# T.Y.BA.

## SEMESTER - V (CBCS)

## PAPER VIB
# EDUCATIONAL REASERCH

## SUBJECT CODE: 97098

**Dr. Suhas Pednekar**
Vice Chancellor
University of Mumbai, Mumbai

| | |
|---|---|
| **Prof. Ravindra D. Kulkarni** | **Prof. Prakash Mahanwar** |
| Pro Vice-Chancellor, | Director, |
| University of Mumbai | IDOL, University of Mumbai |

# CONTENTS

# TYBA
# SEMESTER V
# PAPER VIB
# EDUCATIONAL REASERCH

**Objectives**:
i)   To develop an understanding of concepts of educational research
ii)  To develop an understanding the aspects  of educational research
iii) To comprehend the process of educational research
iv)  To understand the significance of a review of related literature for educational research
v)   To develop an understanding the concept and techniques of sampling
vi)  To understand the concept and methodology of action research
vii) To develop the skill of writing an action research proposal
viii) To develop appreciation for scientific inquiry involved in research.

---

### Semester V : Course Code: UAEDUB503  (June to October)

---

## Module 1: Overview of Educational Research
   a) Concept - meaning and characteristics
   b) Need and Significance
   c) Types – historical, descriptive, experimental and case study
   d) Ethics in Educational research

## Module 2: Paradigms of Educational Research
   a) Quantitative and Qualitative Research – concept, significance, characteristics, merits and limitations
   b) Mixed Method Research - introduction, concept, significance, characteristics, merits and limitations
   c) Steps in Educational Research – An overview : Selecting and Stating the Problem, Aims and Objectives, Review of Related Literature, Research Questions, Hypothesis, Sampling, Tools and Techniques of Data Collection, Analysis of Data, Reporting

## Module 3:  Action Research
   a) Meaning, principles, merits and limitations
   b) Role of Action Research in Professional Growth

## Module 4: New Trends in Educational Research
   a) Participatory Research - concept, significance, merits and limitations
   b) Observational Research - concept, types, significance, merits and limitations
   c) Careers in Educational Research

## Module 5: Practical work in Educational Research:
   Each student is expected to submit a report on **one** of the following:
   a) Select a topic of educational significance and submit a review of related literature
   b) Prepare at least two career profiles related to educational research
   c) Submit a research proposal from an educational setting.

# 1

# OVERVIEW OF EDUCATIONAL RESEARCH

**Unit Structure**

## 1.0   OBJECTIVES-

1.   To enable students to understand the concept of research.

2.   To help students about characteristics, need and significance of research.

3.   To enable students to understand the types of research.

4.   To help students to follows and practice the ethics related to educational research.

## 1.1 INTRODUCTION-

Educational research refers to a systematic attempt to gain a better understanding of the educational process, generally with a view to improve its efficiency. It is an application of scientific method to the study of educational problems. Education is a behavioural science and  the major concern of educational research is to understand, explain and to some extent

predict and control human behavior. It is an activity directed towards the development of organized and useful body of scientific knowledge about the events with which educators are concerns.

Educational research leads to an improvement in teaching, administration, human relations, an increase in comparative developmental, historical knowledge and its philosophical, sociological or psychological foundations.

## 1.2 CONCEPT- MEANING AND CHARACTERISTICS-

### a. MEANING-

Research means Re + Search.

Research in common parlance refers to a search for knowledge. One can define research as a scientific and systematic search for pertinent information on a specific topic. Infact, research is an art of scientific investigation.

Research purifies human life. It improves its quality. It shows how to solve any problem scientifically. It is a careful enquiry through search for any kind of knowledge. It is journey from known to unknown. It is a systematic effort to gain new knowledge in any kind of discipline. When it seeks a solution of any educational problem it leads to educational research.

The Advanced Learner's Dictionary of Current English lays down the meaning of research as, "a careful investigation or inquiry especially through search for new facts in any branch of knowledge."

Redman and Mary define research as a, "Systematized effort to gain new knowledge."

Research is an academic activity and as such the term should be used in a technical sense.

According to Clifford Woody research comprises defining and redefining problems, formulating hypothesis or suggested solution, collecting, organizing and evaluating data, making deductions and reaching conclusions, and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.

Research is, thus, original contribution to the existing stock of knowledge making for its advancement. It is the pursuit of truth with the help of study, observation, comparison and experiment. In short, the search for knowledge through objective and systematic method of finding solution to a problem is research.

"Research is the voyage of discovery." It is the quest for answer to unsolved problems. The purpose of research is to discover answers to questions through the application of scientific procedure. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet. Though each research study has its own specific purpose, we will conclude meaning of research with the definition of J.W. Best.

J.W. Best- Defining educational research says, John W. Best, "Educational research is that activity which is directed towards development of a science of behavior in educational situations. The ultimate aim of such a science is to provide knowledge that will permit the educator to achieve his goals by the most effective methods."

## b. CHARACTERISTICS-

1.  Research must direct towards the solution of a problem. Research may attempt to answer a question or to determine the relation between two or more variables.

2.  Research must be purposive. It means that research must be conducted with definite aim, objective and purpose. Then only research will lead towards certain conclusions and destinations.

3.  Control is important in good research. Control in research means proper methodology should be applied while conducting research. Conducting controlled research is easy in lab based testing but it is difficult to conduct controlled experiments in anthropology where factors affecting a relation cannot be controlled totally.

4.  Research must be rigorous in its process as procedure. There should be an acceptable degree of rigor in the method of study related to research. Researcher must ensure that the procedure followed in relevant, appropriate and justified. There should not be a conflict and doubt to the relevance of the research taken by the researcher.

5.  Research process must be systematic and it should follow a sequence that logically terminates in the result. The study or process of research has to be sequential and it has to follow certain determined and verified patterns and procedure or technique.

6.  Critical in research means the method, finding and conclusions of the research. The research process as well as its finding should have full proof of critical reviews so that result will be fair. Critical appraisal of research means an act of carefully and systematically examining research.

7.  The research process and technique must be valid and verifiable. It means the conclusions drawn by research should be correct. Validity measures the appropriateness and usefulness of research. Validity is more important than reliability.

8.  Research must be based upon observable experience or empirical evidence. Research rejects revelation and dogma as methods of establishing knowledge and accepts only what can be verified by observation.

9.  Research requires expertise because researcher knows what is already known about the problem and how others have investigated it.

10. Research is characterized by patient and unhurried activity.

11. 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 awareness and self-discipline.

12. Research sometimes requires courage. The history of science discloses that many important discoveries were made in spite of the opposition of social, religious and political authorities.

From the above mentioned characteristics, we can say that knowledge gained by research if of higher order. It must be recognized that such kind of ideals serve as goals for which researcher should always strive but being human beings, it is sometime difficult for researchers to enlighten all ideals exactly.

## 1.3 <u>NEED AND SIGNIFICANCE-</u>

### a. NEED-

Research in education as in the other field is necessary for providing useful and dependable knowledge through which the process of education can be made more effective. There are various reasons which emphasis the need for research in education.

1. Decision based systematic research in education helps to save time, energy and a lot of failure and frustrations.

2. Good research has been recognized as the basis of individual and social developments.

3. Research is needed not only for students and academics but also for professionals and non-professionals. It is a tool for building and facilitating learning.

4. Education is considered as much as a science and an art. As a science, it has a corpus of knowledge concerning the nature of human mind, its growth and development, theories of administration and supervision, educational programmes and practices, and their results. As an art, education seeks to impart knowledge effectively.

5. Research is useful to understand different issues and to increase public awareness. It helps others and in raising social consciousness.

6. Research helps us into the success of business as it involves science and engineering processes in different businesses such as healthcare, pharmaceuticals, agriculture, food and beverage, information and communication technology, aviation, constructive and so on. Research is always critical to the result of the creation and improvement.

7. Researcher who deals with research has to test the validity and reliability of their claims. Their integrity and competence depends on

the quality of their research so it helps us to disapprove lies and support truths.

8.   There is need for educational research because of the changing conception of education as it promotes a love of reading and writing as well as confidence in analyzing and sharing valuable information.

9.   Research provides nourishment and exercise for the mind as the acts of searching for information and thinking critically serve as food for brain and allow our hidden creativity and logic to remain active. So, our active mind may help us to prevent certain mental illnesses.

10.  Research is the basis for innovation because knowledge is developed through research. Improvement of practical approaches is achieved through research. Educators use research findings to improve their competencies and improve their teaching and learning process. Young students learn more when they are actively involved in developing their knowledge.

## b. SIGNIFICANCE-

Research in education has enabled significant progress to be made in curriculum development and reform, educating learners with difficulties, understanding the individual differences and preferences and in adapting methods of instructions to the needs of individual learners.

1.   "All progress is born of inquiry. Doubt if often better than over confidence, for it leads to inquiry and inquiry leads to invention" is a famous Hudson Maxims in context of which the significance of research can be understood. Increased amount of research makes progress possible.

2.   Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization.

3.   Research is able to provide solutions to things that are unknown, bridge gaps in knowledge and improve the way that healthcare professional work.

4.   The role of research in several fields of applied economic whether related to business or to the economy as a whole, has greatly increased in modern times. Research, as an aid to economic policy has gained added importance, both for business and government.

5.   Research must always be of high quality in order to produce knowledge that is applicable outside of the research setting.

6.   Research provides the basis for all government policies in our economic system. For example governments budget rest in part on an analysis of the needs and desires of the people and on the accessibility of revenues to meet the needs. Through research, we can conceive other policies and examine the outcome of each of these alternatives.

7.  Decision making may not be a part of research but research definitely eases the decisions of the policy maker.

8.  The main purpose of research is to inform action, to prove theory and contribute to developing knowledge in a field of study.

9.  Research has its special significance in solving various operational and planning problems of business and industry. Research, replaces intuitive business decisions by more logical and scientific decisions.

10. Research is equally important for social scientists in studying social relationships and in seeking answers to various social problems.

11. The significance of research can also be understood keeping in view the following points-

    a.  Research may mean the generalizations of new theories to analysts and intellectuals.

    b.  Research may mean the outlet for new ideas and insights to philosophers and thinkers.

    c.  Research may mean a source of livelihood to professionals in research methodology.

    d.  Research may mean careerism or a way to attain a high position in the social structure to those students who are to write a masters or Ph.D thesis.

    e.  Research may mean the development of new styles and creative work.

Thus, we can say that research is a sort of formal training which enables one to understand the new developments in one's field in a better way. Research is the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, governmental and social problems.

**Check Your Progress**

1. Explain the concept of research?

2. Why research must be good characeristics?

3.  What is the need of research in education?

4. Why research is important in educational field?

## 1.4 TYPES OF EDUCATIONAL RESEARCH -

Educational research is based on research methods in the behavioural and social sciences and mostly relying on psychology, sociology and anthropology. Research can be divided into two broad categories quantitative research and qualitative research. Quantitative research

consists of research in which the data can be analyzed in terms of numbers. Whereas, qualitative research can describe events and people scientifically without the use of numerical data. Quantitative research is based more directly on its original plans and its results are more readily analyzed and interpreted. Whereas, qualitative research is more open and responsive to its object. Each research has advantages and disadvantages.

## a. <u>HISTORICAL RESEARCH-</u>

History is the study of complete past with meaningful record of human achievement. It is not only the study of King's and Queen's but what actually happened in the past with truthful integrated account of the relationship between persons, events, times and places. History is used to understand the past and to try to understand the present in light of past events and developments.

Historical research can be a qualitative or quantitative or a combination. The type of approach should be determined by the issue determined and the data available. Historical research studies the meaning of past events in an attempt to interpret the facts and explain the cause of events and their effect in the present.

Historical research has been defined as the systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusions about past events. In a process it involves a critical inquiry of a previous age with the aim of reconstructing a faithful representation of the past.

Historical research, "attempts to systematically recapture the complex nuances, the people, meanings, events and even ideas of the past that have influenced and shaped the present." (Berg & Lure, 2012, P.305)

## PURPOSE OF HISTORICAL RESEARCH

Historical research in education can be helpful in several purpose as follows-

1.  It throws lights on present trends and help in predicting future trends.

2.  It helps educationists to find out solutions to contemporary problems, which have their connection in the past.

3.  It helps a researcher to understand how and why educational theories and practices have developed.

4.  It helps us to re-evaluate data in connection to selected hypothesis, theories and generalization which are presently held about the past.

5.  It highlights and analyzes the relative significance and the effect of the various interaction in the prevailing culture.

# SOURCES OF HISTORICAL RESEARCH

Historical research based on a wide variety of sources, both primary and secondary.

## Primary Sources

1. Eyewitness accounts of events.

2. Can be oral (tapes, saga, interviews of eyewitnesses, etc) or written testimony.

3. Found in public records, minutes of meetings, corporate records, recordings, diaries, memories, notebook, yearbooks, letters, journals, drawings, court testimony, committee reports and so on.

4. Located in university archives, libraries or privately run collections such as local historical society.

## Secondary Sources

1. Can be oral or written.

2. Secondhand accounts of events.

3. Found in textbooks, encyclopedias, journals, articles, newspapers, biographies, reference books, and other media such as films, tape recordings, replicas or art objects and paintings and so on.

# CHARACTERISTICS OF HISTORICAL RESEARCH

1. Historical research involves the careful study and analysis of data about past events.

2. It deals with discovery of data that already exists and does not involve creation of data using structured tools.

3. It is a critical investigation of events, their development, experiences of past.

4. It is analytical in that and it uses logical induction.

5. It records and evaluates the achievements of individuals, agencies or institutions.

# STEPS IN HISTORICAL RESEARCH

1. Identify an idea, topic, and subject, define the problems, questions to be investigated.

2. Conduct a background literature review.

3. Refine the research idea and questions; determine that historical methods will be the method used.

4. Identify and locate primary and secondary data source.

5.     Evaluate the authenticity and accuracy of source material.

6.     Analyze, synthesize and summarize, interpreting the data/information and findings.

7.     Write the research report.

## SUGGESTED STUDIES IN HISTORICAL RESEARCH

1.     History of public financing of education.

2.     Historical study if education in specific Indian states such as Assam, Bihar, Himachal Pradesh, Kerala, Rajasthan etc.

3.     Comparative history of education in India and some other countries.

4.     History of educational legislation in India.

5.     History of the role of the teacher in ancient India.

6.     Historical study of the system of state sponsored inspection in India.

7.     History of Contemporary problems in India.

8.     Historical study of specific educational Institution such as University of Mumbai, University of Gujarat, University of Tamil Nadu.

9.     History of educational administration.

## PRECAUTION TO BE TAKEN IN HIS HISTORICAL RESEARCH

1.     The topic or problem should not be too lengthy.

2.     It should be decided after ensuring the source of data existent, easily available and language known to the research.

3.     Unnecessary use of easy to find secondary source of date should be avoided.

4.     The researcher needs to be aware of his own personal values, interests, qualities and biases.

5.     The report should be written in a logical and scientific manner.

## b. <u>DESCRIPTIVE RESEARCH-</u>

The descriptive research attempts to describe, explain and interpret condition of the present i.e. "what is". Descriptive research is used to describe characteristics of a population or phenomenon being studied. The purpose of a descriptive research is to examine a phenomenon that is occurring at a specific place/places and time. It does not answer questions about how/when/why the characteristics occurred but it addresses the "what" question. A descriptive research is concerned with conditions, practices, structures, differences or relationships that exist, opinions held and processes that are going on or trends that are evident.

# CHARACTERISTICS OF DESCRITIVE RESEARCH

1.  The descriptive research then refers to questions, design of the study and data analysis conducted on that topic.

2.  It is an observational research method because none of the research study variables are influenced in any capacity.

3.  Descriptive research is a quantitative research method which attempts to collect quantifiable information for statistical analysis of the population sample.

4.  In descriptive research uncontrolled variables are used means none of the variables are influenced in any way.

5.  It is generally a cross sectional study where different sections belonging to the same group are studied.

6.  Researcher further research the data collected, analyzed by using different research technique of descriptive research.

## TYPES OF DESCRIPTIVE RESEARCH METHODS

There are three important and distinctive methods of conducting descriptive research. They are as follows-

1.  Observational method

2.  Inter relationship method
    a.  Correlational research
    b.  Casual research
    c.  Case study

3.  Survey method

**Let us discuss in short all these methods of research.**

**1.   Observation Method-**

Under descriptive type of research, observation method is one of the most effective method to conduct research and researchers make use of both quantitative and qualitative observations.

