UNIT 9 INTRODUCTION TO EDUCATIONAL RESEARCH

Structure

9.1 INTRODUCTION

Have you ever thought about how modern means of telecommunication devices like smart phones, satellite phones, etc are invented? How have tele-communication devices evolved over the centuries? You will find all this is happening because human beings' basic nature of finding or exploring the newer and unexplored areas, situations, etc., and also their need to communicate with their fellow beings, who are residing at a distance from their places, immediately or in the fastest and efficient manner with less time. The journey of telecommunication started in 1792 with the establishment of a telegraph line and today it has reached smartphones. What is the reason behind it? As we all know that human beings by birth are inquisitive. Since their existence on the earth, they are curious about events and phenomena happening in and around them. They want to find out the answers behind the happenings of each event or phenomenon. This inquisitiveness has led them to undertake an inquiry to know and understand a particular event or phenomenon. This process of inquiry sometimes leads to the generation of new knowledge and sometimes already existing knowledge gets verified or validated by others and some other times the existing piece of knowledge is contradicted or invalidated by others. The way the knowledge has been generated has always been a matter of discussion among the people who are responsible for generating

this knowledge.

Charles Pierce, one of the leading American philosophers describes this process that historically there are four ways of generating knowledge i.e. method of tenacity, method of authority, method of intuition, and method of science. The first three methods are haphazard, disoriented, and lack empirical evidence and testing. But, the fourth method is called the method of science. The scientific method is considered the most appropriate and best-known method of generation of knowledge.

Bassey (1999: 38) defines "Research as a systematic, critical and self-critical inquiry which aims to contribute towards the advancement of knowledge and wisdom (as cited in Morrison, (p. 5) Source: https://www.corwin.com/sites/default/files/upm-binaries/9629_017546Ch1.pdf retrieved on 10th July 2020).

The inquiry which follows the systematic process or procedure and involves the generation of a body of knowledge based on empirical evidence which can be validated by others is termed as Research. Education as a discipline has evolved as researchers have been able to generate knowledge in the field. In this Unit, we are going to discuss the concept, meaning, nature, scope, characteristics, and types of educational research.

9.2 OBJECTIVES

After studying this unit, you will be able to:

- explain the meaning of the term educational research;
- describe the scope and characteristics of educational research;
- explain the process or steps involved in the scientific method of research;
- differentiate among fundamental, applied, and action researches;
- give examples of applied and action research from the discipline of education;
- differentiate between quantitative and qualitative researches; and
- list examples of quantitative and qualitative research in the discipline of education.

9.3 EDUCATIONAL RESEARCH

From the introduction given in 9.1, you might have got an idea about the term research. In other words, research is a scientific process of inquiry to generate new knowledge or verify the existing piece of knowledge or contradict the existing piece of information. In the following sections we discuss concept and meaning of educational research and characteristics of educational research.

9.3.1 Concept and Meaning

Educational research consists of two words-education and research. The term 'Education' has a wider meaning and it's very difficult to give one meaning to the word education. But still, the word education is derived from the Latin word Educare which means to mould or shape. In the context of humans, altering

human behaviour as desired by society. On the other hand, the word 'research 'is derived from the French word 'recherché' which means 'act of searching closely' or 'go about seeking'. Therefore, educational research stands for scientific research that tries to alter or shape human behaviour. In other words, educational research is the process of inquiry in the field of education wherein research generates a body of knowledge in the form of law, theory, principles which can be used in general or specific situations for altering human behaviour. Thus, educational research is a systematic process of finding out how and why the behaviour of people changes or modify in educational settings. It not only involves predicting human behaviour in certain situations but also tries to find answers to unexplained behaviour, phenomena or discover new relationships, etc. It tries to seek answers to the causal relations or connections between various human activities.

Before having a clear meaning of the term and coming out with one's definition, perusal of definitions given by educationists is needed. Below are mentioned a few definitions of educational research :

Ary, Sorenson, and Razaveih (2010) define that "it is the application of the scientific approach to the study of educational problems" (p.19).

