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UNIVERSITY OF JAMMU
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SELF LEARNING MATERIAL FOR B.Ed. SEMESTER - II

PAPER: Action Research
Course No. : 206

Unit : I – II
Lesson No. : 1-8

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ACTION RESEARCH

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Bachelor of Education (B.Ed) through Open and Distance Learning (ODL)
Semester –II

(For the examination to held in the year 2025, 2026& 2027)

Course no. 206

Credits 2

Maximum Marks Internal : 15

Title: Action Research

Total Marks : 50

Maximum Marks External : 35

Course Objectives:

To enable the pupil- teachers to:

- Define the concept of research and action research
- Explain the steps of action research.
- Describe in detail the dynamics of action research in educational contexts.
- Demonstrate development and execution of action research project.

COURSE CONTENTS

UNIT-I

1) Fundamentals of Research

What is Research?

The Concept of Educational Research, its meaning, characteristics, Nature and Scope

Areas of education Research, Methods of Research, Sample

2) Fundamentals of Action Research(Characteristics, uses and Limitations)

- Concept, Need and Importance of Action Research
- Difference between Action Research and Traditional research i.e. Fundamental and Applied research Paradigm

UNIT-II

3) Dynamics of Action Research in educational contexts

- The Action Research process- Identifying problem in school contexts, Formulation action hypotheses, Implementing and evaluating the Action Research hypotheses, Findings results and Implementation
- Developing Action Research design

4) Tools of Action Research (Characteristics, uses and Limitations)

- Observation
- Questionnaire
- Rating Scales
- Interview
- Check List

Practicum/ Sessional

Max. Marks: 10

Development of Action Research Project in any of the following areas-

- Classroom teaching contexts
- Classroom and school management

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Note for Paper Setters

The question will contain two question from each unit with internal choice and the candidates will be required to answer one question from each unit. However question No. 1 will be compulsory and shall have two short answers questions (100 words per question) spread over the entire syllabus (Short Answer will carry 2.5+2.5= 5 Marks for both the questions). Total questions to be attempted will be three. Long Answer questions will carry 15 marks.

Books recommended

Aggarwal, Y. P. (1998). Statistical Methods, New Delhi: Sterling

- *Aggarwal. Y. P. (1998). The Science of Educational Research: A Source Book, Kurukshetra: Nirmal Publishing*
- *Best, John W. & Kahn, J. (1995). Research in Education, New Delhi: Prentice Hall*
- *Good; C. V. & Douglas, E. S. (1954). Methods in Social Research, New York: McGraw Hill*
- *Jon N. (1981). A Teachers' Guide to Action Research, London: Grant McIntyre Limited*
- *Koul, L (1998). Methodology of Educational Research New Delhi: Vikas Publications*
- *McMillan, J. H. & Schumacher, S. (1989). Research in Education: A Conceptual Introduction, New York: Harper & Collins*
- *Neuman, W. L. (1997). Social Research Methods: Qualitative and Quantitative Approaches, Boston: Allyn and Bacon*
- *Siegel, S. (1986). Non- parametric Statistic, New York: McGraw Hill*
- *Urns, R. B. (1991). Introduction to Research in Education, New Delhi: Prentice Hall*

ACTION RESEARCH

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EDUCATIONAL RESEARCH

STRUCTURE

- 1.1 Introduction
- 1.2 Objectives
- 1.3 Meaning of Research
 - 1.3.1 Definitions of Research
 - 1.3.2 Characteristics of Research
- 1.4 Educational Research
 - 1.4.1 Concept of Educational Research
 - 1.4.2 Classification of Educational Research
 - 1.4.3 Steps in Educational Research
- 1.5 Nature of Educational Research
- 1.6 Scope of Educational Research
- 1.7 Let Us Sum Up
- 1.8 Lesson End Exercise
- 1.9 Suggested Further Readings
- 1.10 Answers to Check Your Progress

1.1 INTRODUCTION

All types of organisations, maybe educational, marketing, business, banking etc., in the present environment need a systematic supply of information. If this information is collected through a scientific procedure, then we are in a position to take sound decisions with minimum risk. It is in this context, this method of collection of information plays an important role. These scientific procedures help in collection of reliable and valid information about the meaningful questions/problems in hand. This in turn helps in making the right choice amongst the alternative courses of action.

To take the right decision and make the right choice is the need of hour to enrich the corpus of knowledge in relation to various fields of education like Educational Psychology, Educational Philosophy, Educational Administration and Management, Educational Sociology, Educational Measurement and Evaluation, Comparative Education etc.

It means when educationists do research, they are applying the Scientific methods in solving the practical problems of education. Through research an effort is made to extend the frontiers of knowledge in order to improve teaching effectiveness in the field of education.

1.2 OBJECTIVES

After going through this lesson, you shall be able to:

- explain the meaning of research,
- enlist the characteristics of research, and
- define educational research,
- classify educational research on the basis of nature of problem, methods and approach,
- explain the nature and scope of educational research.

1.3 MEANING OF RESEARCH

Perhaps you might have got an idea about the meaning of word ‘research’. If you ask a layman he will say-to search for a new thing or to see the phenomenon or thing in a new context which is already known. The Advanced Learner’s Dictionary of Current English lays down the meaning of research as a “careful investigation or inquiry especially to search for new facts in any branch of knowledge”. So research is purposeful investigation. There are three parts involved in any investigation: i) the implicit question posed (ii) the explicit answer proposed (iii) Collection, analysis and interpretation of information leading from the question to answer. This third part is viewed as research.

The term ‘research’ consists of two words: Research. ‘Re’ means again and ‘Search’ means to find out. It is the process by which a person observes the phenomenon again and again and collects the data. The data may be both numerical and of non- numerical nature. On the basis of collected data, he draws some conclusions. In fact, this art of scientific investigation is known as RESEARCH.

1.3.1 Definitions of Research

According to Cook. “Research is a honest, exhaustive, intelligent searching for facts and their meanings or implications with reference to a given problem.”

Monroe. defined research as Method of studying problems whose solutions are to be derived partly or wholly from facts The facts dealt with in research maybe statement of opinions, historical facts, records and reports, the results of tests, answers to question- naives, experimental data of any sort and so forth.

J. Mouly defined research as a systematic and scholarly application of the scientific method to the solution of educational problems.

Up till now you might have understood that research is an activity of collecting information in an orderly and systematic fashion. According to Cornell, “Research is, literally speaking a kind of human behavior, an activity in which people engage. In education teachers, administrators, scholars or others engage in educational research when they systematically assemble information about schools, school children, the social matrix or the interaction between the school and the pupils”.

1.3.2 Characteristics of Research

Following are the characteristics of research. Primary characteristics are “systematic”, “objective” and “reproducible”(Verifiable).

A Systematic Approach is essential in good research. All the steps must be in hierarchical order i.e. each step must lead to its next step. Planning should be done before hand about the data collection and its analysis. This planning and organization play an important role in systematic approach.

Objectivity is another important characteristic of research. In objectivity approach, researcher’s personal views about the answer to the problem do not find any place.

A Reproducible Research procedure is one which an equally competent re- searcher could duplicate and from it obtain approximately the same results. It is only possible when the data are not subjective but objective and the measurements and observations are definite and flawless. Can you imagine what a poor and vague sampling procedures (i.e. methods of selecting sample from population) can lead to? It can result in non-reproducibility. In other words, we can say that if our procedures are vague and not stated clearly, it will be foolishness to expect consistency even from the same person.