Quantitative observation is the objective collection of data which related with numbers and values. It associated with or depicted in terms of a quantity. In quantitative observation results are derived using numerical and statistical analysis methods. It implies observation of any nature concerned with numeric value such as age, weight, scale, shape, volume etc.

Qualitative observation does not involve numbers or measurements but just monitoring characteristics. Researcher observes the respondents from a distance. Respondents are in comfortable

environment, the characteristics observed are natural and effective. In descriptive research design, the researcher can be complete observer or full participant, an observer as a participant or participant as an observer. It helps a more in depth insights for collection of data.

## 2. Inter relationship Method-

**a.    Correlational research –**

Correlational research describes what exists at the moments (process, practices, conditions, structures, etc) and is therefore classified as a type of descriptive method.

Correlational research contains of collecting data to determine whether and to what extent a relationship exists between two or more quantifiable variables. It uses numerical data to explore relationship between two or more variables. Its study does not specify cause and effect relationship between variables under consideration.

Correlational research is of two types (i) Relationship studies and (ii) Prediction studies.

Basically four steps are involved in this research as (i) selection of a problem, (ii) selection of the sample and the tools, (iii) design and procedure, (iv) interpretation of the findings.

**b.    Casual comparative research-**

It is a type of descriptive research since it describes conditions that already exist. It is a form of investigation in which the researcher has no direct control over independent variables as its expression has already occurred or because they are essentially non manipulable.

Casual comparative studies attempt to identify cause-effect relationship, correlation studies do not. Casual comparative studies involves comparison, correlation studies involve relationship. However, neither method provides researchers with true experimental data.

**c.    Case study-**

We will discuss in detail ahead.

## 3. Survey Method-

Survey studies are conducted to collect detailed description of existing phenomena with the intent of employing data to justify current conditions and practices or to make more intelligent plans for improving them. Their objective is not only to analyze, interpret and report the status of an institution, group or area in order to guide practice in the immediate future but also to determine the adequacy of status by comparing it with establish standards.

In survey research, respondents answer through survey or questionnaires. A study to gather useful data should have the right survey questions. There should be balanced mix of open ended question and close ended questions. This method can be conducted offline or online making it the option for descriptive research where the sample size is large.

## SUGGESTED STUDY IN DESCRIPTIVE RESEARCH

1. A researcher or school district wishes to evaluate teacher's attitude about using technology in the classroom.

2. To understand if its wellness programmes enhance the overall health of the employees, teachers, communities.

3. A researcher or company wants to evaluate the morale of school/college, teachers or its staff.

4. Researcher of commerce or management discipline wants to observe the habits of consumers.

5. A researchers or district wants to understand if students will access/understand effectively online lessons rather than textbooks.

## ADVANTAGES OF DESCRIPTIVE RESEARCH-

1. Descriptive research is helpful in carrying out research using specific methods like observation method, case study method and survey method.

2. It provides thorough information because data collected is qualitative and quantitative. Due to this information data collected is varied, diverse and thorough.

3. This method allows the research to be conducted in the respondent's natural environment ensuring that honest and quality data is collected.

4. As the sample size is generally larger so the data collection is quick to conduct and it is also inexpensive.

5. It is easier to analyze and use for decision making.

## c. EXPERIMENTAL RESEARCH-

Experimental research or method is a scientifically sophisticated method. Experimental research is typically used in psychology, physical and social sciences along with education. However, it can be also applied to business. This research or method provides a systematic and logical method for answering the questions. Experimentation provides a method of hypothesis testing. It establishes a systematic and logical association between manipulated factors and observed effects. The researcher defines a problem and proposes a tentative answer or hypothesis. He tests the hypothesis and accepts or rejects it in the light of the controlled variables relationships that he has observed.

Experimental research is the description and analysis of what will be or what will occur, under carefully controlled conditions. Researchers manipulate certain stimuli, treatments or environmental conditions and observe how the condition or behavior of the subject is affected or changed. Such manipulations are deliberate and systematic. The experiments must be aware of other factors that could influence the outcome and remove or control them in such a way that it will establish a logical association between manipulated or observed factors.

Any research conducted under scientifically accepted conditions uses experimental methods. The success of experimental studies hinges on experimenters confirming the change of a variable is based solely on the manipulation of the constant variables. The research should establish a perfect cause and effect. Researcher can conduct experiment research where there is invariable behavior between cause and effect. When researcher wishes to understand the importance of the cause and effect and most importantly this can be possible due to time factor. Time is a factor in establishing a relationship between them.

## CHARACTERISTICS OF EXPERIMENTAL RESEARCH

1. **Control-**

   Variables which are not of direct interest to the researchers called extraneous variables need to be controlled.

2. **Manipulation-**

   Manipulation refers to a deliberate operation of the conditions by the researcher. Independent variable or experimental variable or treatment variable are imposed on the subjects of experiment or experimental group by the researcher to observe its effect, sex, socio-economic status, intelligence, method of teaching, training or qualification of teachers, classroom environment are the major independent variables in educational research.

3. **Observation-**

   The experiment observes the effect of manipulation of the independent variable on dependent variable.

4. **Replicable-**

   It means conducting a number of sub experiments instead of one experiment only within framework of the same experimental design.

## TYPES OF EXPERIMENTAL RESEARCH DESIGNS

Experimental research designs means the methods used to collect data in experimental studies. The following research designs are popular in educational research.

### 1. Pre experimental research design-

A group or various groups are kept under observation after implementing factors of cause and effect. Researcher conducts this research to understand whether further investigation is necessary for these groups. There are three types of pre experimental designs-

i. One shot case study research design

ii. One group Pre-test Post-test design

iii. Two groups, static design

### 2. True experimental research design-

True experimental research designs are mostly used for experimental research in education because they seek to control the main effects of history, maturation, testing, measuring instruments, statistical regression selection and mortality. True experimental research designs can be classifies into five types-

i. Two groups, randomized subjects, post-test only design

ii. Two groups, randomized matched subject, post-test only design

iii. Two groups randomized subjects, pre-test post-test design

iv. The Solomon three groups design

v. The Solomon four groups design

### 3. Quasi experimental research design-

The quasi experimental design provides full experimental control through the use of randomization procedures. A Quasi experimental design is similar to experimental but it is not the same. The difference between the two is the assignment of a control group. In this research an independent variable is manipulated but the participants of a group are not randomly assigned. Quasi research is used in field settings where random assignment is either irrelevant or not required. There are two types of quasi experimental research designs.

i. Non randomized control group, Pre-test Post –test design

ii. Counter balanced design

4. Factorial design-

A factorial design enables the experiment to evaluate or manipulate two or more variables simultaneously in order to study the effects of number of independent factors singly as well as the effects due to interactions with one another. Factorial designs vary according to the degree of complexity depending upon the nature and purpose of the experiment.

    i.      Simple factorial research design- The simple factorial research design is 2 by 2 (2x2). In this design there are two independent variables and each of the independent variables has two values.

5.      Time series research designs

There are two types of time series designs

    i.      One group time series designs

    ii.     Control group time series designs

All research designs have their advantages and limitations according to problem topics.

## ADVANTAGES OF EXPERIMENTAL RESEARCH

1.      This research is important to test new ideas or theories. It saves the precious time, effort and funding into something that may not work.

2.      It helps and allows researcher to test their idea in a controlled environment before taking it to field.

3.      It provides the best method to test researchers theory because

    i.      The results are specific

    ii.     Research has stronger hold over variables.

    iii.    Researcher can identify the cause and effect of hypothesis

    iv.    After analyzing the results, researcher can apply findings to similar ideas or situations.

    v.     Experimental research makes an ideal starting point

## d. CASE STUDY-

C.H. Cooley, "Case study depends on our perception and gives clear insight into life directory." Case study research is descriptive research that involves describing and interpreting events, conditions, circumstances or situations that are occurring in the present. Case studies are used as a teaching tool to show the application of a theory or concept to real situation. Dependent on the goal they are not meant to fulfill. Cases can be fact driven and deductive where there is a correct answer.

Most case studies are usually qualitative in nature. Case study research excels at enabling us to understand a complex issue or object and can extent experience or add strength to what is already known through previous research. In some case studies can also be quantitative in nature especially if they deal with cost effectiveness, cost benefit analysis or institutional effectiveness. Case study can be conducted to develop a research based theory with which to analysis situation, a theory of, for and about practice.

A case study can be conducted to explore, to describe or to explain situation, happenings or phenomenon. It could be conducted at a single or multiple case or size. In other words, it is a flexible methodology.

A case study refers to a person, either an administrator, a teacher, a learner, or an entity such as university, school, classroom, programme, policy etc.

**CHARACTERSISTICS OF CASE STUDY-**

1.    It is qualitative as well as quantitative.

2.    It emphasizes the study of inter relationship between different attributes of a unit.

3.    Mostly number of unit to be studied is small.

4.    It covers sufficient wide cycle of time.

5.    A case study can be a single site study or multi- site study.

6.    No generalization is made to population beyond cases similar to those studied.

7.    Cases are selected on the basis of dimension of a theory i.e. pattern matching or on diversity on a dependent phenomenon i.e. explanation building.

8.    It studies a social unit deeply and thoroughly.

9.    It has continuity in nature.

**COMPONENTS OF A CASE STUDY-**

1.    Study question

2.    Study proposition or theoretical

3.    Identification of the units of analysis

4.    The logical linking of the data to the proposition or theory

5.    The criteria for interpreting the finding

The purpose of case study is a detailed examination of specific activity, event, institution, person/s. The hypothesis or the research questions are stated broadly at the beginning of the study. Questions are directed towards how and why consideration and defining these are the first aim/task if the researcher.

**STAGES/STEPS IN A CASE STUDY MATERIAL**

1.    Identification and selection of topic or problem

2.    Description of the events

3.    Factors influencing study (sampling, hypothesis)

4.    Data processing (source, tools and techniques of data collection)

5.    Evaluating and analyzing data

6.    Data recording/report writing

**TYPES OF CASE STUDY-** Yin (1994) and Winston (1997) have identified four types of case study designs. They are as follows-

1.    Exploratory case study design

2.    Explanatory case study design

3.    Descriptive case study design

4.    Evaluative case study design

**SOURCES OF DATA FOR CASE STUDY METHOD-**

1.    Motives and objectives for case study.

2.    Qualification and interest of the researcher.

3.    Personal document available such as letters, diaries, memories, autobiographies etc of the researcher.

4.    Life history of the respondents.

**STRENGTHS OF CASE STUDY METHOD-**

1.    Case study data are strong in reality.

2.    It involves detailed, holistic investigation of all aspects.

3.    Data can be collected over a period of time and is contextual.

4.    It can use a wide range of tools and techniques.

5.    Case study reports are often written in non-technical language so easily understood by lay person.

6.    They help in interpreting similar other cases.

**LIMITATIONS IN CASE STUDY METHOD-**

1.    The small size sample prevents researcher from generalizing to larger population.

2.    They are often not easy to cross check.

3.    The intense exposure to study of the case biases the findings.

4.    It is criticized as being useful only as an exploratory tool.

# 1.5 ETHICS IN EDUCATIONAL RESEARCH-

Research is search of knowledge. It is a journey from known to unknown. It is the quest for answers to unsolved problems. Educational research is nothing but cleansing of educational process. Travers thinks, "Educational Research is the activity for developing science of behavior in educational situations. It allows the educator to achieve his goals effectively."

Thus, educational research is to solve educational problem in systematic and scientific manner. It is to understand, explain, predict and control human behavior.

## ETHICAL CONSIDERATIONS OF RESEARCH-

Research draws up a valuable influence on educational system. Hence a researcher needs to adhere to an ethical code of conduct. Education in research ethics helps people to get a better understanding of ethical standards, policies, issues and improve ethical judgement and decision making. In any case, a course in research ethics can be useful in helping to prevent deviation from norms even if it does not prevent misconduct.

Let us discuss the ethical consideration-

1.  Researcher has to obtain informed consent from potential research participant. He has to follow informed consent rules. If possible the subject should be informed about the purpose of the experiment/research. While dealing with school children, minors or mentally challenged students, parents or guardians consent should be obtained. This is known as informed consent.

2.  Researcher has to respect confidentiality and privacy. He has to protect anonymity of the participants. The researcher should maintain strict confidentiality about the information obtained from the respondents. No information about the personal details of the respondents should be revealed in any of the records, reports or to other individuals without the respondents' permission.

3.  The researcher should accept the fact that the subjects or participants have the right and freedom to participate or to withdraw from the experiment.

4.  Researcher should always avoid using deceptive practices.

5.  Researcher should always minimize the risk of harm to participant as in an experimental research which may have a temporary or permanent effect on the subjects; the researcher must take all precautions to protect the subject from mental and physical harm, danger and stress.

6.  Researcher must be conscious of multiple roles which he has to play while conducting research/experiment. He has to play researcher, supervisor, observer, teacher etc. So he should always draw a proper line in between roles which he has to play while completing research.

7. The participants/respondents should be provided with the reasons for the experimental procedures as well as the findings of the study if they so demand.

8. The researcher should give due credit to all those who have helped him/her in the research procedure, tool construction, data collection, data analysis or preparation of the research report.

9. The researcher should be open in the procedure of experiment. In an experimental study when participants are used as subjects, the researcher should explain the procedures completely (i.e. the experiment will take six months) along with the risks involved and the demands that he/she would make upon the participants of the study (such as the subjects will be required to stay back for one hour after school hours etc).

10. The researcher should not make use of hidden cameras, microphones, tape recorders or observers without the respondent's permission. Similarly, private correspondence should not be used without the concerned respondent's permission.

11. If at all the researcher has made some promise to the participants it must be honoured and fulfilled.

12. The researcher should never try to make undue efforts giving favourable treatment after experiments, as more marks in a school/college subject, money and so on.

13. One of the best ways researchers can avoid and resolves ethical dilemmas is to know both what their ethical obligation are and what resources are available to them.

If such things will be kept in mind while conducting experiment or research then the finding or result will be completed in a systematic manner and research will be definitely an IDEAL RESEARCH.

**Check Your Progress**

1. Briefly explain any one type of educational research?

2. "Characteristics is must in experimental research" Discuss.

3. Elucidate the stages/steps of case study?

4. "To follow ethics is necessary in educational research" Discuss.

## 1.6 CONCLUSION-

Let's conclude our chapter-Over view of Educational research. Research is a systematized efforts to gain new knowledge. Research is a careful investigation or inquiry especially through search for new facts in any branch of knowledge. Research is useful to understand different issues and to increase public awareness. It helps other in raising social consciousness. Research is equally important for social scientists in studying social relationships and in seeking answers to various social problems. In this chapter, we have discussed four types of Educational research that is

historical, descriptive, experimental and Case study. All types of educational research has its own significance. Research in education and in the other fields is essential for providing useful and dependable knowledge through which the process of education can be made effective. Research is a journey from known to unknown. Educational research is helpful in solving educational problem in systematic and scientific manner. Therefore, researcher should be careful from the first step to the last step of doing research to avoid and resolves ethical dilemmas, which is important for any ideal research.

## 1.7 STUDY QUESTIONS-

1. Explain the concept of research by highlighting its characteristics ?

2. What is the significance of research in today's life ?

3. "Historical research involves the careful study and analysis of data about past events".Explain.