"Critical inquiry aimed at informing educational judgments and decisions to improve educational action. This is the kind of value-laden research that should have immediate relevance to teachers and policymakers, and is itself educational because of its stated intention to 'inform'. It is the kind of research in education that is carried out by educationists" Bassey (1999: 39). (Cited by Morrison, p.8)Source: https://www.corwin.com/sites/default/files/upm-binaries/9629_017546Ch1.pdf retrieved on 10th July 2020)

Creswell (2011) defines that "Educational research involves asking questions, collecting and analyzing data to find out the answers to the questions thus helping the practitioners to understand the problem along with accumulating knowledge. It also assists educators to improve the educational practices and focuses the attention of policymakers on important policy issues to make well-informed decisions on policy matter" (p.26).

Anderson (1998) "Research in education is a disciplined attempt to address questions or solve problems through the collection and analysis of primary data for description, explanation, generalization, and prediction" (p. 6).

Analysis of the above definitions indicates that educational research is a systematic and organized method of finding out the answers for the questions raised and for the problems encountered in the field of education as well as to improve the educational practices of the teachers, educational administrators, managers, institutional heads and other stakeholders or practitioners. It also helps the policymakers and planners to make policies based on it and thus make well informed decisions based on educational policies.

9.3.2 Characteristics

In the previous sub-section, you might have come to know that educational research is a scientific process that follows several steps and contains certain

features or characteristics. The features or characteristics mentioned/highlighted by some of the educational scientists are given discussed below.

According to Anderson (1998) following are the ten characteristics of educational research:

- attempts to solve educational problems;
- involves the collection of data either from primary sources (first hand) or from secondary sources (existing data);
- either empirical or observation-based;
- demands accurate and precise observation and description;
- emphasis is on to develop generalization, theories, principles, etc which will facilitate in understanding as well as prediction of behaviour;
- requires expertise in designing the research, developing the tools, familiarizing with the field, collecting data, collating the data from different sources, and analyzing the data;
- tends to find an objective, unbiased solution to the educational problem and made efforts to validate the procedure employed;
- well directed, deliberate, and unhurried activity and often involves the refinement of the problems or research questions during research;
- always meant for others and that's why it is always carefully recorded and reported;
- conducted or done with well defined procedures and in a rigorous manner.

(Source: Gary Anderson & Arsenault, 1998 p.6-7)

Check Your Progress 1

Note: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the Unit.

1. What do you understand about educational research?

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2. Enlist three key characteristics of educational research.

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9.4 PURPOSE OF EDUCATIONAL RESEARCH

Research is a purposeful activity that is carried out by the scientific community as the need has been felt by them to seek the answers and solutions to the existing problems faced by mankind. We as humans will never be free from problems, the quest for inquiry continues and so is the case with knowledge

creation and validation. Therefore, it can be said that research serves various purposes, as given below:

Generation of Knowledge: Research helps us verify existing knowledge and, if necessary, generate new knowledge. For example, various theories of learning explain how human beings learn, Behaviourist theory of learning explains how habits can be formed, information-processing theory explains how we process various types of sensation, how we make meaning of them and what role our memory plays, how we store information and how memory is organized. Research that leads to the generation of knowledge is therefore very carefully planned and conducted in controlled situations. Such research is concerned with theory-building and is known as basic research, also called fundamental research.

Problem-Solving: Research is an activity whose main purpose is to solve the existing problems related to education. These problems may be faced by students or teachers or school leaders or parents or any other stakeholders or an educational institution or a community or a nation at large. In education, they may confront a variety of problems e.g. what is the best method of teaching a language? How can children learn skills more efficiently? How can scientific creativity be fostered among children? etc. all these problems involve relatively more effective ways of promoting learning and development. In each of the problems, the researcher's main objective is to find out the solution(s) so that the same can be applied by the others to solve their educational problems. For example, if a researcher did experimental research, use multimedia or ICT to teach a particular subject and get better results than we can generalize that use of multimedia/ICT helps in facing difficulty in teaching a specific subject to a classroom and the teacher as a researcher finds out the solution, then similar solutions could be applied by other teachers to solve their classroom teaching problems.

Action in Specific Situation: Educational research also demands not only finding out the solution of the problem but also expects that solutions should immediately be applied. But applying the solution, researchers should keep in mind the context specificity of the solution. What do you mean by context specificity? Researchers must bear in mind that the nature of the problems may be the same but solutions may not be replicable in totality, therefore one should look into situations and find out the differences, and these differences in the situations demand specific actions/solutions.