After discussing the primary characteristics let us now think over some secondary characteristics which may be called as “relevancy” and “control”. Infact research cannot address itself to the complete information to a particular subject.

Relevancy accomplishes two important tasks. First it avoids the collection of unnecessary information and second it forces the comparison of the data collected with researcher’s criteria for action.

Another aspect which is pertinent in research is **Control**. It is impossible to have control on all those factors which play an important part in research. The best we can do is to have a control for those which may cause difficulty. Control must consider two aspects. First, those variables that are truly within your control must be varied/dealt with the nature of your investigation. Second, those variables beyond your control must be properly recorded and controlled either administratively or statistically.

After going through the above discussion we can finally arrive at our definition that; the search for knowledge through objective and systematic methods of finding is called Research. This implies that research is a systematic, objective, reproducible and deliberate attempt which is made to answer meaningful questions pertaining to a field of study or about phenomenon or events in a given situation.

The word research identifies a process which helps in seeking answers of certain questions through planned and systematic collection, analysis and interpretation of data.

1.4 EDUCATIONAL RESEARCH

1.4.1 Concept of Educational Research

The main focus of education is the development of teaching process which brings about desirable changes in the learners. The basic problems of teaching and education are studied in educational research. The purpose of all educational research is the discovery of procedures, rules, and principles relating to various aspects of education. In other words, educational research refers to a systematic attempt to gain a better understanding of the educational process with a view to improve its efficiency. Educational research is nothing but an application of scientific method to the study of educational problems or educational thoughts. It means, its scope is limited to educational practices/issues.

W.M. Travers has defined educational research as the activity which is directed towards the development of science of behavior in educational institutions.

According to Monroe, “The final purpose of educational research is to ascertain the principles and development of procedures in the field of education.”

In nut-shell, educational research is a Systematic, Objective and Deliberate attempt to answer meaningful questions pertaining to educational processes, forms, organizations and thoughts. The goal of educational research is to discover laws or generalizations concerning educational issues in order to make prediction and control educational events and improve the quality of teaching and learning by taking effective decisions and proper utilization of resources.

1.4.2 Classification of Educational Research

Educational Research maybe classified on the basis of nature of problem, method used and approach.

- i. Based on nature of problems/purposes we may categorise research into the following three forms:
 - (a) Fundamental or Basic or Pure Research
 - (b) Applied Research
 - (c) Action Research
- ii. On the basis of method used it may be historical, survey, experimental and case study.
- iii. And on the basis of approach, educational research may be Qualitative and Quantitative.

1.4.3 Steps in Educational Research

Educational research is a systematic activity which involves a series of sequential steps. A brief description of the steps in educational research is as follows:

(a) Identification of the Problem

Educationists start research by locating the problem. The problem may be related to overcoming

an impediment in the way of proper maneuvering the education practice or understanding an unusual phenomenon, for which a thorough enquiry is needed. This difficulty faced is called the research problem.

(b) Understanding and Defining the Problem

The problem is clearly and definitely grasped. Then it is put in unambiguous terms and within well defined operational limits.

(c) Formulation of Hypothesis

Once the problem is defined, the next step is to formulate the working hypothesis. Hypothesis provides an intelligent guess for the solution of the problem and is arrived at by an “inductive” process i.e. on the basis of number of instances, on the basis of previous studies or experiences.

(d) Methods of Research

It includes the research design, sampling techniques, tools for data collection and the statistical techniques for data analysis.

(e) Collection of Data

Information is collected in the shape of data which may be qualitative and quantitative. It may be based on observations, documents or narratives.

(f) Analysis and interpretation

The data collected are then analyzed and critically examined to decide whether the hypothesis holds good or not. After the analysis of data, an inference is made by testing the hypothesis. This rejected or retained hypothesis may be stated as a general proposition which finally leads to the principle formation. One of the characteristics of the scientific method is not to prove the hypothesis into terms of absolute truth but to conclude that the evidence does or does not support the hypothesis.

1.5 NATURE OF EDUCATIONAL RESEARCH

- (i) Educational research refers to a systematic attempt to gain a better understanding of educational process, generally with a view to improving its efficiency.
- (ii) It is an application of scientific method to the study of educational problems.
- (iii) Education is a behavioural science, the major concern of educational research is to understand, explain and to some degree predict and control human behavior.
- (iv) It is an activity directed towards the development of organized and useful body of scientific knowledge about the events with which educators are concerned.
- (v) Education draws its purposes and substance from the equally dynamic and complex social content which includes all aspects of life such as social, economic, political, ethical, religious etc. These aspects operate interdependently and simultaneously from very subgroup to the larger group
Contexts and then to the society at large.

- (vi) Educational research is interdisciplinary as educational problems may require the collaboration of several disciplines such as psychology, sociology and philosophy etc.
- (vii) Educational research primarily aims at conceptualisation and theorization of social processes and practices so as to understand the educational events and phenomenon.

1.6 SCOPE OF EDUCATIONAL RESEARCH

- (i) Researches in the psychological aspects of education comes in the scope of educational research. Significant fields of research in educational psychology include intelligence, aptitudes, creativity, attitudes, interest, motivation, personality, adjustment, growth & development, perception, learning & achievement motivation etc.
- (ii) Scope of educational research also covers philosophical bases of education. Significant field of research in philosophy of education includes impact of different philosophies and philosophers in determining the aims, methods, curriculum of education.
- (iii) The Scope educational research is widening with increasing stress on socio- logical foundations of education. It covers impact of socio-political forces on educational system, social change & education, culture & education, modernization & education, impact of privatization, globalization on education.
- iv) The Scope of educational research has greatly expanded. A number of re- searches are being conducted for finding out the relevance of different aspects of curriculum, teaching methods, evaluation, guidance and counseling, educational administration & management etc.
- v) Educational research is also undertaken to study the problems and issues at various levels of education and sectors which include pre-school education, elementary education, secondary education, higher education, teacher education, vocational and technical education, adult and continuing education, non- formal education, environment education, value education, and open learning and distance education. Research studies are specifically designed to identify educational needs and problems of various disadvantaged groups, namely, scheduled castes and scheduled tribes, girls children especially belonging to the rural and hilly areas. Differently abled children, from economically deprived sections of the society and minority groups at all the stages and in various sectors of education. The scope of educational research has greatly widened in value education for inculcating universal and human values like truth, non-violence, preservation of Indian Culture, learning to live together and secularism, and eliminating obscurantism, religious fanaticism, violence, superstition and aggression.
- vi) The application and use of scientific and technological developments for taking education to the doorsteps of needy children and unreached groups in the far flung areas of the country has become a priority area of educational research. The use of radio, T.V., video, films and teleconferencing in taking fruits of education in the hilly, tribal and desert areas where

population is mobile and scattered has become an important area of educational research. The identification and nature of talent is an important area of research in view of the rapid rate of innovation and change in both technological and social spheres. Planning and development of enriched educational programmes for talented with pronounced competence in various fields have widened the field of educational research.

- vii) Educational research is also conducted to study the impact of various programmes of National Priority launched by the government like SSA, Smagra Shiksha Abhiyan and RUSA.
- viii) The Scope of educational research can't be restricted to the above discussed areas. The Process of education is impacted by socio-political and economic conditions. New challenges & problems will keep on arising in the field of education and educational research will be expanding its areas in the light of new development & challenges.

Check Your Progress 1

Note: (a) Answer the questions given below.

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

- (i) Define research.

- (ii) Enumerate the three important primary characteristics of educational research.

- (iii) What do you mean by Educational Research?