4. How a descriptive research describes and interprets its study?

5. Explain any three experimental (research) design.

6. Briefly explain a case study by giving one example.

7. Why ethics in educational research is must?

## 1.8 REFERENCES-

1. C .R .Kothari (2007)-Research Methodology, Methods & Techniques, New Age International Publishers, New Delhi.

2. Dr. R .N. Sharma (1993)- Methodology of Educational Research, Surjeet Publications, New Delhi.

3. John W. Best and James V. Kahn(2006)- Research in Education, Prentice Hall of India, New Delhi.

4. Lokesh Kaul (1995)- Methodologyof Educational Research, Vikas Publishing House Pvt. Ltd, New Delhi.

5. S. P. Sukhiya, P. V. Mehrotra, R. N. Mehrotra (1989)- Elements of Educational Research, Vinod Pustak Mandir, Agra.

https://www.researchgate.net

https://www.owlcation.com

https://www.theinterscholar.org

https://www.caluniv.ac.in

https://www.studylecturenotes.com

❄❄❄❄❄❄

# 2

# PARADIGMS OF EDUCATIONAL RESEARCH

**Unit Structure**

2.0 Objectives

2.1 Introduction

2.2 Meaning of Paradigm

2.3 Two types of paradigms in Educational Research – Quantitative research

    2.3.1 Concept of quantitative paradigm in educational research

    2.3.2 Significance

    2.3.3 Characteristics

    2.3.4 Merits of quantitative research

    2.3.5 Limitations of quantitative paradigm in educational research:

2.4 Qualitative research –

    2.4.1 Concept of qualitative paradigm in educational research,

    2.4.2 Significance,

    2.4.3 Characteristics,

    2.4.4 Merit and

    2.4.5 Limitations

2.5 Mixed method research

    2.5.1 Introduction

    2.5.2 Concept

    2.5.3 Significance

    2.5.4 Charecteristics

    2.5.5 Merits

    2.5.6 Limitations of Mixed Method

2.6 Educational Research -- Steps in Educational Research

    2.6.1 Aims and Objectives in Educational Research

    2.6.2 Review of related Literature:

    2.6.3 Research Questions

    2.6.4 Hypothesis

    2.6.5 Sampling

    2.6.6 Tools and Techniques of Data Collection

    2.6.7 Analysis of Data

    2.6.8 Reporting

## 2.0 OBJECTIVES:

i) To develop an understanding of concepts of Quantitative and Qualitative Research.

ii) To understand the significance of Quantitative and Qualitative Research.

iii) To explain the merits and limitations of Quantitative and Qualitative Research.

iv) To develop an understanding of concepts of Mixed Method Research.

v) To understand the significance of Mixed Method Research.

vi) To explain the merits and limitations of Mixed Method Research.

vii) To develop an understanding of Steps in Educational Research – (An overview: Selecting and Stating the problem, Aims and Objectives, Review of related Literature, Research Questions, Hypothesis, Sampling, Tools and Techniques of Data Collection, Analysis of Data, Reporting)

**Quantitative and Qualitative Research – concept, significance, characteristics, merit and limitations**

## 2.1 INTRODUCTION

The theoretical basis or framework that guides the researcher is critical in any type of research. The researcher's premises and determiners, as well as his or her processes of investigating acts, are directed by a basic set of conceptualizations in the social sciences, including educational research. This is what is known as paradigm, and it is a set of assumptions about the world and how it should be investigated and explained.

## 2.2 MEANING OF PARADIGM:

The term paradigm was introduced by Thomas Kuhn in his famous book "The structure of Scientific Revolution, 1962". He characterizes a paradigm as:" an integrated cluster of substantive concepts, variables and problems attached with corresponding methodological approaches and tools….a paradigm gathers into itself a community of investigators. The community gives itself intellectual and social support by sharing information within itself.

## 2.3 TWO TYPES OF PARADIGMS IN EDUCATIONAL RESEARCH:

1. **Quantitative Research Paradigm**

2. **Qualitative Research paradigm**

**Quantitative paradigm in educational Research**

The twentieth century saw a conflict between two major paradigms used in educational research. These paradigms have provided direction and structure to research practice. One of them is based on the paradigm of natural sciences. This places an emphasis on empirically quantifiable observations that can be analyzed using mathematical tools. As a result, in educational research, such a paradigm is also known as a **quantitative research paradigm.** The goal of research using this paradigm is to establish causal relationships that lead to explanation.

The other paradigm is derived from the humanities, with a focus on holistic and qualitative data. Such a paradigm's approach is interpretative. In educational research, this is known as the qualitative research paradigm.

### 2.3.1 CONCEPT OF QUANTITATIVE PARADIGM IN EDUCATIONAL RESEARCH:

The concept of quantitative paradigm is covered under social science research. It is also known as empirical - analytical paradigm. It is granted that human beings reason in deterministic fashion to the situations they encounter that every phenomenon that occurs has a cause. With these assumptions, the researcher, under the influence of this paradigm, seeks objective, external, quantifiable explanatory, verifiable and replicable data. According to this paradigm, human behaviour is rule – governed and the objective of the researcher is to identify the law-like regularities in the social educational affairs and to manipulate them as we do with the objects in the physical world.

### 2.3.2 Significance:

Quantitative research paradigms are predicated on the belief that the positivist paradigm is the sole way to explain everything that happens in the world. They believe that using empirical procedures and quantitative methodologies, there is only one truth and explanation for a phenomenon. They argue that every study should be generalizable to similar conditions to some extent.

Quantitative research uses numerical analysis to quantify variables and answer problems. In quantitative research, ontology is a true fact that only exists in one form. Epistemology is the quantitative method used by the investigator to determine the truth. Quantitative research approach is mostly experimental, with a focus on hypothesis testing. Finding the cause-and-effect relationship between variables is what hypothesis testing entails.

### 2.3.3 Characteristics:

**Following are the characteristics of Quantitative Research Paradigm:**

1.  **Basic assumptions:**

    Regarding the nature of reality, the paradigm holds that a single tangible reality exists. This can be fragmented into variables. In this paradigm the perceptions of the objects, events or process are studied. In respect of inquirer -- respondent relationship, the inquirer

maintains distance from the object of inquiry so that reactivity is prevented. Regarding the truth statements (generalizability) the quantitative paradigm leads to nomothetic body of knowledge; truth statements are considered to be enduring value and 'context-free'. Regarding causality it holds that for each effect there is cause; controlled experiment can detect cause, concerning the relation to values, the inquiry is considered 'value-free', methodology being 'objective'.

**2. Approach:**

The quantitative research paradigm in educational research gives more importance to generation of universal arguments after natural sciences paradigm. They are more for the general view of the phenomenon under study.

**3. Goals:**

The quantitative paradigm aims at establishing facts and testing of theories. A prior theory often guides inquiry. Statistical descriptions of facts present relations and intend to predict.

**4. Research design:**

In the quantitative paradigm the research design is well specified; it is predetermined and gives the details in such a way replication studies are possible. Hypotheses are formulated at the beginning of study and the way they would be treated statistically, are given at the outset. The sample used is mostly selected randomly and the effect to control extraneous variables is made. Thus, the research designs are well knit and deterministic.

**5. Methods:**

Methods in this paradigm are quantitative for precision and objectivity as well as mathematically manipulable. Methods generally used are: experimental, survey, cross-sectional, longitudinal, etc. These methods use structured observation tools for collecting data.

**6. Tools:**

Quantitative paradigm in educational research prefer non-human data collection devices which allow the researchers to be objective. The tools generally in use are: inventories, scales, questionnaires, tests, structured observation and interview.

**7. Setting:**

Laboratory conditions are preferred because asa whole this ensures control.

**8.** **Method of analysis:**

Quantitative paradigm in educational research follows a deductive approach. Statistical analyses are essentially used. Computers now-a-days is an indispensable tool for data analysis.

**9.** **Rigour, trustworthiness, and authenticity:**

The desirable characteristics of quantitative educational research are, as a whole, represented by internal validity, reliability and objectivity possessed by a piece of research.

**10.** **Nature of findings:**

Research studies using quantitative paradigm have techniques to minimize bias and so the observations ultimately lead to objective findings which are the goals of any significant piece of research in education.

## 2.3.4 MERITS OF QUANTITATIVE PARADIGM IN EDUCATIONAL RESEARCH:

**1.** **Rapid data collection:**

There are rarely delays in the collecting of data for analysis because the data points of quantitative research encompass surveys, experiments, and real-time gathering. That indicates that, in comparison to other research techniques, the information under examination may be examined very quickly. This technique also less frequently requires the separation of systems or the identification of variables.

**2.** **Samples are randomized:**

To avoid bias in the data, quantitative research uses a random approach to gather information. The fact that the knowledge obtained through this research may subsequently be statistically applied to the rest of the demographic group under study provides an extra benefit due to this randomness. The results of this study kind allow for the collection of pertinent data in a fraction of the time that other approaches require, even though there is a chance that some demographics may be overlooked despite randomization to cause errors when the research is applied to all.

**3.** **Reliable and repeatable information:**

By providing consistent results when the same data points are analyzed under randomized conditions, quantitative research demonstrates its own validity. The basis for assurance in future planning procedures is laid by repeating information, even though you might get different percentages or tiny variations in other results. Based on these findings, businesses might modify their messages or programmes to better serve the demands of their target market. The

statistics develop into a trustworthy source that gives the decision-making process credibility.

**4.    Findings can be generalized:**

The problem with other study kinds is that the data points they collect cannot be generalized in any way. When examining target groups, quantitative data may provide an overview rather than specifics, but this also enables the identification of key topics, requirements, or desires. Every discovery made using this methodology has the potential to extend beyond the participant group to the general demography being studied in this investigation. This makes it feasible to spot problem areas before they have a chance to become a problem.

**5.    Research is anonymous:**

Because quantitative data may be used anonymously, researchers frequently employ them while studying sensitive subjects. It is not necessary for individuals to specifically identify themselves in the data gathered. Even if surveys or invitations to interviews are given to each participant, no one's private information is included on the form. Because some research volunteers are embarrassed or disturbed by the subject conversations that involve them, this setting lowers the possibility of producing erroneous results.

**6.    Research can be performed remotely:**

Participants in quantitative research are not required to report to a certain location in order to collect the data. You can communicate with people over the phone, carry out surveys online, or utilize other distant communication techniques to pass information from one party to another. The only actual expense to the participants is their time, even while the quantity and difficulty of the questions you ask can affect how many people opt to participate. This can make it significantly less expensive than alternative approaches.

**7.    Information from a larger sample is used:**

The structure of quantitative research makes it possible to conduct larger investigations, which improves the accuracy of generalizations about the topic matter. Because to work with closed-ended data rather than open-ended questions, there are also fewer factors that can bias the results.

**2.3.5 Limitations of quantitative paradigm in educational research:**

The following are some of the major limitations of the quantitative research paradigm:

**1.    Context stripping:** Educational research situation, by its very nature, comprise numerous variables. Precise quantitative approach that focuses on selected sub-sets of variables, necessarily 'strip' from consideration, through approximate controls and randomization, other

variable that exist in the context of a particular piece of research in education. These stripped variables might, if allowed to exert their effects, greatly alter findings.

2.  **Exclusion of meaning and purpose**: The main content of educational research is human behaviour which, unlike that of physical objects, cannot be understood without reference to the meaning and purpose attached by human activities. Quantitative data, it is assumed cannot provide such right insight into human behaviour. This sets serious limitation to the applicability of quantitative research.

3.  **Insider-outsider view:** The 'outsider' view brought to hear upon an inquiry by an investigator (or the hypothesis proposed to be tested) may have little meaning within the 'insider' view of the studied individuals, groups, societies or cultures. Quantitative data, it is affirmed, are not useful for uncovering the insider view. The theories concerning the study, to be valid, demand that all aspects or contexts of the educational research situation should be taken into consideration which by its very nature, is not possible under the quantitative paradigm.

4.  **Theory-ladenness of facts:** Quantitative approach to research involving the verification or falsification of hypotheses assume the independence of theoretical and observational characteristics of variables. If an enquiry is to be objective, hypotheses must be stated in way that are independent of the ways in which the facts need to test them are collected. Theories and facts are interdependent that is, facts are facts only within some theoretical framework. Thus, a fundamental assumption of the quantitative research paradigm is exposed as dubious. If hypotheses and observations are not independent, 'facts' can viewed only through a theoretical 'window' and objectivity is undermined.

5.  **Under-determination of theory:** This limitation of the quantitative research paradigm is also known as the problem of induction. Not only are the facts determined by a theory window through which a researcher looks for them, but different theory windows might be equally well supported by the same set facts. Although it may be possible, given a coherent set of facts, to arrive by induction at a single, independent theory. For example while a million white swans can never establish, with complete confidence, the proposition that all swans are white, one black swan can completely falsify it. The position of the quantitative research paradigm that it can, by its methods, ultimately converge on the 'real' truth is thus brought sharply into question.

6.  **Value-ladenness of facts:** Just as theories and facts are not independent, neither are values and facts, indeed, it can be argued that theories are themselves value statements. Thus, putative 'facts' are viewed not only through a theory window, but through a value

window as well. The value-free posture of the quantitative research paradigm is thus compromised.

## 2.4 QUALITATIVE RESEARCH:

Prior to the advent of the pragmatic paradigm, it was thought that qualitative and quantitative approaches could not be merged. Constructivist problem-solving methods predominated in the qualitative research paradigm. Since there is no single reality, it is challenging to generalize one result to other situations. Knowing the circumstances that influenced a phenomenon is necessary for its investigation. Due to the circumstances surrounding its occurrence, every event is unique. Typically, problem-solving methods are qualitative and subjective.

### 2.4.1 Concept of qualitative paradigm in educational research:

Qualitative research a field of inquiry in its own right. A complex, interconnected family of terms, concepts and assumption surrounded the term qualitative research. This includes the traditions associated with foundationalism, positivism, post-foundationalism, post structuralism and the many qualitative research perspectives, and for methods, connected to cultural and interpretative studies (Denzin & Lincoln, 2003, p3).

Qualitative research may be of the descriptive, historical and philosophical types. Each method is based on a specific understanding of its object.

### 2.4.2 Significance:

A number of scholars have tried to define qualitative research depending upon their ideological predilections and theoretical propensities. Qualitative research is multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of meanings people bring to them. Qualitative research involves the studied use and personal experience, introspective, life story; interview, observational, historical, interactional, and visual texts that describe routine and problematic moments and meaning in individual's lives (Denzin & Lincoln, 1998 p3).

### 2.4.3 Characteristics:

**The following are the characteristics of qualitative research:**

i) **Multiple realities:**

First, qualitative research assumes that there exist multiple realities in social and educational situations. These realities exist in concrete forms. They are perceived by people differently and thus become different mental constructs for different people. In other words, realities are taken to be what people perceive them to be at a particular point of time. Since social and educational situations keep on changing from time to time, the realities too keep on changing.

Furthermore, since the realities are context specific, they cannot be tangible in a generalized form.

### ii) Meanings and interpretations:

Qualitative research emphasizes on study of meanings given to or interpretations made about objects, events and processes concerning educational situations. To them changes in terms of social and behavioral phenomena cannot be identified with the concept of physical movements which can be identified by external observation alone. Rather the understanding of human behaviour or a social phenomenon involves understanding of how men are, what they are doing or participating in an activity.

### iii) Generation of knowledge:

Qualitative inquiry insists on generation of knowledge resulting from the interaction between the inquirer and the respondents. The respondents answer the questions put by the inquirer in terms of their perception or meanings they attach to their actions. Moreover, interactions take place between the inquirer and his/her respondents to achieve maximum levels of responsiveness and insights concerning the problem under investigation.

### iv) Generalization:

As stated above, the researchers do not believe in the process of generalization as propounded by scientists. They argue that in the process of making a generalization a lot of meaningful information existing in individual units is undermined; hence generalized knowledge does not represent real knowledge. For them, the process of knowledge generation must take into account the differences or real evidences existing in different specific situations.

### V) Human relations:

In the case of human relations, several intrinsic factors, events and processes keep on influencing each other constantly. Therefore, it is not possible to identify one to one cause and effect relationships at this level of naturalistic studies. The causality in social sciences cannot be demonstrated in the 'hard' sense as it is done in the case of physical sciences. Rather, only patterns of plausible influences can be inferred from social and behavioural studies.

### vi) Value systems:

Qualitative Researchers do no believe in value-free inquiry. The influence of value systems is recognized in the identification of problems, selection of samples, use of tools, data collection, the conditions in which data are gathered, and the possible interaction that takes place between the inquirer and the respondents.

### 2.4.4 Merits:

1. It is possible to understand the attitudes.

2. Content Creator: This approach allows for genuine ideas to be collected from specific socio-economic demographics that can further be used to create valuable content.

3. Saves money: The qualitative research process uses a smaller sample size than other research methods, thereby leading to lower research costs.

4. It can provide deeper insights related to research topic.

5. Due to open-ended questions, the qualitative research process allows researchers to mine the authentic and emotional data that drive decision-making responses.

6. It has flexibility: There isn't a rigid structure to qualitative research process. Because of this flexibility, trained researchers are permitted to follow-up on any answer they wish to generate more depth and complexity to the data being collected.