Training for future Researchers: Another main purpose of research is to provide knowledge and skills to build the capabilities of young researchers. As we already know research is an activity that is not only scientific but also requires an inquisitive mind, scientific temperament, critical thinking ability, and most importantly carried out in a systematic and organized manner, so personnel to be researchers must be trained in these areas before becoming a researcher. So, good social scientists always train their young researchers on the above-mentioned aspects.

Note: Section 9.4 is adopted from 'Introduction to Educational Research' (Unit-1) in Perspective of Knowledge (Block-1). MES-016. Educational Research , INGOU, 2017

9.5 SCOPE OF EDUCATIONAL RESEARCH

The education discipline has a broad spectrum and subsumes almost all the disciplines. That's why the scope of educational research is not confined strictly to the field of education only but it cut across various disciplines and that's why often educational research is called inter-disciplinary and multidisciplinary. Given below is the diagram showing the scope of educational research.

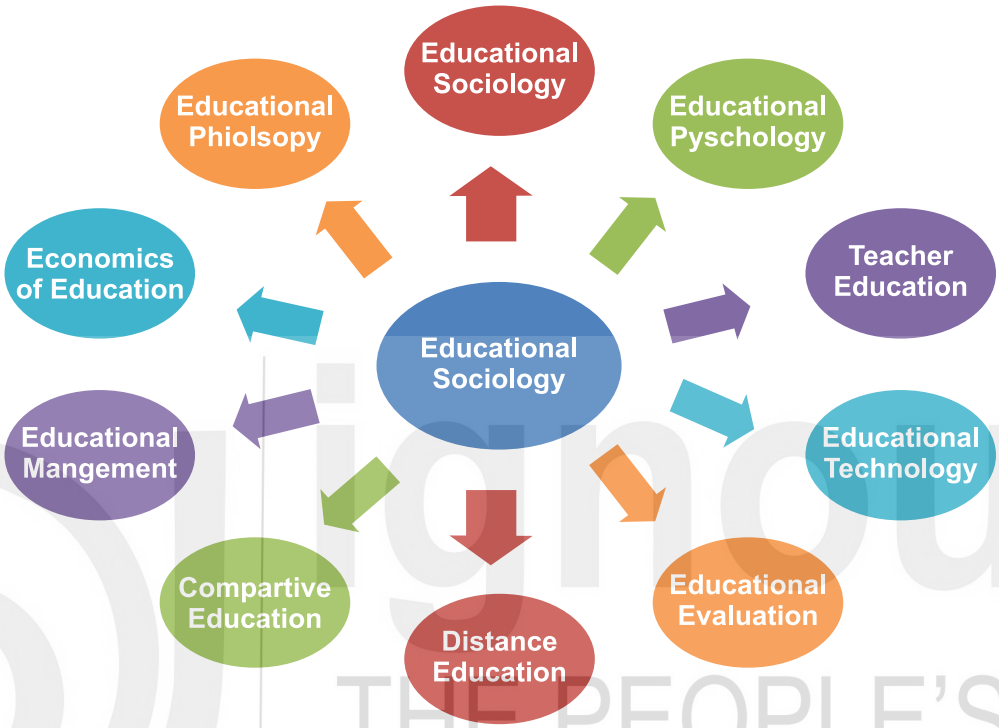

Figure 9.1: Scope of Educational Research

- **Educational Philosophy:** Philosophy is the branch that deals with the search for truth or knowledge. It has a different school of thought propounded by different philosophers in their times. Aristotle, Plato, Swami Vivekanand, Gandhiji, Rabindranath Tagore were some of the known philosophers. Researchers in the field of educational philosophy try to re-investigate the relevance of their thoughts/knowledge in contemporary times, and how far it is relevant in present educational settings.
- **Educational Sociology:** Sociology is the branch that deals with society/communities and their inter-relationships. The educational institutions represent miniature societies, therefore, to study children or learners and their socialization process in their context with peer groups, teachers, and others within and outside the school or educational institutional settings comes in it. Educational Sociology deals with educational problems of specific communities like SC/ST/Minorities/Women vis-à-vis the socio-cultural environment of educational institutions. It also deals with group dynamics of different social groups etc.
- **Educational Psychology:** The branch of psychology wherein researches are done predominantly on the teaching-learning process and its associated concepts to understand the problems of students,

teachers, and others in the field of learning scientifically. It includes cognition and learning, individual differences concerning intelligence, personality, attitudes, aptitudes, motivation etc.