- (iv) Classify Educational Research on the basis of nature of problem.

- (v) List the different steps of Educational Research.

1.7 LET US SUM UP

In this lesson, we have learnt that our educational institutions require a constant supply of information regarding new technologies, methods/procedures, tools etc. This is possible through

Research. Educationists collect all reliable and valid information by employing the process of scientific procedure. That is why, educational research is said to be a systematic attempt in the direction of understanding educational problems and processes which help in improving teaching-learning process. Laws and generalizations discovered by educational research contribute a lot in improving and modifying teaching-learning process.

We have also discussed about the three forms of educational research

a) Fundamental b) Applied and c) Action Research. The three forms have different goals. The goal of fundamental research is to discover new theories and truths. Applied research is to apply established law and constructed theory in specific educational situations. But the goal of action research is to solve immediate problems faced by the practitioners.

We have also discussed about the characteristics of research. Primary characteristics are systematic approach, objective and reproducible and secondary characteristics are relevancy and control.

Educational research keeps teacher always alert and fresh. It helps the teacher in modifying objectives which needs revision from time to time with the changing needs of the society. In the concluding paragraphs we learnt that research is a useful tool for solving nearly all practical problems relating to teaching-learning process.

1.8 LESSON END EXERCISE

- 1) What do you mean by Research ? Discuss the characteristics of Research.
 - 2) What is Educational Research ? Describe the nature of Educational Research.
 - 3) What do you understand by Educational Research? Discuss the steps in Educational Research
 - 4) Explain the scope of Educational Research.
-

1.9 SUGGESTED FURTHER READINGS

Aggarwal, J.C. (1991). *Educational research- An introduction*. New Delhi: Arya Book Depot.

Best, J.W., & Kahn, J.V. (2008). *Research in education*. New Delhi: Pearson

Kothari, C.R. (1985). *Research methodology- methods and techniques*. New Delhi: Wiley Eastern.

Kaul, L.(1988). *Methodology of educational research*. New Delhi: Vikas Publishing House Pvt. Ltd.

Pandey, K.P. (1988). *Fundamental of educational research*. Meerut: Amitash Parkashan.

Sharma, R.A. (1985). *Fundamentals of educational research*. Meerut: Loyal Book Depot.

Sinha, H.C. (1986). *Educational research*. Kurukshetra: Vishal Publications.

Sukhla, S.P., Mehrotra, P.V., & Mehrotra R.N.(1983). *Elements of educational research*. New Delhi: Allied Publishers Pvt. Ltd.

Wiersma, W., & Jurs, S.G. (2009). *Research methods in education: an introduction (9th edition)*. Delhi: Dorling Kindersley.

1.10 ANSWERS TO CHECK YOUR PROGRESS Check Your

Progress-1

- (I) Research is a systematic, objective, reproducible and deliberate attempt to answer meaningful questions pertaining to a field of study or about phenomenon or events in a given situation.
- (ii).
 - (a) Systematic
 - (b) Objective
 - (c) Reproducible
- (iii) Educational Research is a systematic, objective, reproducible and deliberate attempt to answer meaningful questions pertaining to educational processes, forms, organizations and thoughts.
- (iv)
 - (a) Fundamental Research
 - (b) Applied Research
 - (c) Action Research
- (v)
 - (a) Identification of the Problem
 - (b) Understanding and Defining the Problem
 - (b) Formulation of hypothesis
 - (d) Methods of Research
 - (e) Collection of Data
 - (f) Analysis and Interpretation

AREAS AND METHODS OF EDUCATIONAL RESEARCH

STRUCTURE

- 2.1 Introduction
- 2.2 Objectives
- 2.3 Areas of Educational Research
- 2.4 Methods of Educational Research
 - 2.4.1 Historical Method
 - 2.4.2 Descriptive Method
 - 2.4.3 Experimental Method
- 2.5 Sample
- 2.6 Let Us Sum Up
- 2.7 Lesson End Exercise
- 2.8 Suggested Further Readings
- 2.9 Answers to Check Your Progress

2.1 INTRODUCTION

In the previous lesson 1 of this unit-1, we learnt about Meaning, Concept and Characteristics of Educational Research. In this Lesson no. 2, we will learn about sample, areas and different methods of conducting Educational Research. On the basis of method used, educational research may be categorized differently under three types: Historical, Survey & Experimental. The choice of the method depends upon the nature of the problem, resources and expertise available. Historical Research's focus is on past, implications for the present and future; it describes what was. The process involves investigation, recording, analyzing and interpreting the events of the past for the purpose of discovering the past, building a perspective on the present and to a limited extent in anticipating the future. Descriptive research describes

what is, it involves the description, recording, analysis and interpretation of conditions that exist. It involves some type of comparison or contrast and attempts to discover relationship existing between variables. Experimental research describes what will be when variables are carefully controlled or manipulated.

Another way of classifying educational research is on the basis of contribution from disciplines to methods of research, we classify them into Qualitative and Quantitative method. Qualitative methods in educational research which treat human minds especially the insights and impressionistic views are Philosophical method, Historical method and Case study method. On the other hand Quantitative methods which rest on objectives, standardized means of inquiry and on sophisticated statistical designs of analysis are Descriptive and Experimental method. In this lesson, we will learn in brief about three methods of educational research i.e. Historical, Descriptive and Experimental in addition to sample and different areas of educational research.

2.2 OBJECTIVES

After going through this lesson, you shall be able to:

- identify the areas in which educational research is increasingly undertaken,
- differentiate between qualitative and quantitative methods of educational research,
- describes the main features of historical research,
- describes the steps involved in descriptive research,
- describes the steps involved in experimental research,
- identify a few design for experimental research, and
- define sample

2.3 AREAS OF EDUCATIONAL RESEARCH

The major areas of Educational research are related to development, curriculum, teaching, sociological and academic issues affecting education, educational administration, development of educational technology and problems of individual differences among learners. Fields of educational research can be:

(a) according to various stages of education: pre- primary education, primary education, secondary education and university education or

(b) according to various kinds of education: general education, vocational education, teacher education, special education etc. or (c) on the basis of various educational aspects such as administrations, methods of teaching, curriculum, testing etc. Buch (1983-88) classified the fields of educational research in 29 categories: -Philosophy of Education; History of Education; Sociology of Education; Comparative Education; Economics of Education; Psychology of Education; Creativity; Guidance & Counseling; Tests and Measurement ; Curriculum; Language Education; Social Science Education; Mathematics Education; Science Education; Educational Technology; Correlates of Achievement; Evaluation & Examination; Teacher Education; Teaching; Management of Education; Non-formal Education; Adult Education; Early Childhood Education; Elementary Education; Vocational & Technical Education; Special Education; Higher Education; Women's Education and Education of the Disadvantaged.