7. It offers predictive qualities: The data which is gathered through qualitative research is perspective-based which is why it has a predictive quality to it.

8. It allows for human instinct to play a role: The qualitative data often provides higher level of accuracy and authenticity than any other form of data offered.

9. It can be based on available data, incoming data, or other formats: The qualitative research method does not require a specific pattern or format for data collection. If researchers feel like they are not generating useful results from their efforts, they can change their processes immediately. There are more opportunities to gather new data when using this approach.

### 2.4.5 Limitations:

1. **It can be time consuming:** Because researchers follow numerous tangents when collecting data, it takes more time to gather it. Sorting through all of that extra data takes time.

2. Masses of data has to be transcribed which is tedious and time-consuming process.

3. Comparatively, data coding is a difficult task in this approach.

4. This approach may not be applicable to widely dispersed social settings.

5. Usually this gives only nominal level data, difficult to quantify and control researcher bias.

6.  The qualitative research process does not provide statistical representation. It will only provide research data from perspective only. Responses with this form of research cannot usually be measured.

7.  In case researchers are unable to see necessary data when they observe it, there is risk of losing important observation which lessens the accuracy of the results from the qualitative research efforts. That could even lead some research efforts towards false conclusions.

8.  This approach might not be effective where important decision has to be made, for which numerous perspectives are often required.

9.  **Difficult to replicate results:** Because qualitative research is based on individual perspectives, it is almost impossible to duplicate the results that are found. Even the same person may have a different perspective tomorrow than they had today. That means the data collected through qualitative research can be difficult to verify, which can lead some to question the conclusions that researchers generate through this process.

10. **It can create misleading conclusions:** Since qualitative research constitutes small sample so there is always a chance that the research sample may include like-minded people while completely ignore the perspectives of those on the other side. There is no absolute way to know if the conclusions generated through qualitative research can apply to an entire demographic region.

11. Research conclusions may be influenced by researcher's bias.

12. **Risk of non-acceptability:** Even though there is a certain authenticity to qualitative research, there is also a certain subjectivity to it. Because of this nature, the data collected may not be accepted. If similar qualitative research efforts do not produce similar results, the data originally collected might even be rejected.

**CHECK YOUR PROGRESS:**

1.  What do you mean by qualitative research paradigm?

    _____

    _____

    _____

2.  What do you mean by quantitative research paradigm?

    _____

    _____

    _____

3. State the characteristics of qualitative research.

_____

_____

_____

**Questions:**

1. Explain the meaning of paradigm. Explain the merits and limitations of qualitative   research.

2. Discuss the concept and significance of quantitative research.

3. Discuss the concept and significance of qualitative research.

**a)  Mixed Method Research – Introduction, concept, significance, characteristics, merit and limitations**

## 2.5 MIXED METHOD RESEARCH:

In order to deal with research problems, mixed-method research designs combine approaches from qualitative and quantitative methods. The objective, general design, procedures, sampling, data recording, analysis, and interpretation are only a few of the many methodological possibilities available to mixed method social investigators. A fully mixed technique includes several approaches at every stage of the study, while the researcher may also opt for particular points of contact.

### 2.5.1 Introduction:

Mixed-methods research has been around since the mid- to late 1980s. Experts in methodology and writers from all over the world appeared to be working on the same ideas about the use of quantitative and qualitative methods at the same time. Many qualitative and quantitative researchers did not view the other technique to research as legitimate up until this moment. Members of both study groups, however, began to see the advantages of the alternative approach on a deeper level.

For example, quantitative researchers began to recognize that qualitative data could play an important role in quantitative research; similarly, qualitative researchers began to recognize that reporting only qualitative views of the world – and of a few individuals – would not allow the findings to be generalized to a large number of other individuals and audiences.

Mixed methodologies research incorporates components of both quantitative and qualitative research. Because it combines the advantages of both quantitative and qualitative research, mixed methods can provide a more complete picture than a single quantitative or qualitative study.

In the behavioural, health, and social sciences, mixed methods research is frequently employed, particularly in multidisciplinary settings and complicated situational or societal studies.

### 2.5.2 Concept:

A mixed methods research design is a procedure for collecting, analyzing, and "mixing" both quantitative and qualitative research and methods in a single study to understand a research problem.

During the last few decades, mixed methods research has evolved as the third research community in the social and behavioural sciences, combining quantitative and qualitative research methodologies. In recent years, mixed methods research, research paradigms, methodology, and action research have pushed for the integration of quantitative and qualitative research to address complicated problems. Mixed methods research combines quantitative and qualitative research approaches into a single system process to convey research findings.

### 2.5.3 Significance:

Mixed methods research is a procedure for collecting, analysing and mixing or integrating both quantitative and qualitative data at some stage of the research process within a single study (Creswell et al., 2011).

The philosophical assumptions that underlie mixed methods research at a higher level guide the research enquiry. The constraint of employing a single method design to grasp the research problem can be overcome through mixed methods research. The key drivers of the mixed methodologies research technique selection should be the study question, objectives, and setting. It's worth noting that the strategy chosen is determined by the context of the phenomenon. Rather than sticking to a single technique design, mixed methods research allows quantitative and qualitative investigations to inform each other in a variety of ways. As a result, mixed methods research is valued since it opens up fresh perspectives on the world from the perspectives of social and natural scientific study. Quantitative ways to identifying individuals to interview in mixed methods research may be used to analyze numerical data and identify individuals to interview. Mixed methods research eliminates the limitations of employing only particular types of data gathering instruments connected with a single study design or connecting multiple studies to achieve a single goal. Mixed methods research, by providing a bridge for the application of diverse paradigms as part of pragmatism, overcomes the barrier of techniques adversaries.

### 2.5.4 Characteristics:

The major characteristic of mixed-methods research is that it combines quantitative and qualitative methodologies by incorporating both quantitative and qualitative data into a single study.

**Creswell and Plano Clark (2011) identified core characteristics of mixed methods research. The researcher:**

1. Gathers and analyses qualitative and quantitative data in a compelling and rigorous manner (based on research questions)

2. Combines (or merges) the two types of data at the same time by combining them (or merging them), progressively building one on top of the other, or embedding one within the other.

3. Gives one or both types of data precedence (in terms of what the research emphasizes)

4. Implements these techniques in the context of philosophical worldviews and theoretical perspectives.

5. Consolidates the techniques into specific research designs that guide the study's execution. Because these challenges and questions are investigated in multiple ways, mixed methods research provides a practical approach to solving research problems and questions, as well as the potential for increased applicability. Specific forms of design will be described, and selected studies exemplifying various designs will be provided, after evaluating the aims of mixed methods and the features that can be useful in deciding which design to apply.

**Strengths of this method:** Quantitative methods are always attributed to natural science (positivist) whereas qualitative methods are often associated with social science (interpretivist) (Mingers, 2006). Mixed method merges both (qualitative and quantitative methodologies) in one study. For instance, mixed method researchers use numbers to be more precise when describing a picture or words. Hence, strengths for both studies (quantitative and qualitative) can be applied to mixed research method as well.

### 2.5.5 Advantages of Mixed Research

**These are some of the benefits of having mixed method research:**

1. It provides a more complete and comprehensive understanding of the research problem than doing it separately.

2. It provides a better focus by developing better and more specific instruments according to the research context.

3. Helps explain findings or how causal processes work.

4. More precise perspective of the phenomenon (comprehensive, complete and holistic).

5. Helps to clarify and formulate the problem statement, as well as the most appropriate ways to study and theorize research problems.

6. The multiplicity of observations produces more varied data; diverse sources and types of data, contexts or environments and analyzes are considered.

7.  Theoretical creativity is enhanced. Advantages of mixed methods research

8.  They support scientific inferences more robustly than if they are used in isolation

### 2.5.6 Limitations of Mixed Method:

1.  It is very expensive. It demands more time to plan and to be completed.

2.  Findings may be difficult to be interpreted.

3.  Much more time and resources are required to plan and implement this type of research.

4.  Methods need to complement each other

5.  It can be difficult to plan and apply one method using the results of another.

6.  How to resolve discrepancies that arise in the interpretation of the results may be unclear.

7.  skills needed to analyze both sets of data

8.  The research design can be very complex; discrepancies can be unclear and hard to be corrected.

9.  It requires more resources to collect and analyze both types of data.

10. Quantitative or qualitative results of the first phase of the study may fail to demonstrate significant differences for the second phase.

11. This method requires a consistent and clear presentation so that the audience can easily and accurately follow the procedures and the findings.

12. Researcher needs to be familiarized with multiple methods and displays the ability to mix each one of them effectively.

13. Methodological purists only believe in either qualitative or quantitative research. Alternative's methods are not applicable.

### CHECK YOUR PROGRESS:

1.  What do you mean by mixed method research?

_____

_____

_____

2.  Explain the concept of mixed method research?

_____

_____

_____

3. State the characteristics of mixed method research.

_____

_____

_____

b) Steps in Educational Research – An overview: Selecting and Stating the problem, Aims and Objectives, Review of related Literature, Research Questions, Hypothesis, Sampling, Tools and Techniques of Data Collection, Analysis of Data, Reporting.

## 2.6 STEPS IN EDUCATIONAL RESEARCH:

Educational Research is conducted using the steps as followed in scientific method. These steps will provide an holistic understanding of the process of educational research.

**<u>Selecting and stating the problem</u>:**

**Step 1: Identification of the research problem:**

Identification and selection of the research problem is the first step of educational research. The research problem is a felt need, which the researcher wants to fulfill, or a question which he/she seeks to answer. The research problem needs to be formulated clearly and precisely so that it provides the researcher the nature of data to be collected and the process of collecting data.

**Step 2: Formulation of hypotheses:**

In order to arrive at generalizations about the problem, the researcher needs to formulate tentative solutions in the form of hypotheses. These hypotheses are intelligent guesses about the possible solutions to the problem. Since these hypotheses are to be verified by obtaining data or evidence, their formulation is to be done very carefully in operational terms.

**Step 3: Selection of research methods:**

All educational problems cannot be studied using a single research method. Since the nature of problems varies from problem to problem, it calls for use of different methods. Research methods are procedures to collect and analyze research evidences. Research methods generally used in educational research are experimental, historical, philosophical and descriptive methods.

**Step 4: Data collection procedure:**

All educational problems cannot be studied using a single research method. Since the nature of problems varies from problem to problem, it calls for use of different methods. Research methods are procedures to collect and analyze research evidences. Research methods generally used in

educational research are experimental, historical, philosophical and descriptive methods.

**Step 5: Analysis and interpretation data:**

**Analysis and interpretation data refer to the selection of appropriate techniques for processing the data. These include the use of quantitative (statistical) techniques and quantitative techniques.**

**Step 6: Reporting the result:**

The result of the study needs to be reported for the benefit of future researchers, planners' policy makers and system developers, etc. Hence, the research report must include the detailed procedures of the study, findings, conclusions and suggestions for the future study.

### 2.6.1 Aims and Objectives in Educational Research:

The research aim focus on what the research project is intended to achieve; research objectives focus on how the aim will be achieved. Research aims are relatively broad; research objectives are specific. Research aims focus on a project's long-term outcomes; research objectives focus on its immediate, short-term outcomes. A research aim can be written in a single sentence or short paragraph; research objectives should be written as a numbered list.

The goal of the research is to find answers to the questions through the use of scientific procedures. The primary goal of research is to discover the truth that has been hidden and has not yet been discovered. The following broad categories can be used to categorize research objectives:

1. To become acquainted with or gain new insights into a phenomenon (studies with an object in mind are referred to as exploratory or formulative research studies);

2. To accurately depict the characteristics of a specific individual, situation, or group (studies with this goal are known as descriptive research studies);

3. To determine the frequency with which something occurs or is associated with something else (studies with this object in mind are referred to as diagnostic research studies);

4. To put the hypothesis of a causal relationship between variables to the test (such studies are known as hypothesis-testing research studies).

### 2.6.2 Review of related Literature:

After selecting suitable problem for investigation, it is important for the researcher to familiarize himself/herself with and have a thorough knowledge of conceptual or theoretical understanding of his/her field of study, to know what studies have been conducted in it. Thus both conceptual and research literature are to be reviewed for this purpose. An analysis of

the related literature eliminates the possibility of duplication of what has already been done.

The first step in reviewing the literature is identification of the material that is to be read and scanned. The identification can be made through the use of primary and secondary sources available in the library. In the primary sources, the author reports his/her own work directly in the form of research articles, books, monographs, dissertations or theses. These sources provides the researcher a basis for making judgement about the problem to be investigated.

In secondary sources (bibliographies, abstracts, indexes, encyclopedias, etc.) the author complies and summarizes the result of the research studies undertaken by others and provides interpretations of these results. They acquaint a researcher to major theoretical issues in the field and to the work that has been done in the area under study.

The review of related literature is very important as it acquaints the researcher with current knowledge in the field he/she is interested. The review eliminates the risk of duplication of what has been done. It convinces the researcher that the problem selected by him/her has roots in the existing literature and it needs further exploration.

The review helps the researcher to define the scope and limits of the field. The researcher becomes up-to-date on the result of work which other researcher have already done. This background information is helpful in stating and formulating the objectives and hypotheses of the study being under taken by the researcher. It also enables the researcher to perceive relationships among the variables and also to determine what findings other researchers have reported on the problems related to the problem under study.

It helps to understand the research methodology which is helpful in the selection of sample groups, selection and development of tools and techniques and application of data analysis.

The most important purpose for reviewing the related literature is to know about the recommendations of previous researchers highlighted in their studies for further research.

When researcher has completed the study and the results are interpreted, it is important to discuss these results in relation to the findings of other researchers in the field. This discussion is possible only when there is thorough understanding of the related literature, the findings and conclusions are drawn by them.

### 2.6.3 Research Questions:

A research question is one that a study or research project attempts to answer. This question typically refers to a problem or issue addressed in the study's conclusion via data analysis and interpretation. The research question is typically phrased in such a way that it outlines several aspects

of the study, such as the population and variables to be studied, as well as the problem that the study addresses.

Research questions are frequently based on research, as their name suggests. As a result, these questions are dynamic, which means that as researchers analyze related literature and construct a study framework, they can update or refine the research topic. While many research initiatives focus on a single research question, larger studies frequently employ many questions.

The fundamental benefit of framing the research question is that it narrows down a large area of interest into a focused study area (Creswell, 2014). Hypotheses and research questions can serve as a guiding foundation for study. These questions also expose the study's boundaries, establishing its bounds and assuring cohesiveness.

Furthermore, the research question has a cascading influence on the remainder of the research. The research technique, sample size, data collecting, and data analysis are all influenced by these questions (Lipowski, 2008).

- **Types of Research Questions:**

  Depending on the type of study to be conducted, research questions can be categorised into many categories. Knowing what style of research one wishes to conduct—quantitative, qualitative, or mixed-methods studies—can aid in choosing the ideal research topic.

  As outlined below, Doody and Bailey (2016) propose a number of frequent sorts of study questions.

- **Quantitative research questions**

  Quantitative research questions have a high level of precision. The population to be investigated, dependent and independent variables, and the research strategy to be used are often included in these questions. They are normally framed and finalised at the beginning of the research project (Berger, 2015).

  Quantitative research questions also help to connect the research question to the research design. Furthermore, these questions cannot be answered with a simple "yes" or "no." As a result, words like "is," "are," "do," and "does" aren't used in quantitative research inquiries.

  Quantitative research questions are typically used to better understand specific social, familial, or educational events or processes that take place in a certain setting and/or location (Marshall & Rossman, 2011). They're divided into three categories: descriptive, comparative, and relationship.

  Descriptive research questions are designed to quantify or characterize how a study's population responds to one or more variables. "What" is usually the first word in these inquiries.

For a given outcome variable, comparative research questions seek to uncover variations between two or more groups. These inquiries can also be directed at a causal relationship. For example, the researcher may compare two groups: one in which a particular variable is present and the other in which it is not.

The goal of relationship research questions is to discover and identify patterns and interactions between two or more variables. The words "association" and "trends" are frequently used in these queries, which involve both dependent and independent variables.

- **Qualitative research questions:**

Qualitative research questions might be wide or narrow in scope. Qualitative research questions are connected to research design in the same way that quantitative research questions are. Qualitative research questions, on the other hand, are more malleable, non-directional, and flexible than their quantitative counterparts (Creswell, 2013). As a result, investigations based on these issues are typically designed to "find," "explain," or "explore."