- **Teacher Education:** Educational research deals with problems of teachers (pre-service and in-service) related to the field of professional development, continuing education, capacity building, teaching-learning process, technology-enabled teaching along with issues related to personal, social, and professional roles are studied scientifically.
- **Educational Technology:** In recent years technology has invaded the life of the common man and made it easier for them to do things quickly and efficiently in virtual space. It has impacted education and the educational process tremendously. Online learning has become the buzzword, especially after pandemic lists the whole world. Educational research is going on in the field of techno-pedagogy for reaping the maximum benefits, especially for socio-economically disadvantaged groups.
- **Educational Evaluation:** Educational evaluation has been another area of research that has continuously evolved over the decades. New ways and means of assessment and evaluation of students are being researched which would give accurate and comprehensive information about the performance of students within and outside classrooms. Learning analytics is one of the areas wherein evaluation is used not only to collect information about individual progression in academics but also to provide adequate feedback about the weak areas so that students can work upon their weak areas to excel in the forthcoming evaluation.
- **Distance Education:** Distance education is another area where researches have been conducted and integration of conventional and emerging technologies has revolutionized in terms of reach and impact on the learners. Today student support services coupled with technology have made it possible for online education and support in the form of online pedagogy, implementation of online admission and assessment including regular or on-demand examination, thus facilitated the students irrespective of their place of work or residence and learning both synchronous and asynchronous ways.
- **Comparative Education:** Comparative education is another area of educational research wherein researches are being undertaken to study the education system of other countries or regions and thus help the native countries to improve upon their education systems as per the global or regional standards. This in turn will help the native country to improve their educational governance.
- **Educational Management:** Educational Management and governance/ administration are the areas wherein researches are continuously going on especially related to educational leadership, online examination management systems using learning management systems, schemes, and programs of the welfare of various governments so that benefits reach the beneficiaries, so to help policymakers, planners and administrators to make resource allocations and decisions efficiently and effectively.

Check Your Progress 2

Note: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the Unit.

3. Why do you want to do research? Give any two reasons.

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4. Enlist any three priority areas of research in India. –

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9.6 PROCESS OF EDUCATIONAL RESEARCH

As already discussed above that educational research is a scientific process, therefore educational scientists follow the specified steps to complete research. Following are the steps of educational research:

- **Identifying the Problem:** The first step of research is to identify a problem on which research has to be undertaken. Identification of a problem can be done by searching or going through the existing literature available in the area so that the gaps within it could be identified. It can also be based on your personal experiences or problems faced by certain sections of society.
- **Reviewing the Literature:** This is an ongoing process that starts well before the identification of the problem and goes on till the researcher completes his or her research. In this step, the researcher not only finds out various sources from where the relevant literature related to the problem will be identified but also how it would substantiate the background/ need/justification for the research. Review of literature also finds out the gaps in the existing literature and how the present research carried out by the researcher will fill the gap or how it adds to the existing body of knowledge.
- **Designing a Study:** This step involves the formulation of research questions, objectives, hypotheses along with the design of the research. Researchers must address and try to provide answers to the questions raised by the researchers/ community of researchers/community of practitioners. Normally researchers translate these research questions into smaller objectives as objectives are precise, specific, and measurable. A hypothesis is another part of this step. Researchers formulate/ frame the hypothesis in a statement form which is either to accept or reject the guess or hunch he/she has. This step gives the researcher a clear-cut plan of action i.e. how to research the field or grass root level which includes population, sample and the tools to be used to collect the data. The next step in conducting research is to select the population and then decide

on the sample size (number of respondents you want to consider and the sampling method you want to choose) for the study.

- **Analysis and Interpretation of the Data:** Once the data is collected from the respondents with the help of various tools, data must be classified and organized in a manner to provide meaning. As data itself does not reveal any information until and unless it should be broken down into small parts and rearranging them and represent them in such a manner that it gives meaningful information about the sample and the variables under study.
- **Reporting Research:** Report writing for a research study is a skill and it has a fixed structure within which it needs to be written in the prescribed format and style. While writing a report researchers must be careful about how the results are being presented along with the usage of language. Personal bias and jargon of words have no role in report writing. It should be simple, systematic, comprehendible, organized, and sequential. Figure 9.2 below indicates steps involved in educational research and its interrelation.