NCERT has suggested some priority areas in educational research keeping in view the role of education in the total programme of national development:-

1. Priority may be given to research investigations designed to discover solutions for the educational needs of the children from the poorer sections of the society. In this connection, studies on learning with inter- disciplinary research, including bio- chemical and neurophysiological factors, may be encouraged.
2. In the area of talent, it is not only important to identify talent at all levels of education but also to find out ways and means to develop the talented children. This may require careful examination of the concept of talent in the context of developing societies.
3. One of the priority areas in the fields of education is the fulfillment of the Constitutional Directive of Article 45 relating to the provision of free and compulsory education for all children up to the age of 14. Any research and innovation which will help to extend the educational programmes to girls and to the weaker sections of the community, specially the scheduled castes and scheduled tribes, will be encouraged. In this connection, it may be mentioned that the dropout rate in school education is very high for various reasons. It is not likely to decrease very much in the near future, While every attempt should be made to increase the holding power of the school, one should also think of non-formal education as a possible alternative. Organization and methods of self-learning will also have to be evolved so that children in school learn better and those who drop out from school are not left out of the country's education effort.
4. Considering the rate of population growth, which is not likely to decline rapidly in the near future, one has to consider whether education should be co-extensive with schooling, because, if so, the number of schools and teachers required will be so large that the necessary resources are not likely to be available. What are the new techniques? Research in these areas should be encouraged.
5. The children from the scheduled castes, scheduled tribes and the economically deprived sections of the society need educational opportunities as much as children from the other sections of the society. How can similar opportunities be made available? How can the effects of deprivation in the early life of infants be counteracted by social and educational intervention? These are some of the important problems which need the immediate attention of research workers.

From the above discussion on areas of educational research, it is clear that all research areas are interrelated. And the research findings in one area would influence the thinking in other areas, and thus lead to an integrated approach to educational research.

2.4 METHODS OF EDUCATIONAL RESEARCH

2.4.1 Historical Research

It is concerned with what has happened so far' that is it is a systematic study of events that have happened in the past. Historical research is a systematic process of search- in for the facts, and then using the information to describe, analyze and interpret the past (Wireman & Jars, 2009).

Characteristics of Historical Research

1. Historical research is concerned with the study of the things and events concerning the past.
2. It helps us to know and understand a thing, by looking into its origin and development.
3. Historical research is not just collection of bits and pieces of information or isolated facts about a past event. It is an act of reconstruction of the past i.e. getting to the original events that took place in the past.
4. A researcher may provide some useful generalizations, deductions and conclusions on the basis of his research work that can prove useful not only in the understanding of the past but may prove a lesson for the present and guidelines for the future.

Steps in Historical Research

1. **Identification of the Research Problem:** - The first step in the historical research is the choice and identification of a research problem. Choice of topic is not an easy task in historical research.
2. **Selection of the Topic:-** Once a topic has been selected, the researcher then should concentrate upon (i) to define it more precisely (ii) to delimit it for carrying out a more potent analysis.
3. **Formulation of Research hypotheses:** - At this step research hypotheses are formulated. In historical research, hypotheses are conjectures about the characteristics, causes or effects of the situation, issues or phenomenon under study.
4. **Literature Review:** - In this step, review of related literature is done to acquaint the researcher with the previous researches on the topic in hand.
5. **Data Collection:** - In this step, data is collected for providing answer to the research questions of the study. In historical research two types of sources for the collection of data are:

Primary sources:- Primary sources are the first-hand accounts or witness of the things and events belonging to the past. They may be:

- (i) **Direct or consciously transmitted sources of information:-** Sources which are known to have some direct physical relationship with the events of the past e.g. oral histories, autobiographies, manuscripts, contracts etc.
- (ii) **Indirect or unconsciously transmitted sources of information:-** Sources which are not able to transmit information consciously by themselves about the past e.g. weapons, tools, buildings, pictures, etc. (Remains and ruins of a given period).

Secondary sources:- Sources which are belonging to the past but not have physical relationship with the events under study. For e.g. quoted material, textbooks, encyclopaedia, newspapers, etc. These secondary sources are used when primary resources are not available.

6. Evaluation of the Data Collected:- Data should be evaluated in historical research for testing reliability and validity of data.

(i) **External criticism:-** It is concerned with establishing the authenticity or genuineness of the source of information.

(a) **Higher criticism:-** asks for determination of the genuineness or validity of the authorship and date involved in the source of information.

(b) **Lower criticism:-** It is concerned with determining an accurate text in cases where we have copies instead of the original.

(ii) **Internal criticism:-** It is concerned with establishing the validity or credibility of content than merely inspecting the authenticity of the source.

7. Interpretation:- After establishing the authenticity of the historical evidence and validity of the content, the researcher then turns to the task of interpreting the fact. This task is complicated and acquires special significance.

8. Writing the Research Report:- The last step of the historical research is concerned with the task of reporting the proceedings of the conduct of the study along with the conclusions arrived, findings reached, generalizations derived, recommendations made and difficulties or limitations faced in carrying out the task of the present study.

Significance of Historical Research/Merits of Historical Research

1. To know about the past. Historical research provides a meaningful record of human achievements.
2. To understand the present on the basis of the past.
3. To employ the past to predict the future. **Demerits of**

Historical Research Method

- The findings of historical research can not be usually generalized as these are based on past events.
- The Researcher using past data depends upon the reported observation of others. Thus there is

more element of subjectivity.

- Sometimes it becomes difficult to find appropriate primary sources of data as these require imagination, hard work and resourcefulness on the part of the re- searcher.
- Gathering of historical data is lengthy, cumbersome and time consuming process.

2.4. 2 Descriptive Research

Descriptive research studies are designed to obtain information about the current status of phenomenon. It is directed towards determining the nature of a situation as it exists at the time of study. This descriptive research is the research having its focus on exploring what exists normally in a particular situation by resorting to survey techniques and then describing it through research report.

Nature and Characteristics of Descriptive Research

1. It focus mainly on studying and describing what is or what exists rather than what was or what happened in the past.
2. It makes use of the survey technique or method for knowing and describing what exist at a particular time and situation.
3. In descriptive researches, although the data description is factual, accurate and systematic, the researcher cannot describe what caused a situation.
4. The descriptive survey researches are quite comprehensive and wide in terms of their scope and complexity.
5. The descriptive survey researches may be quantitative as well as qualitative. **Steps**

involved in Descriptive Survey Method

1. **Selection of Research Problem:-** In this step, the researcher focuses his/her attention on the selection of a proper useful problem. The descriptive research is mainly concerned with the study, description, analysis and interpretation of the things, events, phenomenon, and attitudes existing at present in their contemporary society.
2. **Identification of the Problem:-** After selecting a particular research problem, the attempts are then made for its proper identification by (i) stating and defining it in clear terms, (ii) telling about its scope and delimitations, (iii) laying down its objectives and (iv) formulating the relevant hypotheses.
3. **Search for the Relevant Literature:-** In this step, attempts are made for the search of the relevant literature related to research problem for guiding the path of the researcher in taking decisions about the suitable strategy and research design.
4. **Selection of a Representative Sample:-** In this step, attempts are made to get a proper representative sample for an adequate estimate and prediction about the characteristics of the target population from which sample has been drawn.

- 5. Selection and Development of the Appropriate Survey Tools:-** In this step, attempts are made for the proper planning about the employment of suitable tools and techniques for the collection of required information or data pertaining to the research problem in hand.
- 6. Collection of Relevant Data:-** Here attempts are made for collection of the relevant data from the persons included in the sample by using the appropriate survey tools selected and developed for the purpose.
- 7. Data Processing and Analysis:-** In this step, attempts are made for the proper organization, processing and analysis of the collected data for getting genuine answer to the research questions raised in the research problem by accepting or rejecting the already established research hypotheses.
- 8. Writing of the Research Report:-** The last step of the descriptive research is concerned with the task of reporting the proceedings of the conduct of the study along with the conclusions arrived, findings reached, generalizations derived, recommendations made and difficulties or limitations faced in carrying out the task of the present study.

