4. www.galegroup.com
5. www.cambridge.org
6. www.haranand publications.com
7. http://www.geocities.com/aiaeris
8. http://educational.vsnl.com/aiaer

All the above mentioned sites help in searching the most suitable and appropriate problem for investigation.

Short in text questions

Q1. What is the delimitation s of problem in research?

……
……

Q2. write the sources selecting a the problem?

……

1.4.8 Summary : in this chapter we discuss about the problem in educational research. We also learnt that need, delimitation about the research problems The selection of a research problem is the critical step of the research process. It is one of the important responsibilities of the researcher to findout the most suitable problem for the research ie……

1.4.9 Key concept

Meaning of problem in research: To define a problem means to reach the core of the problem.

Criteria for selecting a problem: To select a research problem it becomes important for the researcher to consider both external and personal criteria.

1.4.10 self check exercise :

Q1) Philosophical or ethical issues can be solved through scientific research. Yes/No

Q2) Only such problem should be undertaken which involves the affordable time,money and energy. Yes/No

Q3) The problem should be meaningful that arouses curiosity and develop interest in the research. Yes/No

Q4) To define a problem means to put a fence around it. Yes/No

Q5) To make the problem clearer and more understandable, state it as a question which requires a definite answer. Yes/No

Q6) The research problem should not be delimited to the sampling area and the size. Yes/No

Q7) Personal experiences,related literature, social changes, seminars and conferences are the examples of sources for selecting a problem. Yes/No

Answer Key: No,Yes,Yes,Yes,Yes,No,Yes

1.4.11 SUGGESTED QUESTIONS:

Q1) Explain the criteria for selection of a problem.

Q2) Describe the need for defining the problem.

Q3) Give main sources for selecting a problem.

1.4.12 SUGGESTED BOOKS AND WEB SOURCES:

Koul, Lokesh : Methodology of Educational Research

Kothari, C.R. : *Methods in Research*

Best, J.W. : *Research in Education*

Sharma, R.A. : *Essentials of Scientific Behavioural Research*

1. www.ehow.com
2. yedda.com

LESSON NO : 1.5 AUTHOR : DR. LOKESH KOUL

Hypothesis - Meaning, Importance, Criteria, Formulation, Types and Verification

Structure of the Lesson

1.5.1 OBJECTIVES

After reading this lesson,the students will be able to:

1. Define the meaning of hypothesis.
2. Explain that why hypotheses are very important.
3. Understand the criteria of formulation of hypotheses.
4. Describe the different kinds of hypotheses

1.5.2 INTRODUCTION

Etymologically, hypothesis is made up of two words, “hypo” (less than) and “thesis”, meaning theory. Hypothesis means less than or less certain than a thesis. It is the presumptive statement of a proposition or a reasonable guess, based upon the available evidence, which the researcher seeks to prove through his study. The term “hypothesis” occurs frequently in research

literature and needs some clarification. The hypothesis is precisely defined as a tentative or working proposition suggested as a solution to a problem.

1.5.3 MEANING AND DEFINITIONS OF HYPOTHESES

According to Kerlinger, "A hypothesis is a conjectural statement of the relation between two or more variables."

According to Best, "It is a shrewd guess or inference that is formulated and provisionally adopted to explain observed facts or conditions and to guide in further investigation."

Goode and Hatt, "A hypothesis states that we are looking for. A hypothesis looks forward. It is proposition which can be put to test to determine its validity. It may prove to be correct or incorrect."

The hypothesis is a powerful tool in research process to achieve dependable knowledge. It helps the researcher to relate theory to observation and observation to theory.

The research or scientific hypothesis is a formal affirmative statement predicting a single research outcome, a tentative explanation of the relationship between two or more variables.

Hypotheses are formulated as the suggested solution to the problem, with the objective that the ensuring study may either leads to their rejection or to their acceptance. They enable the researcher to locate and identify the variables involved in the study and suggest methodological procedures that are to be employed.

1.5.5.IMPORTANCE OF HYPOTHESES

The importance of hypothesis is generally recognized more in the studies which aim to make predictions about some outcome. In experimental research the researcher is interested in making predictions about the outcome of the experiment in which the results are expected to show, and therefore, the role of hypothesis is of utmost importance. In the historical or descriptive research, on the other hand, the researcher is investigating the history of a city, of nation, the life of a man, the happening of an event, or is seeking facts to determine the status quo of some situation and thus, he may not have a basis for making a prediction of results. A hypothesis, therefore, may not be required in such fact finding studies.