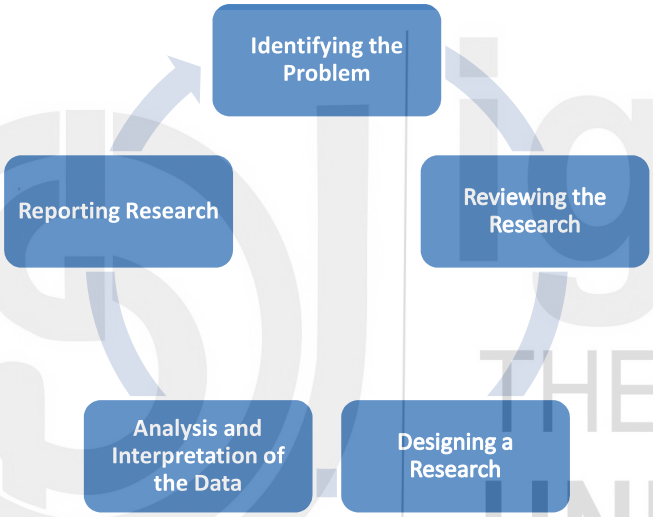

Figure 9.2: Steps of Educational Research

Check Your Progress 3

Note: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the Unit.

5. Why does a researcher need to do a review of related literature?

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6. List the main steps of the process of education research.

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9.7 CLASSIFICATION OF EDUCATIONAL RESEARCH

You must know the different types of educational research which researchers do in the field. Types of educational research can be classified into two broad categories like – purpose-based research (Fundamental/Basic, Applied and Action Research) and based on types of data (Quantitative and Qualitative).

9.7.1 Purpose Based

Here we will discuss the first type of classification that is purpose-based. As research is all about the generation of new knowledge and using that knowledge for human welfare activity, therefore this type of research can be broadly categorized into three categories: (i) Fundamental/Basic Research (ii) Applied Research and (iii) Action Research. Let us discuss each one of them in detail.

9.7.1.1 Fundamental/Basic Research

Fundamental research is generally carried out for the generation of knowledge without any immediate practical utility or application. It always deals with the generation of new and/or additional knowledge related to an understanding of nature and its laws. These researches are normally done in controlled situations either in the laboratory or laboratory-like conditions. Fundamental researches are done to generate theories, principles, or laws so that applied researchers used these theories, laws or principles, to generate/invent/design various machines, types of equipment, or devices for the welfare of human beings. Fundamental research always adds/modify/corrects the existing body of knowledge.

Since educational researches have immediate utility and education being an interdisciplinary and multidisciplinary area of study, researchers are more applied in nature, therefore researches done in the field of social sciences like psychology, sociology, etc. like learning theories, intelligence theories, personality theories, symbolic interactionism, conflict theory, structuralism functionalism theory, etc. have closely related in many respects. Fundamental researches are being carried out to understand in these allied areas or fields of studies or examples regarding learning theories-how learning takes place in human beings; in intelligence- how to understand the basic human intelligence and how it functions in them; in personality-understanding the personality of human beings and categorized people based on their personality, All these theories from the allied areas of studies help us to understand the social behavior of human beings. Scientists doing fundamental research normally take different perspectives/angles/routes to look at the basic or core problem/ issue.

9.7.1.2 Applied Research

We have come to know about fundamental research. The next type of research described is applied research. As already indicated or mentioned, applied research is done by scientists or researchers to solve the immediate or practical problems at hand. Research, carried out all over the world to develop vaccines for the control of coronavirus is an apt example of 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"* (source: cited in Educational Research, SLM Mumbai University, p.6).