Significance of Descriptive Research/Merits of Descriptive Research

1. It helps in assessing and evaluating the progress of an introduced practice or programme.
2. It is useful in studying the human behaviour in its real form in the naturalistic conditions.
3. Descriptive research is useful in knowing and analysing about one or the other characteristics of the whole population.
4. It helps the researchers in the setting and testing of the useful hypotheses and deriving needed generalizations, principles and theories of universal validity.

Limitations/Demerits of Descriptive Research Method

- It is not feasible to use probability sampling method for selecting various sample groups in certain situations and thus it is not possible to draw generalizations.
- When documentary sources are used, validity of its content is crucial.
- There is excessive emphasis on quantification with the use of statistical techniques.

2.4.3 Experimental Method

Experimental research aims at establishing the possible cause and effect relationship between variables under study through some systematic and well planned observations carried out in controlled conditions.

The fundamental goal of an experimental research is to establish a causal relationship between two variables, i.e. to demonstrate that changes in one variable are directly responsible for changes in other variable.

Basic concepts used in Experimental Research

Independent Variables:- Those variables that is very much in control of the experimenter and are subjected to deliberate manipulation and variation by the experimenter for observing their effects on the dependent variables.

Dependent Variables:- Those variables that are supposed to get affected with the manipulation of independent variables.

Extraneous Variables:- Those variables that are of no interest to researchers but might influence and interfere with the results of the study in one way or the other.

Experimental Group:- The matched, randomized or identical groups of the participants that receive the treatment.

Control Group:- The group which does not receive treatment. It is there only for comparison, i.e. to see the effect of treatment on the experimental group.

Internal Validity:- Experimental research has internal validity for ensuring that whatever changes have been measured in the dependent variable are absolutely due to variation in independent variable.

External Validity:- An experimental study is said to carry external validity to the extent the results of the study are applied to a similar situation outside the experimental design.

Experimental Research Design:- The research designs available for the experimental researchers in conducting their experimental study for serving the specific objectives of their research studies in a particular situation.

Types of Experimental Designs

1. **Pre-experimental designs or within-subject designs:-** An experimental research design uses the same sample of subjects, deriving two set of scores by subjecting them to two treatment conditions, and then comparing these scores for establishing causal relationship existing between independent and dependent variables. It is termed as pre-experimental as it fails to fulfill the requirements needed for terming it a true experimental research.

Advantages:-

1. It is applicable when participants are rare because only one group is required.
2. An important advantage of this design is the low level of error variance, which results in a more powerful test of the effect of the independent variable.

2. True experimental or between-subjects design:- An experimental research design using two groups of the participants from the same population by terming them experimental and control groups, subjecting them to two different treatment conditions and then comparing the performance of these two groups for establishing causal relationship between independent and dependent variables.

Advantages:-

1. In this design there is only one score for each participant, and each individual score is absolutely independent of other scores.
 2. Randomization is feasible and practicable because it employs a relatively large number of participants.
- 3. Quasi-experimental Design: -** A type of experimental research employing a research design lying in between the pre-experimental and true-experimental designs. It calls for adopting a research strategy similar to an experiment but fails to satisfy at least one of the requirements of a true experiment such as random assignment of the subjects to conditions.

Advantages:-

1. It is best suited, where true experimental is not feasible.
 2. It is suitable when control is needed in terms of manipulating the independent variable for measuring its effect on the dependent variable.
- 4. Ex-post facto Research: -** A type of experimental research allowing the investigation of possible cause and effect relationship by observing existing state of affairs and searching back in time for plausible causal factors.

Advantages:-

1. It is very important design in searching for the probable causes of an incident occurred, happening or conditions.
2. It is important in answering the research questions related to the study of human behavior in behavioral sciences.

Main steps in Experimental Research

Following steps are used for conducting Experimental Research.

1. Surveying the literature relevant to the problem.
2. Identifying and defining the problem.

3. Formulating a problem hypothesis, and defining basic terms and variables.

Stating a hypothesis is an important step in experimental research. To test a hypothesis, the experimenter controls all the conditions except the independent variable which he/she manipulates. Then he/she observes the effect on the dependent variable.

Constructing an Experimental Plan

At this step, the researchers try to control all the non experimental variables that might contaminate the experiment, select the research design & sample of subjects to represent a given population, assign subjects to groups and assign experimental treatment to the groups; select valid instruments or may construct them to measure the outcomes of the experiment; outline procedure for collecting the data and state the statistical or null hypothesis.

All of the above steps help the researcher in conducting the experiment, applying statistical measures to the data obtained and then testing the significance of the results to determine the confidence one can place on the results of study.

Merits of Experimental Method of Research

- It is most powerful method for discovering and developing a body of knowledge about the prediction and control of events.
- It is used with some success in the classroom situations, where it is possible to control variables to some extent.

Demerits of Experimental Method of Research

- In some experimental situations, it is neither possible to use randomization nor matching to assign subjects to experimental and control groups.
- It is not possible to control all the threats to the internal and external validity of the experimental design.
- Elimination of extraneous variables is not always possible.

2.5 SAMPLE

First of all, we must understand what 'Population' is in Research. Population in research does not mean only human population. It may consist even of objects, or ideas or attributes e.g. population of books on history or population of opinions etc. So population is a well defined class of people, objects or events. A list identifying each individual, object or event of the study population is called the sampling frame.

A sample is a portion or subgroup of the population we are interested in. The number of individuals, objects or events that have been selected from the sampling frame is called sample. The way the sample is selected from the population is called the sampling design, which may be probability and non probability sampling.

Sample determines the applicability of generalization arrived at after the investigation. The generalization

is applicable only to the population which has been sampled and that too only when the sample chosen is fairly representative of the population.

Check Your Progress -1

Note : (a) Answer the questions given below

(b) Compare your answers with those given at the end of the lesson

1. Enumerate area of educational research.
2. What are the highest priority areas in educational research?
3. Indicate which of the following statements is true or false.
 - a. Historical research deals with closed class of data where as experimental methods deals with open class of data. T/F
 - b. The researcher has complete control over sampling of historical data. T/F
 - c. Descriptive studies are useful in situations where experimentation is unethical. T/F
 - d. The 'law of single' variable in educational experimentation can explain causation experimentally. T/F
 - e. A list of identifying each individual, object or event of the study population is called the sampling frame. T/F

2.6 LET US SUMUP

In this lesson, we have attempted a discussion mainly on the areas of educational research, significance of three important methods of educational research i.e. historical, descriptive and experimental method. We noticed that historical research describes what was; descriptive research describes what is and involves description, recording, analysis and interpretation of conditions that exists, where as experimental research describes what will be when certain variables are carefully manipulated. Besides, we studied about population and sample in brief.

2.7 LESSON END EXERCISE

- 1) Describe the areas in which Educational Research can be conducted.
2. What do you mean by Historical Research ? Explain the steps which are to be followed in Historical Research.
3. What do you understand by experimental method of Educational Research? Discuss the steps in experimental method of Educational Research.

2.8 SUGGESTED FURTHER READINGS

Best, J.W., & Kahn, J.V. (2008). *Research in education*. New Delhi: Pearson. Cohen, L. (1976). *Educational research in class-room and schools, a manual of materials and methods*. New York: Harper and Row Publications.

Corey, S.M. (1962). *Research in education* (Bulletin). New Delhi: NCERT.

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

Mangal, S.K. (1991). *Educational psychology*. Ludhiana: Prakash Brothers. Pandey, K.P. (1979). *Action research in education*. Meerut: Amitash Parkashan.

Sharma, R.A. (1985). *Fundamentals of educational research*. Meerut: Loyal Book Depot.