Most historical or descriptive studies, however involve not only fact finding but also interpretation of facts to draw generalizations. If a researcher tracing the history of a school or making a study about the results of a coming assembly poll., the facts or data he gathers will prove useful only if he is able to draw generalization from them. Whenever possible, a hypothesis is recommended for all major studies to explain observed facts,

conditions, behaviour and to serve as a guide in the research process. If the hypothesis are not constructed, a researcher may spend much time and energy in gathering extensive empirical data and then find out that he cannot state facts clearly or define relevant relationships between variables as there is no hypothesis to guide him. The importance of hypothesis may be summarized as under :-

1. Hypotheses Facilitate the Extension of Knowledge in an Area

They provide tentative explanation of facts and phenomena can be tested and validated. Such explanations if held valid, lead to generalization which helps significantly in understanding a problem and thereby extending the existing knowledge in the area to which they pertain.

2. Hypotheses Provide the Researcher with Rational Statement

Consisting of elements expressed in a logical order to relationships which seek to describe or to explain conditions or events that have not yet been confirmed by facts. Some relationships between the elements or variables stated in hypotheses are known facts, while others transcend the known facts to give reasonable explanations for known conditions. The hypotheses enable the researcher to relate logically known facts to intelligent guesses about unknown conditions.

3. Hypotheses Provide Direction to the Research

They represent specific objectives and thus helps the researcher to determine the type of data needed to test the proposition. The hypotheses guide the researcher specifically what he need to do and find out in his study. They help in the selection of relevant facts and variables that the researcher needs in his study. Hypotheses provides a basis for, selecting the sample and the research procedures required to be used in the study. The statistical techniques needed in the analysis of data, and the relationships between the variables to be tested are also implied in the hypotheses. Furthermore, the hypotheses help the researcher to delimit his study in scope so that it does not become too broad.

4. Hypotheses Provide the Bases for Reporting the Conclusions of the Study

The researcher will find it very convenient to test each hypothesis separately and state the conclusions that are relevant to each other. On the basis of these conclusions he can make his research interesting and meaningful to the reader.

1.5.6CRITERIA OF USABLE HYPOTHESES

Travers (1978) has suggested seven criteria to which they should conform :

1. Hypotheses should be clearly and precisely stated

When hypotheses are clearly stated, the use of general terms such as

personality, intelligence, social class etc. is avoided in the statements. On the other hand, the researcher may use, "personality as measured by the Sixteen Personality Factor Questionnaire". Intelligence as a measure by Raven's Standard Progressive Matrices", or "social class as defined by socio-economic status scale by Jalota et all". A clear statement of hypothesis generally involves concise technical language and the definition of terms that are better defined than those in common language.

2. Hypothesis should be testable

Hypothesis should be formulated in such a way that they can be tested or verified. Such hypothesis enable the researcher to determine the observation whether the consequences that are derived deductively, actually do or do not help the researcher to draw conclusions. For example, the hypothesis: "The N.C.C. programme promotes all round adjustment of high school students", would be hard to test because of the difficulty of defining and measuring "all-round adjustment" :. Moreover, it would be difficult for the researcher to isolate other factors that might contribute to the adjustment of high school students.

Since hypotheses are predictors of the outcome, they must relate to the variables that are capable of being measured. It is essential that the tools or instruments should exist (or can be developed) which will provide measures of the variable involved. If no tools of means are available for measuring the variables then it would be impossible for the researcher to collect the data necessary to test the validity of the hypotheses. A hypothesis, therefore, should define the variables operationally by stating the operations, or procedures necessary to measure them. For example, the hypotheses, "There is a negative relationship between neuroticism and achievement in mathematics of the fifth grade students" meets the criterion of testability because the variables involved in the statement can be defined operationally. Neuroticism might be defined" the scores made on the neuroticism stability scale of "Maudsley personality Inventory" and achievements in mathematics defined as "marks obtained in mathematics by fifth grade students in the annual examination."

3. Hypotheses should state the expected relationship between variables

A satisfactory hypothesis should state explicitly an expected relationship between variables. Let us consider two hypotheses:

i) High school students who attend N.S.S. Programme show greater moral growth than students who do not.

ii) Extraversion, as measured by the Maudsley personality Inventory, will be related positively to achievement in social studies of seventh

grade students as measured by standardized test X.