Ritchie et al. (2014) and Marshall and Rossman (2011) classified qualitative research questions into the following types:

- Contextual research questions attempt to describe what already exists.

- Descriptive research questions seek to explain something.

- Emancipatory research questions aim to generate information that enables people to participate in social action, particularly for the benefit of those who are marginalised.

- The effectiveness of existing approaches or paradigms is assessed using evaluative research questions.

- Explanatory research questions aim to explain a phenomenon or look into the causes and connections between things that already exist.

- Exploratory research questions look at areas of a topic that are less well-known.

- The goal of generative research questions is to come up with new ideas for theories and activities to evolve.

- In study aimed at advancing specific ideologies of a stance, ideological research questions are employed.

Hypothesis, Sampling, Tools and Techniques of Data Collection, Analysis of Data, Reporting

Hypothesis, Sampling, Tools and Techniques of Data Collection, Analysis of Data, Reporting.

- **Formulation of Research Questions**

    A good problem statement should limit the study's scope to specified and viable research issues. These are the inquiries that the researcher wishes to have answered or addressed. The more particular scenarios that arise from a general exposition of ideas are referred to as research questions. A researcher begins by stating a general issue statement, such as "Information Technology." He then moves on to a specific issue, such as the 'Role of Information Technology in the Development of Teaching Models.' The researcher then reformulates the problem into a statement of aim or purpose, such as "how information technology contributes to constructing instructional models," in order to analyze it. After that, the investigator must reduce his or her focus to a specific topic, such as "Can information technology assist in the development of teaching models?"

    Thus, following extensive investigation in his or her field of interest, the researcher attempts to determine what exactly should be his or her research problem. The researcher may not always be able to formulate his problem simply, clearly, and entirely. He may have just a broad, diffuse, and even hazy understanding of the subject. The complexity of scientific study necessitates this. If the problem is phrased in either a broad or a limited fashion, the results are either exceedingly unclear or trivial. This is the point at which he choose or states the problem. 'How information technology contributes to establishing instructional models' is a statement of goal or purpose. Following that, as a result, following extensive investigation in his or her field of interest, the researcher attempts to determine what exactly should be his or her research problem. The researcher may not always be able to formulate his problem clearly, succinctly, and thoroughly. He may have merely a broad, hazy, or even vague understanding of the issue. This is due to the fact that scientific inquiry is inherently difficult. If the problem is phrased broadly or narrowly, the results are either ambiguous or trivial. He ultimately selects or states the problem at this point. 'How does information technology help construct instructional models?' is a statement of goal or purpose. This is followed by when he finally chooses or states the problem. The formulation of an issue necessitates the selection of a problem format, whether the researcher will describe the problem in the form of a question or a simple statement.

## 2.6.4 Hypothesis:

Because a hypothesis is a tentative solution or an educated estimate regarding a research topic under investigation, it must be formulated as soon as a research question is formulated. It is an assumption or claim whose tenability is to be determined by its consequences in light of empirical evidence and prior knowledge. Modern researchers agree that research should begin with a hypothesis wherever possible. 'A hypothesis acts as a bright beacon that lights the route for the research worker,' says Van Dalen (1973).

Hypothesis is derived from the words 'hypo' (less than) and 'thesis,' which signifies something other than a thesis. It is the researcher's attempt to prove a presumptive assertion of a proposition or a reasonable guess based on the available evidences through his or her investigation. A hypothesis is an assumption or assertion whose testability is determined by the implications' compliance with empirical evidence and prior knowledge (Mouly, 1963). It's also a declarative remark in which the researcher makes a forecast or hypothesis about the connection researchers outcome.

'Hypothesis' is defined as a tentative solution or working proposition suggested as a solution to problem, and the 'theory as the final hypothesis, which is defensibly supported by all evidence. Hypotheses when tested are either rejected or accepted, and help to infer the conclusion, which helps in theory building.

### 2.6.5 Sampling:

According to Levin and Rubin, statisticians use the term population to refer to all elements that have been chosen for study, not only humans. They use the term "sample" to refer to a subset of the population. A sample, according to Croach and Housden, is a small number of people drawn from a large group for testing and analysis, with the premise that the sample is representative of the entire group. According to Boyce, sampling provides an estimate of some of a population's characteristics. To sample something is to make a judgement or a choice about it after just experiencing a little portion of it.

**Concepts in Sampling**: For clarity and brevity, some concepts and preliminaries of sampling theory, which are used in the study material, are discussed below.

**Sampling Units and Populations:** a unit may be taken as a well defined and identifiable element or a group of elements on which observations can be made. The aggregate of these units is termed as population and the population is said to be finite, if the units are countable. The population is sub-divided into suitable small units known as sampling units for the purpose of sampling. Sampling units may consist of one or more elementary units and each elementary unit belongs to one and one sampling unit.

**Sampling Frame:** a sampling frame is a list of sampling units with identification particulars indicating the location of the sampling units. A sampling frame represents the population under investigation, and it is the base of drawing a sample. As far as possible, it should be up-to-date, i.e., free from omissions and duplications.

Sample: a fraction of the population is said to constitute a sample. The number of units included in the sample is known as the size of the sample.

Sampling Fraction: the ratio of the sample size, n, to the population size. N, is known as sampling fraction and it is denoted by (n 1 N).

**Sampling Procedure/Method:** this is the method of selecting a sample from a population.

**Census:** this denotes all the elements or unit., of a population which are used to explain the features of population. It usually refers to complete enumeration of all persons in the population.

**Population Parameter and Sample Estimator:** any function of the values of units in the population, such as population mean or population variance, is termed a population parameter. There can only be one set of values for a population and the population values are treated as constant. However, the function of the values of the units in the sample, such as sample mean and sample variance, is known as a statistic. The value of the mean and variance differ from sample to sample and, therefore, it is a random variable.

### 2.6.6 Tools and Techniques of Data Collection:

One of the most important steps in research is data collection, and data is collected using a research tool (s). Research tools are instruments that aid in the evaluation of a specific variable under investigation. So, anything used to collect information about a variable under study is referred to as a research tool or a research instrument. Research instruments or research tools are used to measure or collect data for a wide range of variables.

When a researcher plans to collect data, either he/she develops a research tool according to the objectives framed for the study, or selects an already developed standardized tool.

Normally, data can be gathered using both testing and non-testing procedures. The data is obtained through a test, a questionnaire, an inventory, a check list, or a rating scale during the testing procedure; these types of procedures/instruments are referred to as research tools. Non-testing data is gathered through observation or interviews, and these procedures are referred to as research techniques. For various data collection techniques, various types of tools are used. For example, in the observation technique, research tools such as a check list, rating scale, questionnaire, and so on can be used.

We can use a variety of tools to collect appropriate and reliable data. The tool selected will be determined by the nature of the variable and the type of data that a researcher wishes to collect in a given situation. Data can be quantitative or qualitative in nature, as you will learn in the following unit. Let us now go over some of the tools one by one:

**Test:** A test is a systematic procedure for observing and describing a person's behaviour using a numerical scale. A test is useful for obtaining quantitative data.

It is essentially a standardized and objective measure of a sample of behaviour. Standardized tests include psychological tests available in research cells or departments. Non-standardized tests are those created by teachers.

### 2.6.7 Analysis of Data:

The most important stage in social science research is data analysis and interpretation.

There are two types of data: (i) quantitative data and (ii) qualitative data. According to logically accepted rules, numerical values are assigned to the characteristics or properties of objects or events in quantitative data. In qualitative data, however, no such numerical values are assigned, and the description or narration of events or situations is taken as is.

**Quantitative data** describe an empirical event or phenomenon in a numerical system using different measurement scales: nominal, ordinal, interval, and ratio. Nominal scales of measurement are used when a group of objects from two or more categories must be distinguished based on well-defined characteristics such as gender, nationality, and so on. Ordinal measurement scales correspond to quantitative classification of a set of objects using a ranking on a continuum.

**Qualitative data**: is made up of "detailed descriptions" of situations, events, people, interactions, observed behaviours, still or moving images, and artefacts. These data are also available in the form of "direct quotations" from people about their attitudes, beliefs, and thoughts, as well as "excerpts" or "entire passages" from documents, correspondence records, and case histories. In addition, verbal data collected through open-ended questionnaires, observations, and interviews is mostly qualitative in nature.

### 2.6.8 Reporting:

Every research activity is concluded with a presentation of the findings and discussions. The reporting of a research study is determined by the purpose for which it was conducted. A study could have been conducted as a personal research project, an institutional project, a project funded by an outside agency, or to fulfil a degree requirement. When research studies are reported, they adhere to certain standard patterns, styles, and formats in order to maintain consistency in reporting and to facilitate comprehension by others who are interested in those studies. This is the focus of the current Unit's research: What is the best way to write a research report? It begins with the reasons for writing a research report, then moves on to the report's components (the introduction, the main body, and the conclusion).

Once you complete your research project, you are expected to write the report. A research report is a precise presentation of the work done by a researcher while investigating a particular problem. Whether the study is conducted by an individual researcher or by an institution, the findings of the study should be reported.

### Summary:

In this unit we have understood the quantitative and qualitative research – concept, significance, characteristics, merit and limitations along with mixed method research and steps in educational research considering

review of related literature, research questions, hypothesis, sampling, tools and techniques of data collection etc.

**Questions:**

1. Why is it necessary to do review of related literature?

_____

_____

_____

_____

2.  What is hypothesis? Explain the procedure of tools and techniques of data collection.

_____

_____

_____

_____

**Suggested reading:**

Barr, A.S., Davis, Robert A. and Johnson, Palmer U, (1953). Educational research and appraisal. Chicago: J.B. Lippincott Co.

Best, John W. and Kahn, James V. (2006). Research in education. New Delhi: Prentice Hall of India Pvt. Ltd.

Koul, Lokesh(1997). Methodology of educational research. New Delhi: Vikas Publishing House Pvt. Ltd.

Kothari, C.R.,(2004). Research Methodology Methods and Techniques. New Age International Pvt. Ltd.Publishers.

❀❀❀❀❀❀❀

# 3

# ACTION RESEARCH

**Unit Structure**

## 3.0 LEARNING OUTCOMES

After thoroughly reading this module you will be able to:

- Understand the Meaning of Research
- Define Educational Research
- Comprehend the Meaning of Action Research
- Define Action Research
- Apply the Principles of Action Research
- State the Merits of Action Research
- State the Limitations of Action Research
- Distinguish between Merits and Limitations of Action Research
- Understand the Importance of Action Research in Professional Growth

- Analyze the Role of Action Research in Professional Growth

- Develop a Positive Attitude towards Research especially Action Research

## 3.1 INTRODUCTION

In the preceding module, you have learnt about the paradigms of educational research that included quantitative and qualitative research, mixed method research and various steps in educational research. For the present module we shall be learning more about research and the focus shall be on action research and its meaning, principles, merits and limitations. Also, shall be discussing the role of action research in professional growth.

We all face challenges in life whether in personal life or at the workplace. Speaking about challenges in the classroom it can create a terror inside the minds of teachers' especially new entrants or young teachers. The day to day challenges in the classroom can be systematically solved if a teacher understands the mechanics of action research. Undertaking action research can help you in understanding your classroom situations and suggest efficient solutions in solving those day to day challenges. Action research can lead the teaching and learning process in the positive direction by answering the basic questions of the teacher. It can help you in answering the questions like the effectiveness of specific teaching and instructional strategies, the overall performance of students and also the techniques of classroom management.

Having the knowledge of action research shall definitely illuminate the spark within you to flourish as a devoted researcher to undertake major issues existing in the society. It shall help you to come up with scientific justifications and suggestions to overcome it. Before we begin to understand more about the structure of action research let us understand the meaning of action research in the next section.

## 3.2 MEANING OF ACTION RESEARCH

Action research can be described as a process to investigate and inquire about something that occurs and the systematic action taken to solve that problem. It is believed that Kurt Lewin in 1946 coined the term "action research". Today the term action research is used to describe a practice of reflective inquiry that has been undertaken with a goal to improve understanding and practice. According to Kurt Lewin, "*No research without action, no action without research*", in simple words it means that 'action' refers to the change the researcher is trying to implement and 'research' refers to the proposed solution to a problem i.e. improved understanding of the situation.

It was around 1946 when Lewin first coined the term 'action research' in his paper titled "Action Research and Minority Problems". This study focused on characterizing Action Research as 'a comparative research on the conditions and effects of various forms of social action and research

leading to social action' and it used a process of 'a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action'.

According to Frost, "action research is a process of systematic reflection, inquiry and action carried out by individuals about their own professional practice". Picciano defined action research as, "Action research studies problems at the local level. It usually focuses on the development, implementation and testing of a new product, programme, plan or procedure in a school building". Action research provides the various benefits of conducting research in the real setting and teachers are probably already doing some or the other form of research to overcome day to day challenges. In order to use action research to solve any challenges it is important for a teacher to understand the purposes of action research.

### 3.2.1 Purposes of Action Research

There are various purposes of undertaking action research out of which some of them are mentioned below:

1.  Action research aims at improving the quality of the working condition.

2.  It enables the teachers and principals to develop a more holistic approach towards the teaching and learning process.

3.  It also helps in bringing improvements by suggesting certain effective action strategies.

4.  It helps in evaluating the outcomes of the various strategies applied to solve the existing situation.

5.  It is aimed to assist a teacher or principals to understand the root cause of an existing problem and suggest prospective solutions to it.

6.  It focuses on solving those problems that teachers come across in the day to day teaching and learning process.

7.  It develops a positive attitude amongst teachers and principals to cope up with challenges related with teaching and learning process.

### 3.2.2 Approaches to Action Research

Zuber-Skerritt has classified certain approaches to action research that are as follows:

1)  **Technical Action Research:** The aim of technical action research is improving the effectiveness of educational or managerial practices. In this approach, the practitioners are co-opted and depend greatly on the researcher as facilitator but it lacks practical deliberation and self-reflection on the part of the practitioner.

2)  **Practical Action Research:** In this approach in addition to effectiveness the aim is at the practitioner's understanding and professional development. In this approach the researcher's role is to encourage the practical deliberation and self-reflection on the part of the practitioner.

**3)** **Emancipating Action Research:** This approach attempts to combine the effects of the technical and practical action research at changing the system itself of those conditions that impede desired improvement in the system or organization.

It is important to keep in mind that in action research, the action researcher or the teacher researcher or the principal researcher is concerned with a single classroom, school, college or institution. Comparatively it is less rigorous and easier to do than regular educational research. As it is carried out by the person who feels a need for change, improvement or problem-solving and who is in a position to implement them in the institution or classroom. Therefore, the result of such action research should not be taken as given and must not be considered as one solution for all situations.

The above mentioned are approaches to action research action research. But, in order to understand the mechanics of action research it is necessary to understand the principles of action research. In the next section, we shall discuss the principles of action research.

## 3.3 PRINCIPLES OF ACTION RESEARCH

The unique features of action research can be observed in the following set of principles that guides to undertake the research. According to Winter (1989) the following six key principles provides a comprehensive overview of action research:

**1)** **Theory, Practice, Transformation**

The relationship between the principle of theory, practice and transformation is such that for researchers conducting action research, the theory informs practice and practice refines theory towards a continuous transformation. It is believed that an individual's actions are based on implicitly held assumptions, theories and hypotheses in any setting. And with every observed result the theoretical knowledge is enhanced. These two are intertwined aspects of a single process that lead towards change. The researcher decides whether to make explicit the theoretical justifications for the actions and to question the bases of those justifications. This process continues in a cyclical manner wherein it ensures the practical applications that follow are subjected to further analysis. It continuously alternates emphasis between theory and practice that takes place in a transformative cycle.

**2)** **Collaborative Resource**

In an action research apart from the researcher the participants are considered as co-researchers. This principle of collaborative resource presupposes that ideas or inputs from every participant weigh equal significance. These are considered as potential resources in order to create interpretive categories of analysis which were negotiated among the participants. It binds the multiple viewpoints within a

single viewpoint systematically and it strives to avoid the skewing of credibility stemming from the prior status that is of an idea-holder.