Traverse, R. M.W. (1985). *An introduction to educational research*. London: McMillan Publishing Co., and Collian Mc Millan Publishers.

Wiersma, W., & Jurs, S.G. (2009). *Research methods in education: an introduction (9th edition)*. Delhi: Dorling Kindersley.

2.9 ANSWERS TO CHECK YOUR PROGRESS Check Your

Progress -1

1. Please see subsection 2.1
2. Please see subsection 2.1
3. a). T; b). F; c). T; d). F; e). T

FUNDAMENTALS OF ACTION RESEARCH

STRUCTURE

- 3.1 Introduction
- 3.2 Objectives
- 3.3 Action Research
 - 3.3.1 Concept of Action Research
 - 3.3.2 Characteristics of Action Research
 - 3.3.3 Steps in Action Research
 - 3.3.4 Uses of Action Research
 - 3.3.5 Limitations of Action Research
- 3.4 Need and Importance of Action Research
- 3.5 Let Us Sum Up
- 3.6 Suggested Further Readings
- 3.7 Answers to Check Your Progress

3.1 INTRODUCTION

In the previous lessons 1 and 2, we learnt about research, its meaning, characteristics, and various forms of research by highlighting various areas of educational research. In this lesson, we will discuss about Action research and how it is useful for teachers. It is accepted fact that the fate

of a nation depends upon its students and the type of education they are getting. Education is influenced by the qualities of teachers and other functionaries serving these educational institutions. For improving upon the functioning of teachers and workers, action research plays an important role.

In recent times, we have witnessed the development of educational technology. Educational technology has contributed a lot for the improvement of formulas well as informal streams of education with the primary objective of improving the teaching- learning process. But, at the same time, these rapid technological changes have brought about some practical problems also. These problems are related to the areas of discipline in classroom, copying, system of examination, curriculum, text-books, co- curricular activities, backwardness, delinquency and individual learning difficulties. That's why our teachers, administrators and other workers engaged in this process must concentrate and try to find some amicable solution of their class-room problems. They should evolve suitable techniques and procedures through scientific approach. 'Action Research' is an attempt in this direction.

3.2 OBJECTIVES

After going through this lesson, you shall be able to:

- define Action Research,
- describe the meaning of Action Research,
- discuss the steps of Action Research, and
- explain the actual process of Action Research

3.3 ACTION RESEARCH

3.3.1 Concept of Action Research

Action Research is a new innovation in the field of education. It helps in evolving suitable measures and programmes through scientific approach. These measures and programmes in turn, help the practitioners in analyzing their problems, in finding effective solutions, in improving their own work and smooth functioning of educational institutions. Alternatively, it helps the practitioners to work on the constructive lines by analyzing their problems. Thus we can say that the type of research which is used to solve various immediate problems of educational institutions through scientific approach is known as action research.

Action Research is a concept which was first used by Stephen M. Corey in the field of education. Corey (1953) held the opinion that if teachers are to make an active contribution towards effective learning, better achievement of learners and resolving their problems, it will probably involve the area of action research. Studies can be undertaken for the purpose of improving local school practices and for teacher's professional growth e.g. teaching strategies/ techniques,

classroom management, professional improvement, preparation of text-books and the development of curriculum.

According to Blackwell, “Action research is the research concerned with school problems carried on by school personnel to improve school practices”. In other words, action research inspires everybody, engaged in the work of education to work collectively for the total good and it is the medium for strengthening the practical side of research.

Goode (1959) has appropriately summed up the nature and goal of action research in his definition. “Action research is research used by teachers, supervisors, and administrators to improve the quality of their decisions and actions.”

Briefly, we can say that action research is a process for studying problems by practitioners scientifically to take decisions for improving their current practices. Therefore, action research is the research by the practitioners (teacher/administrator/ examiners), of the practitioners and for practitioners.

3.3.2 Characteristics of Action Research

On the basis of various definitions of action research, the following characteristics may be enumerated.

- (i) It is a scientific procedure for finding out a practical solution to current problems.
- (ii) It is a process of studying practical problems of education.
- (iii) The practitioner can only study his problems.
- (iv) The focus is to improve and modify the current practices.
- (v) The individual and group problems are studied by action research.
- (vi) Its goals are narrowly ranged and are evaluated in terms of local applicability not in terms of universal validity.
- (vii) The hypothesis or hypotheses in this type of research are always action oriented and they state the anticipated results or consequences.
- (viii) It is situational.
- (ix) It is a reflective inquiry.
- (x) It is a small scale intervention.
- (xi) It provides avenues for the teachers to be innovative.
- (xii) It is self-evaluative.

3.3.3 Steps in Action Research

In scientific research, both inductive and deductive processes are used. In every research

whether basic, applied or action, almost same steps are followed. Each step is committed to the high standards of scientific objectivity and scholarship. The difference is in emphasis and not in the method or spirit. In designing and conducting action research, the following steps are followed.

I. Identification of Problem

The first step of action research is to identify the problem. In order to identify the problem the teacher should be sensitive towards job activities and curious enough to isolate it from the broad field. It requires Qualities of investigation Such as imagination, honesty and devotion towards duty. Suppose, a life science teacher finds that the children in his/her class commit errors in drawing sketches and diagrams.

II. Defining and Delimiting the Problem

After identification, the investigator has to define the problem clearly and precisely so that the goal may be specified. While defining a problem, the re- searcher will try to delimit the problem in terms of class, subject, group and period in which he perceives the problem. For example, for the problem “The children in life science class commit errors” in drawing sketches & diagrams , the pinpointed problem maybe:- “A study for improving the ability of drawing sketches and diagrams of tenth class students in biology.”

III. Analyzing the Causes of Problem

The cause of the problem is analysed with the help of some evidences. The nature of the cause is analysed whether it is under the control or beyond the control of the researcher. In short the investigator has to find out external factors responsible for the problem. To know this, researcher consults his/her colleagues, students and experts in the field. In this the researcher uses his/her experiences and imaginations to search out possible causes of the problem. This helps in formulating the action hypotheses. For example, for the above said problem, the teacher finds out that the probable causes for committing errors in drawing sketches and diagrams can be:

1. In school, the teacher do not stress on drawing clear and correct diagrams.
2. There is a lack of interest among pupils for drawing sketches and diagrams.
3. Lack of charts and specimens of Biology in the school.
4. The teacher does not encourage drawing diagrams.

IV. Formulating Action Hypothesis

A hypothesis is nothing but an intelligent guess or a possible answer of the problem. It is a tentative solution of the problem. The statement of action hypothesis consists of two aspects: actions and goal. It indicates that action should be taken for achieving the goal. A good hypothesis saves time, energy and labor of the researcher to a great extent. It is the result of critical thinking, insightfulness and imagination power of the researcher. In the present problem, we can have the following hypothesis-

“The ability of pupils in drawing diagrams can be developed by providing adequate time for observation of specimens, models and charts.”

“The pupils can draw correct and neat diagrams if the proportion of various parts of objects of drawing material is emphasized.”