The first hypothesis is not usable because the term "greater moral growth" does not refer to a variable that is measurable at the present time, or likely to measured in the near future. On the other hand, the second hypothesis refers to the variables 'extraversion' and 'attainment' in social studies, that can be measured by Maudsley Personality Inventory and the standardized test X respectively. Moreover, the relationship posted is that the personality variable and the attainment variable will be related positively.

4. Hypotheses should be limited in scope

Hypotheses of global significance are not suitable as they are not specific, and thus not suitable for testing and drawing conclusions. A beginning researcher, however, is overtly ambitious in his initial efforts and formulates hypotheses of global significance, It is partly because of his earnestness and partly because it takes maturity of viewpoint to realise how little can be accomplished in the specific period. It is desirable to formulate hypotheses that are simple to test, and yet are highly significant. Sometimes it is, of course, possible to state a rather broad research hypothesis and derive a number of operational hypothesis from it.

5. Hypotheses should be consistent with most known facts

Hypotheses should not be inconsistent with a substantial body of established facts. They should be grounded in the well-established theories and laws. Consider the hypothesis "There is no relationship between the self-concept of adolescent male students and their rate of physical growth." This hypothesis is not worth-testing because the preponderance of evidence supports the relationship between self-concept and rate of physical growth.

Hypotheses, however, cannot be consistent with all known facts because in so many areas the facts themselves contradict one another. In such cases, it is worthwhile to formulate hypotheses that resolve the contradiction.

6. Hypotheses should be stated as far as possible in simple terms

Stating the hypotheses in simple terms not only makes their meaning clear to other but also helps in their testability. Also the simplicity of statement provides a basis for a clear and easily comprehensible report at the completion of the study.

Hypotheses should not make use of vague terms. It is useless to formulate a hypothesis that makes use of terms which do not convey the intended meaning to the reader. The researcher should make use of such terms which are generally accepted for naming a phenomenon.

7. The hypotheses selected should be amenable to testing with in reasonable time

The researcher should not select a problem which involves hypotheses that

are not amenable to testing within reasonable or specified time. He must know that there are problems which can not be solved for a long time to come. There are problems of immense difficulty which cannot be profitable studies because of lack of essential techniques or measures.

Advantages

1. A hypothesis gives point and direction to the inquiry.
2. It makes a search for systematic data.
3. It saves time from collecting unnecessary data.
4. It is a temporary solution of a problem concerning with some truth which enables an investigator to start his research work.
5. It offers a basis in establishing the specifies what to study for and may provide possible solutions to the problem.
6. Each hypothesis may lead to formulate another hypothesis.
7. It delimits the field of investigation.
8. It helps to sanitize the researcher so that he should work selectively and have very realistic approach to the problem.
9. It places clear goals before the researcher to provide him with a basis for selecting sample and procedure to meet these goals.

1.5.6FORMULATION OF THE HYPOTHESES

Hypothesis are guesses or tentative generalizations, but these guesses are not merely accidents collection of factual information alone does not lead to successful formulation of hypotheses. Hypotheses are the products of considerable speculation and imaginative guess work. They are base partly on known facts and explanations and partly conceptual. There are no precise rules for formulating hypothesis and deducting consequences from them that can be empirically verified. However, there are certain necessary conditions that are conductive to their formulation.

1. Richness of Background Knowledge

A researcher may deduce hypotheses inductively after making observations of behaviour, noticing 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 a school situation, the teacher may attempt to relate the behaviour of students to his own, to his teaching methods, to change in the school environment, and so on. From these observed relationships, the teacher may inductively formulate a hypothesis that attempts to explain such relationships.

Background knowledge is also essential for perceiving relationship among

variables and to determine what finding other researchers have reported on the problem under study. One finds limitless knowledge in almost any area of human pursuit which has accumulated in the form of literature. New knowledge, new discoveries, and new intentions should always from a continuity with already existing corpus of knowledge. The researcher may be led astray, if does not have thorough acquaintance with and mastery of the existing knowledge.