The main difference between fundamental research and applied research is that applied research problems are solved in natural settings rather than in laboratory conditions. In applied research, researchers or scientists use the existing laws, theories, and principles of fundamental research to solve their immediate or practical problems in real situations. Take, for example, using the intelligence theories one can identify children with various types of intelligence (numeracy, verbal, reasoning, kinesthetic, spatial, etc) and develop educational programs based on their type of intelligence for their educational enrichment. Applied researches are in a way used to test and verify the theories or laws, principles generated through fundamental research. Thus, applied research is generally carried out to improve the product or process. Applied research helps fundamental researchers to review or formulate new theories. Applied researchers also follow the same steps for conducting the research. As already stated, educational research is more applied in nature and tries to answers questions on what, how, and why, therefore, the practitioners of educational research like teachers, educational administrators, educational leaders, clinical psychologists, social workers, etc. carry out applied research for a dual purpose:

(i) By addressing their professional problems through systematic inquiry;

(ii) By developing understanding among the practitioners about using basic or applied research to improve their professional practices.

Educational research is mostly inter-disciplinary as well as multidisciplinary in nature. Therefore, educational researchers or practitioners while dealing with professional problems are not purely confined to education discipline but they do take the help of other disciplines like sociology, psychology, anthropology, management, etc. to understand the problem and seek the solution from different perspectives.

9.7.1.3 Action Research

Action research is diagnostic with the purpose or intent to improve the educational practices of the teachers through a systematic inquiry. Primarily action research is associated with hands-on problems related to teachers, students, school environment, curriculum, assessment, etc. This type of research provides empowerment to the teachers to introspect about the actions, activities that are normally executed on a day-to-day basis related to the teacher's professional and academic journey. It provides an opportunity to teachers to learn and grow in his/her field. The main or stark difference between action research and any other type of research is that solutions are highly local or contextual and specific to the problem and cannot be generalized. Action research usually combines both theory and practice in real educational settings.

Details about action research are discussed comprehensively in unit 11 titled "Action Research" and you may refer to that unit for further reading and comprehension.

Check Your Progress 4

Note: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the Unit.

7. How action research is different from fundamental research?

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8. Write the similarities between action research and applied research.

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9. Why action research is called classroom research? .

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9.7.2 Data Based

Scientific researches carried out by scientists are either fundamental or applied in nature. These researchers usually study several variables like distance, weight, time, temperature, pressure, volume, force, etc. These variables are not affected by any social environment therefore, their reality hardly changes. In other words, scientific research is highly objective as materials or substances on whom researches are being done in a controlled situation are hardly change their nature or behaviour. To understand it better let's take the example of water. The data collected through scientific instruments regarding its melting point, boiling point, bonding, etc. will yield the same and not yield different results. It means it has specific properties and nature (behaviour) unaltered by the social environment irrespective of whoever is studying water (scientist or ordinary people) and wherever it is being studied (laboratory or outside). Thus, the characteristics of water are universal.

In contrast, in social science research, since the units of study are human beings, therefore their characteristics are not alike. If we want to measure any variables of two human beings, they are bound to be different like emotions, feelings, response to stimuli, etc. But even in social science research too, researchers try to study these variables or the phenomena as objectively as possible i.e., treating the reality of human behaviour as like an object. When such is the case, then the researcher does the study as it is done in the scientific method and collects all the data through instruments in numerical/number form and analyzes all the data with numerical/statistical analysis. This is called 'quantitative research'. When a researcher is interested to understand human behaviour (variables) concerning its social environment which is dynamic and has a constant influence on human behaviour, then such social science researches are called 'qualitative research' as variables are measured/ expressed through thick description or treated subjectively.

Researchers normally want to address three basic questions related to research as given below:

(i) How can the problem be solved?

(ii) What exactly happens when a given condition or situation exists?

(iii) Why do some problems or conditions occur?

Based on the nature of research problems and the above-raised questions, it will be decided that research is either qualitative or quantitative. Thus, social science researches can be broadly classified into two categories (i) Quantitative Researches (ii) Qualitative Researches.

9.7.2.1 Quantitative Research

In educational research or any other social science researches, if the social reality (variable) is independent and constant with due respect to time and settings and they can be measured precisely with the help of structured instruments or tools and data so obtained is in numerical form and analyze through statistical analysis, then such researches are called quantitative researches. For example, if we want to measure the achievement of students in any school subject like English, Hindi, Mathematics, Economics through structured research instruments (objective tests) and data so obtained are in numbers and these numbers are given statistical treatment like central tendencies (mean, median and mode), dispersion (range, mean deviation, standard deviation, etc.) then it falls under quantitative research. Similarly, other examples are intelligence in terms of IQ, literacy rate of different states of India (in percentage), monthly income and expenditure of an average Indian family, the employment rate in terms of number and percentage etc.