V. Design for Testing the Action Hypothesis

A design is developed for testing the most important action hypothesis. Some action may be taken and their results are observed. If the hypothesis is not accepted second design is developed for testing another hypothesis. In action research one hypothesis is tested at a time. The design of action research is flexible and can be changed at any time according to the need of the researcher. For the present problem the action plan maybe as under:

	Initiation of Activities	Technique	Source	Duration
1	The teacher will prepare a list of different types of charts and specimens of biology.	He will discuss this issue with otherscience teachers.	Text-Books and Prescribed Syllabus	Four days
2	The teacher will ask the student to practice for drawing diagrams and sketches from models and specimens at school.	Display of charts, models, specimens and diagrams.	Biology Laboratory	Four days

3	To practice the drawing of diagrams and sketches from specimens and models at school and home.	Requesting the other teachers not to give heavy homework to the class in their subject.	The teachers will take decision in their subject.	Seven days
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4	To give homework for drawing biology sketches and diagrams every week.	Display on bulletin board good diagrams drawn by pupils from time to time.	The biology teacher will discuss the matter with students.	Two months
5	The teacher will check the sketches and diagrams properly and will assign grade or marks.	The diagrams and sketches will be checked before the student.	The teacher can take the help of the students.	Two days

VI Evaluation of the Action Programme

The evaluation of action research is done either by accepting or rejecting hypotheses. For this purpose the teachers can conduct pre-test before the start of action research and post test after the completion of action research to assess the improvement in the ability to draw diagrams and sketches. The scores on pre-test and post test will be compared and conclusions may be drawn in the form of remedial measures for the problem.

VII Conclusions

The acceptance or rejection of the action hypothesis helps us to draw some conclusions. The statement of conclusion indicates some prescriptions of the solution of the practical problem of school. The conclusions drawn are useful in improving the present practices of school and classroom teaching.

3.3.4 Uses of Action Research

Action Research is most useful type of research undertaken for improving the educational practices in school or classroom. It can be used profitably in the following way.

- (a) In improving the classroom teaching strategies.
- (b) In developing desirable attitudes and values among students towards school learning.

- (c) For solving discipline and organizational problems of the school or classroom.
- (d) For improving teaching competency of in-service teachers.
- (e) For improving the poor attendance in class as well as in school and coming late in school.
- (f) In removing the practice of copying in the examination.
- (g) In preparing models of evaluation with different types of questions such as essay type questions, short answer type questions and objective type questions.
- (h) In solving the personal problems of students relating to school situations or poor adjustment.

3.3.5 Limitations of Action Research

The results of action research are more specific and cannot be generalized beyond the specific situation under investigations. They cannot be extended to other situations. The validity of its results can be questioned.

3.4 NEED AND IMPORTANCE OF ACTION RESEARCH

Action Research in the field of education is needed for many purposes, but those especially noteworthy are the following:

1. Action Research approach is used by the practitioners to improve themselves. The objective of such research, by teacher for example, will be to improve class- room practices.
2. Action Research places importance on a specific problem which is present here and now.
3. As its methodology is not rigorous as that of pure researches, the teacher or the administrator can undertake it himself and herself.
4. Participation in Action Research has a good impact on the personality of a teacher or an administrator. It keeps their minds alert, fresh and gives them an objective look.
5. It prevents the teachers and administrators from becoming stale and subjective.
6. The action research helps in bringing modification in the students' and teacher behavior. Our best efforts in education are concerned to bring desirable changes in the behavior of pupils.

Thus, we see that Action Research is needed in the field of education as it assists in developing professional experiences and open minded scientific spirit of enquiry.

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 lesson.

1. Define action research

2. Answer True and False.

- (a) Generalization is the goal of all research including action research. T/F
- (b) Action research is the research by the practitioner, of the practitioner and for the practitioner. T/F
- (c) The goal of action research in education is to discover new educational knowledge whereas the goal of basic research is to remediate the present problems. T/F

3. Three forms of educational Research are : fundamental research, applied research and.....

4. List the basic steps you will follow while conducting action research.

5. Give two examples of action research problem.

3.5 LET US SUM UP

Stephen M. Corey was the person who first applied action research in education. Action research is undertaken to solve an immediate practical problem. Here the goal of research in terms of adding to scientific knowledge by arriving at sound generalizations, takes a back seat. This research places an importance on specific problem which is present here and now. As its methodology is not as rigorous as that of pure research, the person facing the problem that is, the teacher, administrator, supervisor or the examiner, can undertake it himself.

The steps of action research are: (a) Identification of the problem (b) Defining and delimiting the problem (c) Analysing causes of the problem (d) Formulation of action hypothesis (e) Design for testing the action hypothesis (f) Evaluation of the Action Programme and (g) Follow up and communicating the findings to others. Action research strategy is dynamic and sensitive. Its design is of a changeable type rather than fixed and rigid as in fundamental research.

3.6 SUGGESTED FURTHER READINGS

- Best, J.W., & Kahn, J.V.(2008). *Research in education*. New Delhi: Pearson.
- Cohen, L. (1976). *Educational research in class-room and schools, a manual of materials and methods*. New York: Harper and Row Publications.
- Corey, S.M.(1962). *Research in education (Bulletin)*. New Delhi: NCERT.
- Koul, L. (1997). *Methodology of Educational Research*. New Delhi: Vikas Publishing House Pvt. Ltd.
- Mangal, S.K. (1991). *Educational psychology*. Ludhiana: Prakash Brothers. Pandey, K.P. (1979). *Action research in education*. Meerut: Amitash Parkashan.
- Sharma, R.A.(1985). *Fundamentals of educational research*. Meerut: Loyal Book Depot .
- Traverse, R.M.W. (1985). *An introduction to educational research*. London: McMillan Publishing Co. and Collian Mc Millan Publishers.
- Wiersma, W., & Jurs, S.G. (2009). *Research methods in education: An introduction (9th Edition)*. Delhi: Dorling Kindersley.

3.7 ANSWER TO CHECK YOUR PROGRESS Check Your

Progress-1

1. Action research is the research which is used to solve immediate problems arising as part of the operation of the school.
2. (a) False
(b) True
(c) False
3. Action Research
4. (a) Identification of the problem
(b) Defining and delimiting the problem
(c) Analyzing causes of the problem
(d) Formulation of Actionhypothesis
(e) Design for testing the Action hypothesis
(f) Evaluation of the Action Programmed
(e) Follow up and Communication findings to others.

5. i). A study for improving spelling errors in English language.
- ii). Improving the ability of eighth class students for reading and using the maps & atlas.

DIFFERENCE BETWEEN ACTION RESEARCH AND FUNDAMENTAL RESEARCH

STRUCTURE

- 4.1 Introduction
- 4.2 Objectives
- 4.3 Forms of Educational Research
 - 4.3.1 Fundamental Research
 - 4.3.2 Applied Research
 - 4.3.3 Action Research
- 4.4 Difference between Fundamental Research and Action Research
- 4.5 Let Us Sum Up
- 4.6 Suggested Further Readings
- 4.7 Answers to Check Your Progress

4.1 INTRODUCTION

In the previous lessons i.e. Lesson 1, 2 and 3 of this Unit I, we have learnt about meaning of Research, Educational Research and Action Research. We have also learnt about different areas of research and various methods of conducting research. Here in lesson 4, we are discussing about different forms of educational research and how they differ from each other. We understood that research is the systematic study of materials and sources in order to establish facts and new conclusions. The hallmark of the research is that it is objectively conducted. Educational research is systematic study of the problems in education. It is empirical, systematic, reliable, and valid and may take a variety of forms.

We also learned that on the basis of nature of the problem, educational research may be basic, applied and action research.

4.2 OBJECTIVES

After going through this lesson, you shall be able to:

- define research,
- explain the meaning of Educational Research,
- enlist different form of Educational Research, and
- distinguish between various forms of Research.