### 3) Reflexive Critique

As practice and theory are inter-related this principle of reflective critique attempts to ensure that participants reflect on the issues and the processes in order to make explicit interpretations and assumptions and derive biases and concerns upon which judgments could be formed. It is believed that truth from the teller in a social setting is relative in nature. Therefore, a briefing about any situation that may include notes, transcripts or official documents shall attempt to make implicit claims to be authoritative in nature implying that these are factual and true. Thus this principle attempts to provide practical accounts that can give rise to theoretical considerations.

### 4) Dialectical Critique

The principle of dialectic critique helps in understanding the pattern of relationship that exists between the phenomenon and the context including all those elements constituting the phenomenon. The key elements that need the researchers focused attention are those that are unstable or in opposition to one another. These are the ones that are most likely to create changes. Social reality is generally validated consensually by means of language. The phenomenon is contextualized in dialogue using a language. Therefore a dialectical critique is required to understand phenomenon and its context along with the elements constituting the phenomenon.

### 5) Plural Structure

It is important to understand that the solutions from any action research project acts as a support for the situation at hand and should be generalized. Since the nature of the action research comprises multiplicity of views, commentaries and critiques it may lead to multiple possible actions and interpretations. It is the principle of plural structure of inquiry that requires a plural text for reporting. Hence, it also means that there shall be multiple accounts that could be made explicitly with commentaries on their contradictions. It can also provide a range of options for the action presented. Therefore the researcher and other stakeholders must understand that a report only acts as a support for ongoing discussion or the situation rather than a final conclusion of fact.

### 6) Risk

Generally people resist change as it may potentially threaten the ongoing established ways of doing things and thus leading to fear among the practitioners. Another important fear that is anticipated to arise is the risk to ego stemming from the open discussion where an individual attempts to express one' own views. This principle of risk shall be used to alleviate the fears among the participants and invite

active involvement. With this the participants can openly discuss their own interpretations, ideas and judgments. The researcher can point out that irrespective of the outcome the learning shall take place.

### 3.3.1 Tools for Action Research

Rather than being just a single method of collecting and analyzing the collected data, action research comprises a more holistic approach towards problem-solving. Therefore, this characteristic of action research allows the use of several different research tools available depending upon what the researcher aims to find out by conducting this action research. It is the researchers' discretion to use a standardized readymade tool or wishes to develop a research tool and use. The research tool either readymade or researcher made must be able to collect data and information in sync with the broad aim of the study under consideration.

### 3.3.2 Methods for Action Research

There exists a varied method that is generally common to the qualitative research paradigm that includes keeping a research journal, analysis of the documents collected, recordings of participant observations, questionnaire surveys, case studies, structured and unstructured interviews.

## 3.4 MERITS OF ACTION RESEARCH

The following are the merits of action research:

1) Action research makes change manageable.

2) Action research proceeds from the thorough stages of planning, action and reflection upon the action.

3) Action research can provide immediate solutions to the community problems, especially in the classroom situation.

4) It is a practical way for the researcher to explore the nature of their practice.

5) It provides a detailed description about the weaknesses in the existing practice and suggests ways to improve it.

6) It can be used with both the research paradigm; quantitative research as well as qualitative research.

7) It explores the classroom-based problems of the school and suggests a possible course of action.

8) It assists in gaining in-depth knowledge about the problem.

9) It enhances practitioners' own personal and professional self-development.

10) It raises teachers' own profile among peers and colleagues.

11) The practitioner herself or himself is the researcher making the entire research process democratic.

12) This participation in the research process enhances the practitioners' and all other stakeholders' knowledge and self-esteem.

13) It inculcates the value of being a knowledge-maker rather than knowledge-user.

14) It is also considered as an action-reflection cycle.

15) Action research gives teachers the power to design and implement their research work that may improve the overall performance of the students.

16) It enables teachers' co-operative work with peers and colleagues to take place.

17) It brings about desired changes in the educational and/or managerial practices in an optimistic manner.

18) The feedback based on the research findings also helps in self-development and self-knowledge.

19) It generates a continuous cycle of development in the institution.

20) It enhances the status of the teacher through collective participation.

21) It creates an environment of change that is benefitting to the entire institution.

22) Action research can also help in improvising the students' academic performance.

23) Action research promotes collaboration.

24) It motivates other teachers to undertake research to enhance their teaching and learning process.

25) It promotes development in the institution as research causes development and development is based on research findings.

26) It brings a positive attitude towards the research culture in the workplace.

27) Action researchers, especially teachers, learn from each other by sharing ideas and become more connected with broadened perspectives.

28) It promotes the active involvement of the teachers in the issues affecting their school and students.

29) Through action research the teachers are allowed to take relevant decisions for the overall betterment of the students.

30) When teachers are allowed to make decisions based on research findings on the teaching and learning process then the students' achievements are enhanced.

## 3.5 LIMITATIONS OF ACTION RESEARCH

The following are the limitations of action research:

1) The scope of action research is limited in nature.

2) Action researchers may conduct the research along with the heavy workload and may not be able to follow the process of research.

3) Action researchers need to have continuous active monitoring closely, as they act within; it also demands space and time.

4) For an action researcher giving due space and time may not always be necessarily possible.

5) The sample included in the action research is not necessarily the representative sample.

6) Findings obtained from the small sample of action research may not be generalized to the larger population.

7) Lack of repeatability and rigor since it is an attempt to solve a particular problem.

8) It is challenging to maintain the rigor in the data collection process and so on and so forth.

9) Difficult to control the intervening variables and other factors which could affect the findings of the action research.

10) The nature of the research is dependent on what is permissible within the institutional setting.

11) Delays in the completion of action research may decrease the effectiveness of the solutions to the problems identified at the beginning.

12) Action research may give too much power to the teacher and the teacher may try to control the behavior of the students.

13) Implementing the findings of action research may also leave the teacher with little or no control over classroom activities.

14) As the practitioner herself or himself is the researcher it shall be challenging to be completely detached or behave in an unbiased manner.

15) The action researcher may focus more on the solution rather than the research process.

16) The practitioner may not have an appropriate research attitude.

17) Difficulties in distinguishing between application of both; action and research.

18) The interpretations of the finding may not be free from researcher's biases or ego.

19) It is challenging for the researcher to suspend any preconceived ideas of the potential solutions to the problem may influence to conduct an unbiased research process.

## 3.6 ROLE OF ACTION RESEARCH IN PROFESSIONAL GROWTH

Action research works as an added advantage for professional development. It is said so because action research focuses on methods that are applied by teachers and the efforts taken for the improvement of the classroom instructions or the teaching and learning process as a whole. While doing so the concerned teacher has to undergo several training sessions in order to understand the research process thoroughly. Action research is generally done through the collaboration of the stakeholders like students, community and the teachers. It also involves research on the topics relevant to the stakeholders especially undertaken in the classroom settings. Ultimately all these experiences lead to learning and in turn contribute positively towards the professional growth of the teacher or the action researcher or the practitioner.

Action research assists in taking charge of your personal and professional development because you reflect on your actions along with it and you keenly observe other master teachers. This way you will identify the skills and strategies you would like to add to your own professional toolbox. Undertaking action research shall provide potential solutions to problems and with this you as action researcher are exposed to new ideas. This shall help you in identifying the management skills and instructional training required for bringing in the changes that you want to see. Action research fosters in developing the skills pertaining to critical thinking, problem solving and ethical decision making. The expertise gained from the action research can turn the researcher into advocates for those practices that are beneficial for all the stakeholders.

Undertaking research on a regular basis boosts the confidence of the teachers and affects their morale positively. Action research enables the researcher to develop a systematic and inquiring approach towards their own practice. The action researcher also gains insights and develops reflective practices leading towards optimistic changes in the school environment and improves self-knowledge. Action research encourages the practitioner to introspect and engage in systematic examination of their practice and to improvise it accordingly. It engages practitioners into a critically investigative process of improving the school climate, classroom practices and related policies. Action research empowers the practitioner or the teacher for collecting the data in order to use it for making informed decisions about their classroom practices.

Action research is also considered as worthwhile and an effective channel for professional growth and development. As action research offers a way for practitioners to critically reflect on their practices it stimulates a change in their thinking and practice. It also promotes self-improvement and self-awareness. It is also considered as a worthwhile professional development activity because it enhances solution-based mindset emphasizing on fostering empowerment of the practitioner. It offers an infinite scope for the action researcher or the practitioner or the teacher for developing

customized action research projects of their own and on their own. It increases learning and improves the confidence of the practitioner for the development of effective instructional strategies. The teachers may begin to view themselves as more responsible leaders with a voice and perform their duties more efficiently. It develops the leadership qualities of the teacher as they may contribute to the school matters proactively. The entire community gets benefited from these leaders because it develops the attitude of learning from each other and promotes the development of a community of learners.

### 3.6.1 Types of Action Research

The field had evolved by the mid 1970s and came up with 4 main 'streams' that had emerged as traditional, contextural (action learning), radical and educational action research.

**1)    Traditional Action Research**

This type of action research emerged from the approach that tends toward the conservative organizational power structures generally maintaining the status quo. Traditional action research has been stemmed from Lewin's work within organizations and encompasses the concepts and practices of field theory, group dynamics, etc. The increasing importance of labor-management relations has led to the application of such type of action research in the areas of organization development, quality of working life, socio-technical systems (e.g., Information Systems) and organizational democracy.

**2)    Contextural Action Research (Action Learning)**

Contextural action research has been derived from Trist's work on the relations between organizations. At times it is also referred to as action learning. This type of action research is called as contextural action research because it entails the reconstituting of the structural relations. It includes the relations among the actors in a social environment. It also aims at involving all the affected participants and stakeholders for understanding the in-depth working of the situation. It also stresses that the participants act as project designers and co-researchers. It promotes social transformation by consensus at large. The organizational ecology concept is one such outcome of the contextural action research that exhibits more of a liberal philosophy.

**3)    Radical Action Research**

This type of action research is inspired by the radical stream and has its roots in Marxian 'dialectical materialism'. The praxis orientation of Antonio Gramsci has a strong focus on emancipation and overcoming the power imbalances. The participatory action research normally found in liberationist movements and international development circles and the feminist action research, both strive for the social transformation through an advocacy process for strengthening the peripheral groups in the society.

**4)    Educational Action Research**

The fourth type of action research is educational action research. It has its foundations in the writings of the great American educational philosopher of the 1920s and 1930s, John Dewey. He believed that professional educators should be actively involved in community problem-solving. Mainly the practitioners' focus on the development of curriculum, professional development and applying learning in a social context but surprisingly operate out of educational institutions. Generally the university based work of action researcher is with primary and secondary school teachers and students on community projects.

**3.6.2 Role of the Action Researcher**

Although the results of action research may not be generalizable, the role of the researcher undertaking action research does not vary much from the role of any other researcher undertaking research. The role of the action researcher is to implement the action research method in such a manner so as to produce a mutually consenting outcome for all the participants. Also, the participants shall be able to maintain the process thereafter. In order to accomplish this task a researcher will have to adopt several various roles at different stages of the process out of which some of them are mentioned in the following figure 1: Role of the researcher.
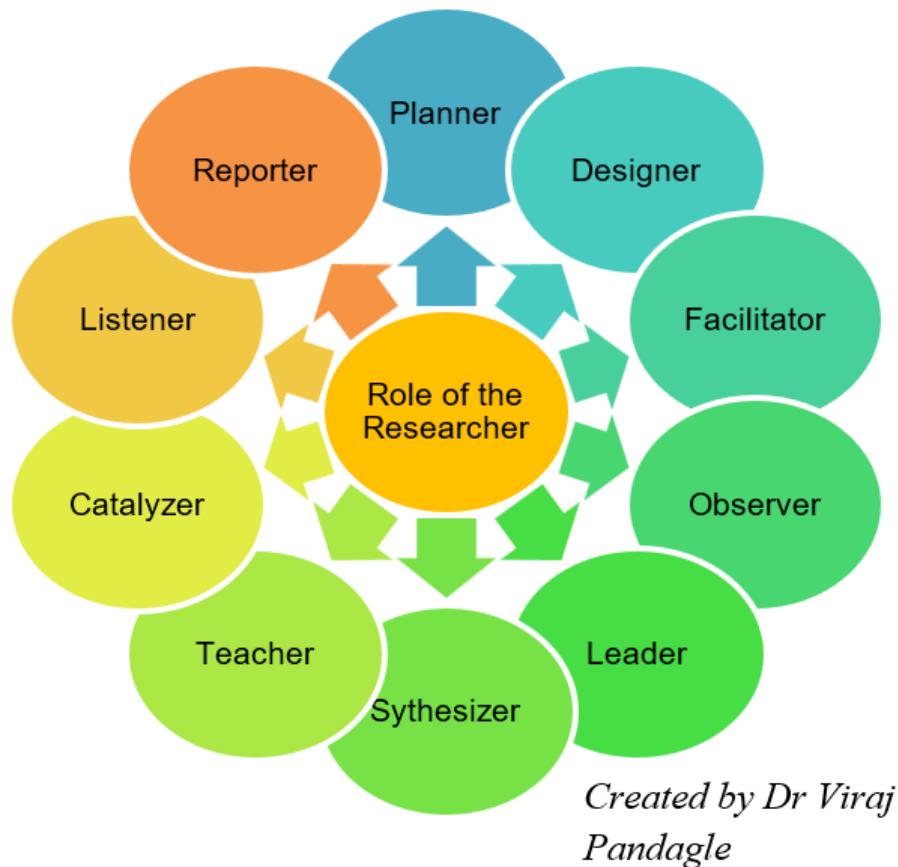


**FIGURE 1: ROLE OF THE RESEARCHER**

The preceding figure 1 represents some of the roles that an action researcher needs to adopt from time to time and at times simultaneously. At times, the action researchers are hired to facilitate dialogue and foster reflective analysis among the participants and provide them with periodic reports and write the final report at the end. If the action researcher is other than the local leader or the teacher then the researcher before exiting the research is expected to nurture the local leader or the teacher to take the responsibility for the process. It means that even in the absence of the researcher the teacher is able to carry on with the process of research systematically and assign self with the roles of the action researcher.

### 3.6.3 Action Research and Ethical Considerations

Action research takes place in the real-world situation consists of closed-opened communication among the participants involved. It is the prime responsibility of the researcher to pay keen attention to the participants' privacy and must maintain confidentiality of the information shared by them. All these are considered as essential components of ethical considerations that must be maintained by the researcher while conducting a research. Winter (1946) has listed the following principles that attempts to take care of the ethical consideration for conducting a research:

- All the permissions and consents for conducting the research must be taken well in advance by the researcher

- Make sure that the relevant persons, committees and authorities have been consulted

- The principles guiding the work are accepted in advance by the concerned authorities and/or participants

- The participants must be allowed to influence the work by contributing their inputs, ideas, experiences, observations wherever necessary

- The wishes of those participants who do not wish to participate must be accepted and respected

- The development of the research work must be transparent

- It should be made available for suggestions from all the stakeholders

- Before making any observations or examining documents produced for other purposes the consent must be obtained first

- Before publishing the report descriptions of others' work and points of view must be negotiated with those concerned

- The researcher must maintain confidentiality and shall accept responsibility for the same

Apart from the preceding points, the decisions made about the research direction and the expected outcome should be collective. The researchers are explicit about the nature of the research process from the beginning including all personal biases and interests. There should be an equal access to information generated in the process for all participants of the research.

The opportunities for involvement of all participants must be kept in mind while planning the research design.

## 3.7 LET'S SUM UP

Action research is a process of inquiry systematically enabling the action researcher or practitioner or teacher to find effective solutions to real life situation problems. Kurt Lewin viewed action research as a research method that is cyclical, dynamic and collaborative in nature and through continuous efforts required changes can be brought into existence for social improvement. It provides the means to bring about the effectiveness of the task assigned to the practitioner systematically. As action research focuses on a particular problem for gaining specific solutions it empowers the practitioner to engage with research for subsequent development by implementing required activities in the field. Action research works as a quick fix for a localized problem. Action research has far more advantages over limitations, thus, making it an effective method in augmenting a holistic understanding of the workplace environment and development of professionalism.

*A positive change comes with research; a research that is with action and an action with research calls for action research – Dr Viraj Pandagle.*

## 3.8 MAJOR QUESTIONS

1) What is the meaning of action research?

2) Explain the principles of action research.

3) What are the merits of action research?

4) What are the limitations of action research?

5) What are the roles of an action researcher?