Relevant to a particular problem, various researchers may have different hypotheses, but the soundness of the hypothesis will depend upon the quantum of knowledge that one possesses to the area of investigation. Significant researches have not taken place accidentally. If it were an accident to make important discovery, even then the researcher probably had a rich background knowledge which had enabled him to perceive the important discovery. Closed minds tend to see problems from a narrow and biased view-point but liberal, educated minds look at them from multiple view-points suggested by the multifaceted experiences. Hypotheses may be formulated correctly by persons who have enriched experience and academic background, and not by those who have poor background knowledge.

2. Versatility of Intellect

Hypotheses are also derived through deductive reasoning from theory. Such hypothesis are called deductive hypotheses. A researcher may begin to study by selecting a theory in his own area of interest. After selecting the particular theory the researcher proceeds to deduce a hypothesis from his theory through symbolic logic. This is possible only when the researcher has a versatile intellect and can make use of it for restructuring his experience. The researcher has to saturate himself with all possible information about the problem and then think liberally and proceed further in the conduct of his study.

3. Analogy

Analogies lead the researcher to clues that he might find useful in the formulation of hypotheses and in finding solutions to problems. For example, a new situation resembles an old situation in regard to a factor X. If the researcher knows from the previous experience that the old situation is related to factors Y and Z as well as to X, he reasons that perhaps the new situation is also related to Y and Z. The researcher, however, should use analogies with caution as they are not fool proof for finding solutions to problems.

4. Consultations with Experts

At times, consultations with colleagues and experts from different fields are helpful for formulating significant hypotheses.

1.5.7KINDS OF HYPOTHESES

A research or substantive hypothesis must be stated in a testable form for its proper evaluation. As already stressed, this form should indicate a relationship between the variables in clear, concise, and understandable language.

Research hypotheses are classified as being directional or non-directional. The hypotheses which stipulate the direction of the expected differences or relationships are termed as directional hypotheses. For example: the research hypothesis, "There will be a positive relationship between individual's attitude towards high cast Hindu and his socio-economic status", will be a directional research hypothesis. This hypothesis stipulates that individuals with favourable attitude towards high caste Hindus will generally come from higher socio-economic Hindu families and therefore, it does stipulate direction of the relationship. Similarly, the hypothesis, "Adolescent boys with high IQ will exhibit less anxiety than adolescent boys with low IQ" is a directional research hypotheses because it stipulates the direction of the difference between the two groups based on their intelligence scores.

A research hypothesis which does not specify the direction of expected differences or relationships is a non-directional research hypothesis. For example, the hypothesis, "There will be a difference in the adaptability of fathers and mothers towards rearing of their children" or "There is a difference in the anxiety level of adolescent girls of high IQ and those of the low IQ" are non directional research hypotheses. Although these hypotheses stipulate that there will be a difference, the direction of the difference is not specified.

A research hypothesis can take declarative form, null form or interrogative form.

When the researcher makes a positive statement about the outcome of the study the hypothesis takes the declarative form. For example, the hypothesis, "The academic achievement of extroverts is significantly higher than that of introverts", is stated in the declarative form. In such a statement, the researcher makes a prediction as declarative form of hypothesis.

In the null form, the researcher makes a statement that has no relationship for example, the hypothesis, "There is no significant difference between the academic achievement of high school athletes and that of non - athletes". Since null hypotheses can be tested statistically, they are often termed as statistical hypotheses. They are also called testing hypotheses when declarative hypotheses are tested statistically by converting them into null form. This often happens in educational research.

The criteria for rejecting the null hypothesis may differ. Sometimes the null hypothesis is rejected when the quantity of outcome is so big that the probability of its having occurred by mere chance is one time out of 100. We consider the probability of its having occurred by chance to be too little and we reject the chance theory of the null hypothesis occurrence to be due to a genuine tendency. On the other occasion, we may be more valid and reject the null hypothesis even when the quantity of the reported outcome is likely to occur by chance, say 5 times out of 100. Statistically, the theory is known as the rejection of the null hypothesis at 0.01 level of significance and the latter as the rejection of 0.05 level.

It may be pointed out that if the researcher is able to reject the null hypothesis, he cannot directly uphold the declarative hypothesis. If an outcome is not held due to the chance it does not mean that it is due to very cause- effect relationship asserted in the particular declarative statement. It may be due to something else which the researcher failed to control. However, the case of the declarative hypothesis becomes quite strong. The less plausible the null hypothesis the more plausible the declarative hypothesis. Hayman is of the opinion that null hypothesis should be used not as an alternative hypothesis but should be used in combination with it for statistical purposes.