9.7.2.2 Qualitative Research

Qualitative research involves an in-depth understanding of human behaviour and the reasons that govern human behavior. Unlike quantitative research, qualitative research lies on the reasons behind various aspects of behavior. Simply, it investigates the why and how of decision-making, as compared to what, where, and when of quantitative research. Hence, the need is for smaller but focused samples rather than large random samples. Qualitative research categorizes data into patterns the primary basis for organizing and reporting results. Unlike quantitative research, which lies exclusively on the analysis of numerical data, data for qualitative research comes in much media-including text, sound, images, etc. Largely qualitative research is exploratory, while quantitative research hopes to be conclusive. Examples of qualitative research are: Study the reasons for the poor performance of SC/ ST students in competitive examinations, Study the reasons for dropout of girl child /tribal children from schools etc.

So based on the nature of the problem, questions raised by the problem, and nature of data various types of research studies like experimental, quasi-experimental, descriptive, philosophical, historical, etc. can be categorized into two broad categories i.e. qualitative and quantitative studies. Research studies that come under two categories under broad heads are shown in the following table:

Table 9. 1: Classification of Research Studies

Quantitative Research Studies	Qualitative Research Studies
Experimental Studies Quasi experimental Studies Correlational Studies	Descriptive • Survey • Case Studies • Document Analysis • Developmental Studies etc. Ethnographic Historical Philosophical

A brief description of research studies mentioned in table 9.1 is given below:

Experimental Research

Research involves finding out the functional relationship(s) among phenomena under controlled conditions is known as experimental research. Experimental research aims to study the cause-and-effect relationships between two variables. In the process of experimental research, a researcher tries to manipulate or introduce some changes on one variable and observes the consequent changes on the other variable. The variable, which is changed or varied, is known as the **'independent variable'** (IV) while the variable(s) on whom the effect is measured is called dependent **variables** (DV). Problems like "Effect of online teaching on academic achievement of senior secondary school students " are planned through well-designed experimental studies.

Quasi-experimental Studies

The literal meaning of 'quasi' is "seemingly, but not really". Thus research studies that do not use a truly experimental design are called quasi-experimental studies. Since educational research is carried out on human beings who are, unlike objects, changeable, and controls cannot be exercised totally or absolutely, therefore experimental research in education is quasi-experimental. This type of research investigates the same issues that experimental research does. The difference is only in terms of how an experiment is designed and conducted.

Correlational Studies

Correlational research concealed the extent relationship between two variables. For example, if a researcher conducted a study " Relationship between scientific attitude(x) and scientific aptitude(y) of students", then based on the score of scientific attitude or variable 'x' we can predict the score of scientific aptitude or variable 'y' and vice versa. Variables may be positively or negatively related to one another.

Descriptive Research

Descriptive research investigates 'what exists'. It helps in interpreting and explaining the existence of educational phenomena. There are various forms of descriptive research studies like Case studies, Survey Studies.

- **Sample Survey:** A sample survey gathers data on a representative sample.

The data gathered through sample surveys are generalized to the population of the study. For example, research conducted on "Secondary School Teachers attitude towards Blended Learning". The findings of this research can be generalized as the attitude of all the teachers of secondary schools.

- **Case Study:** This method involves an in-depth, longitudinal examination of a single instance or phenomena, or event. It provides a systematic way of looking at events, collecting data, analyzing information, and reporting the results. As a result, the researcher may gain a sharpened or deep understanding of why the instance happened as it did, and what might become important to look at more extensively in future research.
- **Document Analysis:** Analysis of documents related to a particular aspect/ area of education (e.g. religious and moral instruction, value education, analyzing the education policies and commissions in India, etc;) is known as documentary analysis studies. For example, a researcher wants to compare the existing status of a two-year teacher education program (B.Ed.) and a four-year teacher education programme (B.Sc.,B.Ed) by studying various documents related to both.
- **Developmental Studies:** Descriptive research may examine how various aspects of human development (e.g. intelligence, attitudes, social development, moral development) or skills (cognitive skills, social interaction skills, etc;) develop in groups of individuals of the same characteristics. Such studies are called 'developmental studies'.