6) Write a note on action research and ethical consideration.

7) What is the role of action research in professional growth?

## 3.9 REFERENCES

Bryman, A. & Bell, E. (2011) "Business Research Methods" 3rd edition, Oxford University Press.

Collis, J. & Hussey, R. (2003) "Business Research. A Practical Guide for Undergraduate and Graduate Students" 2nd edition, Palgrave Macmillan

Dinkelman, T. (1997). The promise of action research for critically reflective teacher education. *The Teacher Educator, 32*(4), 250-274. Retrieved from http://dx.doi.org/10.1080/08878739709555151

Trist, E. (1979). *Referent Organizations and the Development of Inter-Organizational Domains*. 39th Annual Convention of the Academy of Management, Atlanta, pp. 23-24.

Foshay, A. W. (1998). Action research in the nineties. *The Educational Forum, 62*(2), 108-112. Retrieved from http://dx.doi.org/10.1080/00131729808983796

Frost, P. "Principles of the Action Research Cycle", Ritchie, R. Pollard, R., Frost, P. and Eaude, T. (eds) *Action Research: A Guide for Teachers. Burning Issues in Primary Education.* Issue Number 3. Birmingham: National Primary Trust. pp. 24-32.

Fueyo, V. & Koorland, M. A. (1997). Teacher as researcher: A synonym for professionalism. *Journal of Teacher Education, 48*(5), 336-344. Retrieved from http://dx.doi.org/10.1177/0022487197048005003

Hine, G. S. C. & Lavery, S. D. (2014). The importance of action research in teacher education programs: Three testimonies. In *Transformative, innovative and engaging. Proceedings of the 23rd Annual Teaching Learning Forum*, 30-31 January 2014. Perth: The University of Western Australia. http://ctl.curtin.edu.au/professional_development/conferences/tlf/tlf2014/refereed/hine.pdf

Hine, G. S. C. (2013). The importance of action research in teacher education programs. In Special issue: Teaching and learning in higher education: Western Australia's TL Forum. *Issues in Educational Research,* 23(2), 151-163. Retrieved from http://www.iier.org.au/iier23/hine.html

123HelpMe Essays Topics (n.d.). *Advantages and disadvantages of action research.* Retrieved from https://www.123helpme.com/essay/Advantages-And-Disadvantages-Of-Action-Research-PCG2V9TDN6

IvyPanda. (2020, March 22). *The Importance of Action Research.* Retrieved from https://ivypanda.com/essays/the-importance-of-action-research/

IvyPanda. (2019, August 6). *Benefits of Action Research.* Retrieved from https://ivypanda.com/essays/action-research/

Kolk, M. (n.d.) *Embrace action research.* Retrieved from https://www.thecreativeeducator.com/v07/articles/Embracing_Action_Research

Lewin, K. (1946) Action Research and Minority Problems. *Journal of Social. (2)*34-46.

LeGeros, L. (2016). Why do action research? Innovative Education in VT. Retrieved from https://tiie.w3.uvm.edu/blog/why-do-action-research/#.YhhJCOhBxdh

O'Brien, R. (2001). An Overview of the Methodological Approach of Action Research. In Roberto Richardson (Ed.), *Theory and Practice of*

*Action Research.* Pessoa, Brazil: Universidade Federal da Paraíba. (English version) https://homepages.web.net/~robrien/papers/arfinal.html#_Toc26184654

Pandya, S. R. *Educational Research.* Delhi: APH Publishing Corporation. 2015. P.140

Perrett, G. (2003). Teacher development through action research: A case study in focused action research. *Australian Journal of Teacher Education, 27*(2), 1-10. Retrieved from http://ro.ecu.edu.au/cgi/viewcontent.cgi?article=1317&context=ajte

Picciano, A. G. *Educational Research Primer.* London: Continuum. 2004. p.85.

Winter, R. (1989) *Learning From Experience: Principles and Practice in Action-Research.* Philadelphia: The Falmer Press, 43-67.

❈❈❈❈❈❈❈

# 4

# NEW TRENDS IN EDUCATIONAL RESEARCH

**Unit Structure**

4.0 Objectives

4.1 Introduction

4.2 What is Educational Research?

4.3 Characteristic of Educational Research

4.4 Importance of Educational Research

4.5 New Trends in Educational Research

    4.5.1 Team Teaching

    4.5.2 Individualized Instructions

    4.5.3 Mixed Age Teaching

    4.5.4 Brain Based Teaching

    4.5.5 Critical Thinking Skills

    4.5.6 Collaborative Learning

    4.5.7 E- learning

    4.5.8 Ground Up Diversity

    4.5.9 Competency Based Learning

    4.5.10 Underground Education

    4.5.11 Navdanya

    4.5.12 Problem Based Learning

    4.5.13 Constructivist Learning

    4.5.14 Open Innovation

    4.5.15 Blended Learning

    4.5.16 Collective Education

4.6 Conclusion

4.7 Exercise

4.8 References

## 4.0 OBJECTIVES

- To enable the Students to understand the concept of Educational Research.

- To understand the importance of the Educational Research

- To Examine the New Trends of Educational research.

- To enable students to critical analyze the importance of New Trends of Educational Research.

- To enable the students to understand E – Learning.

## 4.1 INTRODUCTION

Education is an integral aspect of every society and in a bid to expand the frontiers of knowledge, educational research must become a priority. Educational research plays a vital role in the overall development of pedagogy, learning programs, and policy formulation.

Educational research is a spectrum that bothers on multiple fields of knowledge and this means that it draws from different disciplines. As a result of this, the findings of this research are multi-dimensional and can be restricted by the characteristics of the research participants and the research environment

## 4.2 WHAT IS EDUCATIONAL RESEARCH?

Educational research is a type of systematic investigation that applies empirical methods to solving challenges in education. It adopts rigorous and well-defined scientific processes in order to gather and analyze data for problem-solving and knowledge advancement.

J. W. Best defines Educational Research as that activity that is directed towards the development of a science of behavior in educational situations. The ultimate aim of such a science is to provide knowledge that will permit the educator to achieve his goals through the most effective methods.

The primary purpose of educational research is to expand the existing body of knowledge by providing solutions to different problems in pedagogy while improving teaching and learning practices. Educational researchers also seek answers to questions bothering on learner motivation, development, and classroom management.

Check your progress

1. What did you understand by the term Educational Research?

2. What is the definition given by J. W. Best?

_____

_____

_____

_____

## 4.3    CHARACTERISTICS    OF    EDUCATIONAL RESEARCH

While educational research can take numerous forms and approaches, several characteristics define its process and approach. Some of them are listed below:

1.  It sets out to solve a specific problem.

2.  Educational research adopts primary and secondary research methods in its data collection process. This means that in educational research, the investigator relies on first-hand sources of information and secondary data to arrive at a suitable conclusion.

3.  Educational research relies on empirical evidence. This results from its largely scientific approach.

4.  Educational research is objective and accurate because it measures verifiable information.

5.  In educational research, the researcher adopts specific methodologies, detailed procedures, and analysis to arrive at the most objective responses

6.  Educational research findings are useful in the development of principles and theories that provide better insights into pressing issues.

7.  This research approach combines structured, semi-structured, and unstructured questions to gather verifiable data from respondents.

8.  Many educational research findings are documented for peer review before their presentation.

9.  Educational research is interdisciplinary in nature because it draws from different fields and studies complex factual relations.

Check our progress

1.     What are the characteristics of Educational Research?

_____

_____

_____

# 4.4 IMPORTANCE OF EDUCATIONAL RESEARCH

1. Educational research plays a crucial role in knowledge advancement across different fields of study.

2. It provides answers to practical educational challenges using scientific methods.

3. Findings from educational research; especially applied research, are instrumental in policy reformulation.

4. For the researcher and other parties involved in this research approach, educational research improves learning, knowledge, skills, and understanding.

5. Educational research improves teaching and learning methods by empowering you with data to help you teach and lead more strategically and effectively.

6. Educational research helps students apply their knowledge to practical situations.

Check our progress

1. What is the importance of Educational Research?

_____

_____

_____

_____

_____

# 4.5 NEW TRENDS OF EDUCATIONAL RESEARCH

Looking at current trends in educational research provides an eye-opening view of the modern classroom. Pre service teachers who are pursuing careers in education must keep current with changing instructional styles that prepare them to enter the field with the tools they need to best serve today's students.

### 4.5.1. Team Teaching

Putting two instructors in one classroom is known as team teaching, collaborative team teaching or co-teaching. This model provides benefits and presents challenges to both teachers and students. Kids in co-teaching classrooms observe teamwork in action and learn to see concepts from more than one perspective. They have the chance to learn from teachers with diverse backgrounds and can delve deeper into subjects thanks to the opportunity for more one-on-one instruction time. However, conflicting

personalities and the tendency of students to favour one teach over the other can threaten the stability of this model.

### 4.5.2. Individualized Instruction

A great deal of research is being done on how diversification of instruction to cater to the unique needs of students may help them to better grasp core subjects. This type of instruction moves away from the traditional lecture model of teaching and offers students a way to learn at their own pace. Slower learners can take the time they need to develop a solid understanding of material while more advanced students don't have to wait to move on to the next concept. This better addresses individual learning styles and allows teachers to utilize diverse platforms to provide instruction.

### 4.5.3. Mixed-Age Teaching

The potential benefits of putting kids of different ages together in the same classroom are still being researched, but many schools have been using this teaching method for years with good results. In a mixed-age classroom, young students learn how to interact with older ones and benefit from observing their academic abilities. Collaboration between age groups facilitates further development. Achieving advanced competencies at a young age increases confidence. Teachers also benefit from mixed-age classrooms in that they're able to track their students through more than one grade to get a clearer picture of academic growth.

### 4.5.4 Brain-Based Teaching

Based on neuroscience research that shows consistent practice of a concept creates strong pathways between neurons, brain-based teaching takes advantage of the power of the developing mind to create the greatest amount of positive changes during the short period that kids are in school. Kids work in groups, participate in games that address specific concepts and engage in lessons built around central themes, all with the goal of improving their understanding of important academic skills and ideas. Physical education is included to facilitate the growth and development of new neuronal pathways.

### 4.5.5. Critical Thinking Skills

Although memorization of fundamental facts is critical to building a foundation of knowledge in the early grades, kids also need to be taught how to apply those facts in a multitude of situations. Research into critical thinking skills is driving new ways of teaching that include encouraging students to ask questions, develop problem-solving skills by working in groups and discuss the outcomes of their experiments. These methods of discovery give kids a more active role in their education and teach them how to make decisions by applying the facts they've learned to the problem at hand.

### 4.5.6. Collaborative Learning :

Collaborative Learning is a system in which two or more people cooperate in a learning experience to share and contribute to each member's understanding of a topic and to complete a given task. Sharing information and connecting with others, whether we know them personally or not, has proven to be a powerful tool in education. Students are collaborating with each other through social media to learn more about specific subjects, to test out ideas and theories, to learn facts, and to gauge each others' opinions. Collaboration is a natural part of life and should be included in the curriculum. Sometimes teachers will build a lesson designed specifically to teach collaborative learning and teamwork. There are many teambuilding games and activities that can be done in a classroom that force students to work together to complete a task. In this scenario, students can learn just as much as if they were developing a presentation on their own, but they get the added benefit of learning how to collaborate. Collaborative learning is on the rise in our classrooms. Done correctly, it is a great opportunity to break up the monopoly of the lecture, teach teamwork to our students, and help them to become more productive members of society in the future.

### 4.5.7. E- Learning

Information technology has long past dawned, and knowledge of it is now considered almost a basic necessity. It is no wonder that schools have begun using computers during classes, whether for basic tasks such as student report presentations or even for crucial activities such as exams. Electronic quizzes are hardly new today. To complement the use of computers, various types of software are available. The most basic ones are the word processors, spreadsheet creators, and presentation programs. Then there are more specialized ones such as attendance trackers, educational games, and graphic organizers. With computers, the use of the internet predictably follows. And with this classroom innovation comes an endless world of possibilities. Notes can be recorded, uploaded, and shared. More communication channels are opened up than ever before. Some classes even utilize social networks for communication, as evident in online groups and forums. There are also more substantial school activities done over the internet. For instance, absentee teachers may create online tutorials for students, so that students will not have to miss a learning session. Some major projects also require the use of online journals and blogs for documentation and the like. There are even those who experiment with the creation and maintenance of websites for the exclusive use of the class. In the end, this is the goal of every bit of educational evolution: a journey towards the best quality of education possible for the younger generation.

### 4.5.8. Ground Up Diversity

The late **Sir Ken Robinson** campaigned for changing education through talks, writing, advising, and teaching. He believes education must change because it's a stale environment in which most students don't really learn what they should or want to learn. How that happens makes all the

difference—from the ground up. People, students, and teachers create the change, not the administrators or the executives.

### 4.5.9. Competency-Based Learning

**Competency-based learning** is an approach to education that focuses on the student's demonstration of desired learning outcomes. It says that regardless of the length of time it takes for a student to complete a course, the student completes it based on what they know already. The only factor in determining how or when the student completes the course is the mastery of knowledge within the subject.

### 4.5.10. Underground Education

According to John Taylor Gatto, teachers should choose the real world over the classroom. Students don't learn to live or survive in a classroom. They learn to survive in the real world so the concept of underground education challenges educators in any walk of life to give students the tools with which to live and breathe in the world around them. If the lesson must be taught, then teach it thinking of who they might become.

### 4.5.11. Navdanya

Dr. Vadana Shiva's mission lives and breathes in Navdanya, an organization that promotes self-reliance and earth democracy. The leaders of the organization are women who find strength in women's movements and give women a voice. Earth democracy developed from the idea of seed saving helping local communities become self-reliant.

### 4.5.12. Problem-Based Learning

Students are given a real-world problem then they work together to find a solution to this. Teachers find it invaluable because students learn more with this method.

### 4.5.13. Constructivist Learning

This concept runs on the idea that students create their own learning environments, actively participating in the knowledge they ingest. Creating your own learning involves making mistakes with no preset agenda in place. Constructive learning is not stable so many educational systems reject it.

### 4.5.14. Open Innovation

Open innovation promotes the idea of competition. In the business world this means opening up platforms for companies in the form of contests. In higher education, this means bringing together various institutions for competitions locally and globally. It means not confining it to only a select few but opening up to as many contestants as possible.

### 4.5.15. Blended Learning

**Blending learning** and technology gives students an advantage over others. It's one thing to move along at one's own pace. It's another to learn at one's

own pace. Linking the two makes a difference worth noting. Teachers don't have to be breathing over the neck of the student. Guiding the student is often quite enough.

### 4.5.16. Collective Education

The individual takes the back seat when it comes to the idea of collectivist education. Students learn in groups and more importantly with each other better and more effectively than alone. This doesn't mean that we disregard the individual online learner, but it means that the online learner will learn better when exposed to a group of learners with similar interests who can offer insight and questioning into the process of learning any particular subject.

## 4.6. CONCLUSION :

Keep an eye on these and other research trends as you study to become an educator so that you know what's expected of you when you're in charge of a classroom. Make what you learn an integral part of your teaching methods, discover what works best for your students and continue to modify your methods to create the best possible learning environment.

Examination of case studies and literature from around the world lead to four broad success factors for the implementation of new approaches to initial teacher education:

1.  A clear vision of effective teaching that informs the entire program, provides a basis for prioritization and resource allocation, and ensures that all those involved in supporting preservice teachers present a coherent message.

2.  Integrating theory and practice so that professional experience in schools is central to the program, and graduates leave with a full toolkit of effective teaching strategies and the capacity to continually review and improve their approaches.

3.  Highly skilled and well supported supervising teachers who are accomplished adult educators as well as expert teachers, equipped to play the pivotal role they are assigned in these programs.

4.  Sustainable, scalable partnerships that bring the resources and capabilities of all parties to the table, and engage systems to ensure the benefits of successful approaches are spread widely.

The current policy focus on initial teacher education presents a major opportunity to significantly improve this critical component of a high quality education system. Examination of existing effective practices can provide a strong foundation for further reform. Since the teacher is the pivot of the entire educational system and is the main catalytic agent for introducing desirable changes in the teaching learning process, all attempts need be made for motivating teachers to become innovative and creative. It goes without saying that a self-motivated and really industrious teacher can utilize his or her own resources to keep him or herself abreast of new knowledge and skills. It has been recognized that teacher education

programs should be structured and modified in a way that enables their teacher graduates to respond dynamically to the new problems and challenges in the field of education. Only then can teachers help in national development.