In the interrogatory form hypothesis, a question is asked as, what the outcome will be instead of stating what outcome is excepted. Suppose, researcher is interested in knowing whether programmed instruction has any relationship with test anxiety of children. The declarative form of the hypothesis might be : Teaching children through the programmed instruction material will decrease their test anxiety. The null form would be : "Teaching children through programmed instruction material will have no effect on their test anxiety." This statement shows that no relationship exists between programmed instruction and test anxiety. The interrogatory form puts the statement in the form "will teaching children through programmed instruction decrease their anxiety ?"

A novice in research finds it relatively easy to state a hypothesis in question forms. It seems easy for him to write down all the questions that he wants to answer in his study. On the other hand, he often experiences some difficulty in predicting the outcome of the study and stating the hypothesis in declarative form. However, it must be noted by the researcher that the question form is less powerful than the declarative or null form as a tool for obtaining valid information.

1.5.8 VERIFYING THE HYPOTHESES

Hypotheses are possible explanations which account for factors, events or

conditions that the researcher attempts to understand. After they are formulated according to the criteria discussed, they are subjected to empirical as well as logical testing :

1. Some hypotheses are simple and they can be tested directly. In most situations, however, they are complex and, therefore, cannot be tested directly. They have to be tested in terms of their deduced consequences. In scientific thinking process the hypothesis involve deduction of consequences. Suppose a researcher wants to test the hypothesis "Affluence leads to immorality" he cannot test this hypothesis directly and he has to proceed indirectly. He might deduce the consequences emanating out of the situation of affluence, e.g. great consumption of liquor, thereby leading to lots of reasons, giving rise to greater crime rates, adultery, fast driving, etc. It would then be considerably convenient to test the hypothesis in terms of its deduced consequences. Indirect method of handling research problems involves intricate and complex procedures. Intellectual and disciplined effort is needed for the deduction of consequences. In this way, the researcher does not test the hypothesis but test the deducted consequences as the hypothesis. Once all the deducted consequences, after testing, come out to be true, the hypothesis is confirmed. If some of the consequences are true and certain other untrue, then the hypothesis will have to be examined fresh. In order to test the hypothesis in terms of deducted consequences, it is necessary to collect evidence by selecting or developing data collecting instruments, to analyze the data, and then to interpret results in the light of hypothesis and its deducted consequences. Any hypothesis then will be confirmed if the evidence agrees with the deducted consequences.

a) All factual evidences collected through tests or the other means should correspond with the deducted consequences.

b) The test situations or data collected should take into account all factors and conditions that are suggested by the consequences.

c) The consequences should be logically deduced from hypothesis.

2. The absence of conflict with the other satisfactory or proved generalization lends support to the correctness of a hypothesis.

3. A hypothesis is also confirmed to be correct if the predictions made on its basis proved to be true.

It is important for the researcher to formulate hypotheses before data are gathered. This is necessary for an objective and unbiased study.

Short in questions

Q1. What do you mean of hypothesis?

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……

Q2. Write the types of hypothesis?

……

……

1.5.9 Summary

In this chapter we learn about the hypothesis in research. We discuss about the types of research. We learn also learn about the steps about hypothesis.

1.5.10 Key concept

Wordly meaning of hypothsis: Etymologically, hypothesis is made up of two words, “hypo” (less than) and “thesis”, meaning theory. Hypothesis means less than or less certain than a thesis

1.5.11 Self check evaluation :

Q1) A Hypothesis is a conjectural statement of the relation between Two or more variables. Yes/No

Q2) The Hypotheses does not guide the researcher specifically what he need to do and find out in his study. Yes/No

Q3) Hypotheses should be formulated in such a way that they can be tested or verified. Yes/No

Q4) Hypotheses should be stated as far as possible in simple terms. Yes/No

Q5) Consultations with colleagues and experts from different fields are helpful for formulating hypotheses. Yes/No

Q6) Research hypotheses are classified as directional and non directional. Yes/No

ANSWER KEY:Yes,No,Yes,Yes,Yes,Yes

1.5.12 SUGGESTED QUESTIONS:

1. Define hypothesis and its importance in educational research.
2. Describe the various types of hypotheses. Give examples of various types.
3. State how the hypothesis is verified.
4. Write down the criteria of usable hypothesis.

1.5.13 SUGGESTED BOOKS AND WEB SOURCES:

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