Ethnographic Research

This type of research is just the opposite of experimental research. In the latter, research is conducted through carefully controlled experiments but in ethnographic research, the emphasis is on naturalistic (i.e. totally without control) field studies. Ethnographic studies typically describe events that occur in the life of an educational group or a society concerning social structures and behaviours and perceptions of the individual members. Thus collects primary data (i.e. facts as they occur) and interprets its meaning. Ethnographic studies use observation as a major technique for data collection. Data collection can be through both participant as well as non-participant observation. Ethnographic studies are extensively used in anthropology, sociology, etc.

Historical Research

Historical research is concerned with the study of 'what was'; they try to determine, evaluate and understand past events primarily to gain a clearer understanding of the present and a better prediction of the future. Historical research thus seeks to provide a perspective on the past so that we may be able to understand the present and the direction of the course of events in the future. Historical research is useful in understanding the trends and the problems associated with educational developments during a period/time. For example, historical research can also help us understand the rationale or background for the present educational systems like the one, we have today by studying the educational systems that existed in the past in India.

Philosophical Research

Philosophical research studies in education can be taken up under historical research. These studies usually deal with philosophical aspects of education (e.g. related to knowledge and acquiring knowledge), metaphysical (i.e. related

to reality aspects), or axiological (i.e. concerned with values) aspects of the education process. For example: "To study Gandhiji's Skill Based Education and its Impact on National Educational Policy-2020" or "To Study Educational Philosophy of Shri Aurbindo and its Relevance in the Present Education System."

Check Your Progress 5

Note: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the Unit.

10. Suppose you have collected information from your neighborhood about the educational level and monthly income of their houses. Name the type of research used to conduct the study.

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11. Some of the students of a class are unable to understand the content taught by the teacher irrespective of the method of teaching used by the teacher. Name the type of research used to conduct the study.

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12. Write any two differences between quantitative and qualitative research.

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13. What is the main difference between experimental and quasi-experimental research?

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9.8 LET US SUM UP

Educational research is a scientific and applied form of studying a problem or a phenomenon usually carried out in natural settings to solve educational problems. Educational research found its utility in all the allied disciplines of education. That's why it is both inter disciplinary as well as multi disciplinary in nature. There are a few steps in educational research, which a researcher is supposed to follow while conducting research. The scope of educational research is very vast. Research is broadly classified based on the purpose-fundamental, applied, and action research. Further, educational research can also be categorized based on the types of data collected. If the nature of data

collected from the field is quantifiable or is in numerical form, analysis is done through statistical measures, then research is quantitative. If the data collected is in the form of texts, pictures, images, videos, etc and these are analyzed through a thick description of words, and then the research is called qualitative data. In other words, research is either qualitative or quantitative mainly depending upon the nature of the problem and questions raised by the problem.

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9.10 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

1. Educational research is the applied field of fundamental research that uses theories and validates those theories in natural settings.
2. Three characteristics of educational research: (i) done in natural settings (ii) less control on the human behaviour (iii) Influence of social environment
3. Self exercise
4. Self exercise
5. Review of literature finds out the gaps in the existing literature and how the present research carried out by the researcher will fill in that gap or how it adds to the existing body of knowledge.
6. Identifying the Problem; Reviewing the Research; Designing a Research; Analysis and Interpretation of the Data and Reporting Research
7. Action research is normally carried out to solve immediate practical problems whereas fundamental research is done to add or generate knowledge.
8. Action and applied research both work for finding the solution to the problem.
9. Action research is generally called classroom research as the majority of the problems faced by the individual teachers in their classrooms are solved by teachers only rather than by any social scientist.
10. Quantitative research
11. Qualitative research
12. Qualitative research involves an in depth understanding of human behaviour and the reasons that govern human behaviour. Unlike quantitative research, qualitative research lies on the reasons behind various aspects of behavior. Simply, it investigates why and how of decision making, as compared to what, where, and when of quantitative research
13. Research studies that do not use a truly experimental design are called quasi-experimental studies. Since educational research is carried out on human beings who are, unlike objects, changeable, and controls cannot be exercised totally or absolutely, therefore experimental research in education is quasi-experimental. This type of research investigates the same issues that experimental research does. The difference is only in terms of how an experiment is designed and conducted.