## 4.7. EXERCISE

Q1.  Explain Concept and Characteristics of Educational Research.

Q2.  Illustrate new trends of Educational Research.

Q3.  Explain need of Educational Research.

Q4.  State Importance of Educational Research and correlate with Blended Learning.

**Check your progress**

**Explain the following terms: -**

1.  Team Teaching
2.  Individualized Instructions
3.  Mixed Age Teaching
4.  Brain Based Teaching
5.  Critical Thinking Skills
6.  Collaborative Learning
7.  E- learning
8.  Ground Up Diversity
9.  Competency Based Learning
10. Underground Education
11. Navdanya
12. Problem Based Learning
13. Constructivist Learning
14. Open Innovation
15. Blended Learning
16. Collective Education

## 4.8. REFERENCE:

www.formpl.us/blog/educational-research

5 Trends in Educational Research (masters-in-special-education.com)

Modern Trends In Education: Different Approaches To Learning (teachthought.com)

The Excellence in Education Journal Volume 8, Issue 2, Summer 2019

❄❄❄❄❄❄❄

**5**

# PRACTICAL WORK IN EDUCATIONAL RESEARCH

**Unit Structure**

5.1 Meaning of Educational Research

5.2 Steps of Educational Research

5.3 Scope of the Educational Research

5.4 Types of Research

5.5 Research Design

5.6 Purpose of Research Design

5.7 Research Proposal

## 5.1 MEANING OF EDUCATIONAL RESEARCH :

Educational Research as nothing but cleansing of educational Research is nothing but cleansing of educational process. Many experts think Educational Research as under-

**According to Mouly,** —Educational Research is the systematic application of scientific method for solving for solving educational problem.

**Travers** —Educational Research is the activity for developing science of behavior in educational situations. It allows the educator to achieve his goals effectively.

**According to Whitney**, —Educational Research aims at finding out solution of educational problems by using scientific philosophical method.

Thus, Educational Research is to solve educational problem in systematic and scientific manner, it is to understand, explain, predict and control human behaviour.

## 5.2 STEPS OF RESEARCH :

The various steps involved in the research process can be summarised as follows ;

1.  **The research problem:**

    A researcher must first decide on the general problem area. This step is often difficult for researchers to start. Obstacles is not due to a lack of problems, but in fact the beginners must choose a problem early, when their understanding of how to do research is the most limited.

Educational research start with the selection of a problem that the researcher identifies from the area or field of is interest. The problem should be such that can be clearly stated. The statement of the problem must be complete. It must be presented in forms that make absolutely clear what data or evidence must be obtained in order to solve the problem.

**2.    Formulation of hypothesis:**

Educational research should make use of carefully formulated hypothesis. These may be formally stated or implied. In formulating hypothesis, the researcher should keep in mind that the hypotheses are tentative generalization about the nature of the difficulty under consideration, calling attention to fundamental relationship or possible solution. The manner of formulating hypothesis is an important aspect of educational research and the researcher should give much thought to it.

**3.    The method to be used:**

The selection of research method to be used is of utmost importance in the research process. It refers to the general strategy followed in collecting and analyzing the data necessary for solving of the problem. The researches are generally classified in three categories:

1. Historical;

2. Experimental;

3. Descriptive.

The method and approach used in this study is dictated by the nature of the problem and type of data required for answering the questions relating to the problem.

**4.    Data collection:**

Data collection is a crucial step in providing the information needed to answer the research question. Each study involves collecting certain types of data. whether they come from the literature or from test subjects - to answer the research question. The data can be collected in the form of words in a survey, with a questionnaire, through observations or from the literature.

Whereas the research method describes the overall approach to the problem, this step concerned with the procedures and techniques to be adopted for data collection. It refers to the nature of sample to be chosen for study , selection and development of data gathering device such as test , rating scale and interview etc.

**5.    Analysis and interpretation of data:**

Good research is characterized by the care taken in the analysis and interpretation of data. It includes the selection of appropriate

qualitative and quantitative techniques to be used for processing the data collected for the study.

The amount of data is usually in the form of numbers analyzed by researchers using different statistical methods. Even verbal data, such as compositions written by high school students, will be converted to a numerical form through the grading process. The analysis of numerical data on quantitative research provides evidence that supports the theory of study or support. Typical data usually takes the form of words like descriptions, observations, impressions, recordings, etc. The researcher should arrange and provide a category or encode large amounts of data so that it can be explained and interpreted. Even though qualified researchers are not concerned with statistics, the study of comparable data is not easy. It is a long and very good process.

**6.    Reporting the result:**

This is the last and important step of the educational research process. It is characterized by carefully formulated conclusions. The researcher must report his procedures and findings with utmost objectivity to others who may be interested in his study and its results.

The researcher finally has data to study so that the research question can be answered. In the plan for the use of tools, the researchers determined how the data should be checked. The researcher now analyzes data according to the plan. The results of this assessment will be assessed and communicated in a way that is directly related to research questions.

## 5.3 SCOPE OF EDUCATIONAL RESEARCH:

 Name of Educational Research changes with the gradual development occurs with respect to knowledge and technology, so Educational Research needs to extend its horizon. Being scientific study of educational process, it involves : - individuals (Student, teachers, educational managers, parents.) - institutions (Schools, colleges, research – institutes) It discovers facts and relationship in order to make educational process more effective. It relates social sciences like education. It includes process like investigation, planning (design) collecting data, processing of data, their analysis, interpretation and drawing inferences. It covers areas from formal education and conformal education as well.

## 5.4 TYPES OF RESEARCH:

**1.    FUNDAMENTAL RESEARCH:**

It is basic approach which is for the sake of knowledge. Fundamental research is usually carried on in a laboratory or other sterile environment, sometimes with animals. This type of research, which has no immediate or planned application, may later result in further

research of an applied nature. Basic researches involve the development of theory. It is not concerned with practical applicability and most closely resembles the laboratory conditions and controls usually associated with scientific research. It is concerned establishing generally principles of learning.

For example, much basic research has been conducted with animals to determine principles of reinforcement and their effect on learning. Like the experiment of skinner on cats gave the principle of conditioning and reinforcement.

## 2. APPLIED RESEARCH:

The second type of research which aims to solve an immediate practical problem, is referred to as applied research. According to Travers, ―applied research is undertaken to solve an immediate practical problem and the goal of adding to scientific knowledge is secondary.‖ It is research performed in relation to actual problems and under the conditions in which they are found in practice. Through applied research, educators are often able to solve their problems at the appropriate level of complexity, that is, in the classroom teaching learning situations. We may depend upon basic research for the discovery of more general laws of learning, but applied research much is conducted in the order to determine how these laws operate in the classroom. This approach is essential if scientific changes in teaching practice are to be effected. Unless educators undertake to solve their own practical problems of this type no one else will. It should be pointed out that applied research also uses the scientific method of enquiry. We find that there is not always a sharp line of demarcation between basic and applied research. Certainly applications are made from theory to help in the solution of practical problems. We attempt to apply the theories of learning in the classroom. On the other hand, basic research may depend upon the findings of the applied research to complete its theoretical formulations. A classroom learning experiment can throw some light on the learning theory. Furthermore, observations in the practical situations serve to test theories and may lead to the formulation of new theories.

For example, a teacher who notices that a segment of the class is not adequately motivated in science might look at the research literature on teaching science and then systematically try some of the findings suggested by the research.

## 3. ACTION RESEARCH:

Research designed to uncover effective ways of dealing with problems in the real world can be referred to as action research. This kind of research is not confined to a particular methodology or paradigm. The purpose of action research is to solve classroom problems through the application of scientific methods. It is concerned with a local problem and is conducted in a local setting. It is not concerned with whether the results are generalizable to any

other setting and is not characterized by the same kind of control evidence in other categories of research. The primary goal of action research is the solution of a given problem, not contribution to science. Whether 26 the research is conducted in one classroom or many classrooms, the teacher is very much a part of the process. The more research trainings the teacher involved have had, the more likely it is that the research will produce valid, if not generalizable research.

As John Best puts it, action research is focused on immediate applications. Its purposes is to improve school practices and at the same time, to improve those who try to improve the practices, to combine the research processes, habits of thinking, ability to work harmoniously with others, and professional spirit. If most classroom teachers are to be involved in research activity, it will probably be in the area of action research. Many observers have projected action research nothing more than the application of common sense or good management. Whether or not it is worthy of the term research it does not apply scientific thinking and methods to real life problems and represents a greater improvement over teachers' subjective judgments and decision based upon stereotype thinking and limited personal experience.

## 5.5 RESEARCH DESIGN:

Meaning of Research Design : Before starting a research, the investigator will look for problem, he will read books, journals, research reports and other related literature. Based on this, he will finalise the topic for research. During this process, he will be in close contact with his guide. As soon as the topic is decided, first task is to decide about design.

Research design is a blue print or structure with in which research is conducted. It constitutes the blue print for the collection, measurement and analysis of data. According to Gay and Airasian (2000), —A design is general strategy for conducting a research study. The nature of the hypothesis, the variables involved, and the constraints of the —real world all contribute to the selection of design

Kothari (1988) says, —Decisions regarding WHAT?, WHERE?, WHEN?, HOW MUCH?, by WHAT? means concerning an inquiry or a research study constitute research design

Thus, it can be said that research design is an outline of what the researcher will do from writing of objectives, hypotheses and its operational implications to find analysis of data. Research design should be able to convey following :

What is the study about?

Where will study be carried out?

What type of data is necessary?

Where necessary data is available?

How much time is needed to complete the study?

What will be the sampling design?

Which tools will be identified to collect data?

How data will be analysed?

Depending upon the types of research the structure of design may vary. Suppose, one is conducting an experimental research, then identification of variables, control of variables, types of experimental design etc. be discussed properly. If someone is conducting qualitative research, then one should stress on understanding of setting, nature of data, holistic approach, selection of participants, inductive data analysis. Thus, according to nature and type of study the components of design will be decided. In short, any efficient research design will help the researcher to carry out the study in a systematic way.

## 5.6 PURPOSE OF RESEARCH DESIGN:

A research design helps the investigator to obtain answers to research problem and issues involved in the research, since it is the outline of entire research process. Design also tells us about how to collect data, what observation are to be carry out, how to make them, how to analyse the data. Design also guides investigator about statistical techniques to be used for analysis. Design also guides to control certain variables in experimental research.

Thus, design guides the investigator to carry out research step by step in an efficient way. The design section is said to be complete / adequate if investigator could carry out his research by following the steps described in design.

While preparing the design of the study, it is necessary to think of research method. It is simply the method for conducting research. Generally, such methods are divided into quantitative and qualitative methods. Such quantitative methods include descriptive research, evaluation research and assessment research. Assessment type of studies include surveys, public opinion polls, assessment of educational achievement. Evaluation studies include school surveys, follow up studies. Descriptive research studies are concerned with analysis of the relationships between non manipulated variables. Apart from these quantitative methods, educational research also includes experimental and quasi experimented research, survey research and causal-comparative research. Qualitative research methods include ethnography, phenomenology, ethnomethodology, narrative research, grounded theory, symbolic interaction and case study. Thus, the researcher should mention about methods of research used in his research with proper justification for its use.

# 5.7 RESEARCH PROPOSAL:

### Meaning and Needs:

Preparing the research proposal is an important step because at this stage, entire research project gets a concrete shape. Researcher's insight and inspiration are translated into a step by step plan for discovering new knowledge. Proposal is more than research design. Research design is a subset of proposal. Ordinarily research design will not talk much about heoretical frame work of the study. It will be also silent about the review of related studies. A strong rationale for conducting research is also not part of research design. At the stage of writing proposal, the entire research work shapes into concrete form. In the proposal, the researcher demonstrates that he is familiar with what he is doing.

### Following are a few purposes of a research proposal:

The proposal is like the blue print which the architect designs before construction of a house. It conveys the plan of entire research work along with justification of conducting the same. The proposal is to be presented to funding agency or a departmental research committee. Now presentation of research proposal is compulsory before the committee as per U.G.C. guidelines of July 2009. In such a committee, a number of experts participate and suggest important points to help and guide researcher. In fact, this is a very constructive activity. In C.A.S.E., a research proposal is presented on three occasions. First, in the researcher's forum on Saturday, second in Tuesday seminar and finally before the committee consisting of Dean, Head, Guide and other experts. Such fruitful discussion helps in resolving many issues. When such presentation is there, it always brings seriousness on the part of researcher and guide also. During such presentation, strengths and limitations of proposal will be come out. Funding agency also provides funds based on strength and quality of proposal. Research proposal serves as a plan of action. It conveys researcher and others as to how study will be conducted. There is indication of time schedule and budget estimates in the proposal which guides researcher to complete the task in time with in sanctioned budget. The proposal approved by committee serves as a bond of agreement between researcher and guide. Entire proposal becomes a mirror for both to execute the study further.

Thus, a research proposal serves mainly following purposes.

(i)  It communicates researcher's plan to all others interested.

(ii)  It serves as a plan of action.

(iii) It is an agreement between researcher and the guide.

(iv)  Its presentation before experts provide further rethinking on the entire work.

Following components are generally included in the research proposal. It is not necessary to follow this list rigidly. It should provide useful outline for

writing of any research proposal. Normally, a research proposal begins with an Introduction, this gives clearly the background or history of the problem selected. Some also calls this as a theoretical / conceptual framework. This will include various theories / concepts related to problem selected. Theoretical frame work should have logical sequence. Suppose researcher wants to study the achievement of class IX students in mathematics in particular area, then conceptual frame may include:

- Objectives of teaching mathematics, its purpose of secondary school level

- Importance of achievement in mathematics.

- Level of achievement as studied by other researchers.

- Factors affecting achievements of mathematics.

- Various commissions and committees views on achievement in mathematics.

All these points can be put into sequence logically. Whenever needed theoretical support be given. This is an important step in research proposal. Generally any proposal begins with this type of introduction.

**A.    Identification of Research Topic:  Sources and Need :**

As discussed earlier, researcher will spell out as to how the problem emerged, its social and educational context and its importance to the field. Some researchers name this caption as background of the study or Theoretical / Conceptual frame work of the study. In short, here the entire topic of the research is briefly

**B.    Review of Related Literature:**

In this section, one presents what is so far known about the problem under investigation. Generally theoretical / conceptual frame work is already reported in earlier section. In this section researcher concentrates on studies conducted in the area of interest. here, a researcher will locate various studies conducted in his area and interest. Try to justify that all such located studies are related to your work. For locating such studies one will refer following documents / sources.

- Surveys of research in education (Edited earlier by Prof. M. B. Buch and Later on by NCERT, New Delhi)

- Ph. D. Theses available in various libraries.

- Current Index to Journals in Education (CIJE)

- Dissertation Abstract International (DAI)

- Educational Resources Information Centre (ERIC) by U.S. office of education.

- Various national / International journals, Internet resources (For detail see Ary, D., Jacobs, L.C., and Razavih A. (1972). Introduction to Research in Education N. Y. Holt, Rinehart and Winston, ING pp 55 – 70)

In research proposal, the review of studies conducted earlier is reported briefly. There are two was of reporting the same. One way could be all such related studies be reported chronologically in brief indicating purpose, sample, tools and major findings. Of course, this will increase the volume of research proposal. Second studies with similar trends be put together and its important trend/s be highlighted. This is bit difficult, but innovative. Normally in review the surname of author and year in bracket is mentioned. There is also a trend to report studies conducted in other countries separately. It is left to guide and researcher whether such separate caption is necessary or not.

At the end of review, in research proposal, there should be conclusion. (Of course a separate caption like conclusion be avoided.) Here, the researcher shares the insights he has gained from the review. Also, on the basis of review he will justice the need of conducting present study. The researcher should conclude with following points:

What has been done so far in this area?

Where? (Area wise)

When? (Year wise)

How? (Methodology wise)

What needs to be done?

Thus, the researcher will identify the Research Gap

## Practical Work and Engagement

Each student is expected to submit a report on one of the following:

a) Select a topic of educational significance and submit a review of a related literature

b) Prepare at least two career profiles related to educational research

c) Submit a research proposal from an educational setting.

❈❈❈❈❈❈