4.3 FORMS OF EDUCATIONAL RESEARCH

Educational research is a Systematic, Objective and Deliberate attempt to answer meaningful questions pertaining to educational processes, forms, organizations and thoughts. The goal of educational research is to discover laws or generalizations concerning educational issues in order to make prediction and control educational events and improve the quality of teaching and learning by taking effective decisions and proper utilisation of resources. Educational Research is nothing but an application of scientific method to study educational problems. Thus, its scope is limited to educational practices.

After giving you an idea about the concept and meaning of Educational Research, we shall look into the various forms of educational research. Research is conducted at different levels for different purposes. Based on our problems/purposes we may categorise research into the following three forms:

4.3.1 Fundamental or Basic or Pure Research

4.3.2 Applied Research

4.3.3 Action Research

4.3.1 Fundamental Research

The purpose of fundamental research is to contribute new knowledge in the form of new theory, facts and truth. For conducting fundamental research, sophisticated procedures, tools and techniques are employed, controls are exercised and the generalizations arrived at, have a wide application. It is primarily concerned with the formulation of a theory and is not hampered by considerations of immediate utility. Discovery of such useful concepts as motivation, reinforcement, concept formation and social environment in theories of learning, theories of intelligence are result of fundamental research.

4.3.2 Applied Research

In this type of research, the knowledge produced, the concepts discovered, the theory constructed and the laws established are put to application in specific educational situations. The researcher in such a frame of reference works out the strategy for applying the already discovered facts, principles and truths. The applied research also takes into consideration the scientific method of inquiry

but its methodology is not as rigorous as that of fundamental research. Its finding is to be evaluated in terms of local applicability and not in terms of universal validity. This type of research is concrete by very nature and requires understanding of the practical situation encountered by the practitioners. Most of the problems faced by teachers, policy planners & administrators are solved through applied research.

4.3.3 Action Research

Action research is a research conducted in informal contexts and hence it is flexible. The approach of action research emphasizes the practitioners to do research in order to improve themselves. The objective of such research, by teacher for example, will be to improve class room practices.

The goal of research in terms of adding to scientific knowledge by arriving at sound generalization takes a back seat. This research places importance on a specific problem which is present here and now. As the methodology is not rigorous as that of pure research, the person facing the problem that is, the teacher or the administrator can undertake it himself/herself.

4.4 DIFFERENCE BETWEEN FUNDAMENTAL RESEARCH AND ACTION RESEARCH

S. No	Base	Fundamental Research	Action Research
1.	Researcher	The investigator may or may not be school personnel. He should have specialization in the field.	The investigator must be related to school .i.e. teacher, principal, school inspector etc. Action research is undertaken by the practitioners so that they may improve their practices.
2.	Purpose	Contribution of new knowledge in the form of theory, fact and principle.	Improvement in school and classroom teaching process.
3.	Problem	The problem is broad and relates to the field of education.	The problem is narrow and relates to class and school.
4.	Area	Form of problem is broad.	The problem is narrow and limited.
5.	Design	Design of fundamental research is based on certain criteria.	Design is flexible and can be changed at convenience.
6.	Sampling	The knowledge of techniques of sampling is essential to select a sample. It employs careful sampling procedures in order to extend findings beyond the group or situations.	The students of a class and school are sample.

7.	Hypothesis	Hypotheses are formulated on the basis of conclusions of previous researches, principles and experiences of a researcher.	Hypotheses are formulated on the basis of analysis of causes of problem.
8.	Review of Literature	An exhaustive and thorough review of literature is required.	No such thorough review of literature is needed.
9.	Tools and	Reliable and valid tools are used for the collection of data.	Mostly teacher made tests and observation techniques are used.
10.	Analysis	Computer and higher level of statistics is used.	Simple statistics is used.
11.	Level	School, College and University.	School
12.	Conclusions	Conclusions are in the form of a new theory, or new fact or new truth which can be generalized.	Conclusions are in the form of remedial measures for improving the current practices.
13.	Findings	Findings of Fundamental Research have Universal applicability.	Findings of Action Research are school specific & contextual in nature.
14.	Evaluation	Panel of external examiners evaluate the report of research.	The teacher himself evaluates the extent to which his problem has been solved.
15.	Means	Grant from external agencies. It involves more finance.	Researcher himself arranges. It involves more little resources and finance.

Check Your Progress-1

Note: (a) Answers the questions given below.

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

(1) What do you mean by Educational Research?

(2) List the three different forms of Educational Research.

(3) What is the major difference between three forms of Educational Research?

(4) Please say true or false for the following statements :

- (i) In Fundamental Research, mostly teacher made tests are used for collection of data T/F
- (ii) In Action Research, hypotheses are formulated on the basis of conclusions of previous researches. T/F
- (iii) The problem of Fundamental Research is narrow and is related to class & school. T/F
- (iv) In Action Research, the Panel of external examiners evaluate the report of research. T/F
- (v) In Fundamental Research, conclusions are in the form of a new theory or new fact. T/F
- (vi) In Action Research, conclusions can't be generalized

4.5 LET US SUM UP

Educational research is said to be a systematic attempt in the direction of understanding educational problems and processes which help in improving teaching-learning process. Laws and generalizations discovered by educational research contribute a lot in improving and modifying teaching learning process.

In this lesson, we have discussed about the three forms of educational research a) Fundamental b) Applied and c) Action Research. The three forms have different goals.

The goal of fundamental research is to discover new theories and truths, of applied research is to apply established law and constructed theory in specific educational situations. But the goal of action research is to solve immediate problems faced by practitioners.

4.6 SUGGESTED FURTHER READINGS

- Agawam, J.C. (1991). *Educational research- An introduction*. New Delhi: Arya Book Depot.
- Best, J.W., & Kahn, J.V. (2008). *Research in education*. New Delhi: Pearson
- Kothari, C.R. (1985). *Research methodology- methods and techniques*. New Delhi: Wiley Eastern.
- Kaul, L.(1988). *Methodology of educational research*. New Delhi: Vikas Publishing House Pvt. Ltd.
- Pandey, K.P. (1988). *Fundamental of educational research*. Meerut: Amitash Parkashan.
- Sharma, R.A. (1985). *Fundamentals of educational research*. Meerut: Loyal Book Depot.
- Sinha, H.C. (1986). *Educational research*. Kurukshetra: Vishal Publications.
- Sukhla, S.P., Mehrotra, P.V., & Mehrotra R.N.(1983). *Elements of educational research*. New Delhi: Allied Publishers Pvt. Ltd.
- Wiersma, W., & Jurs, S.G. (2009). *Research methods in education: an introduction (9th edition)*. Delhi: Dorling Kindersley.

4.7 ANSWERS TO CHECK YOUR PROGRESS Check Your

Progress-1

1. Educational Research is a systematic, objective, reproducible and deliberate attempt to answer meaningful questions pertaining to educational processes, forms, organizations and thoughts.
2. a) Fundamental Research

(b) Applied Research

(c) Action Research

3. The major difference lies in their goals. The goal of fundamental research is to discover new theory, of applied research is to apply established new theory in specific situation and of action research is to solve immediate problems.

4. (i) F (ii) F (iii) F (iv) F (v) T (vi) T

THE ACTION RESEARCH PROCESS

STRUCTURE

- 5.1 Introduction
- 5.2 Objectives
- 5.3 What is/ is not Action Research?
- 5.4 Characteristics of Action Research
- 5.5 Process of Action Research
- 5.6 Benefits of Action Research
- 5.7 Let Us Sum Up
- 5.8 Lesson End Exercise
- 5.9 Suggested Further Readings
- 5.10 Answers to Check Your Progress

5.1 INTRODUCTION

In this lesson you will understand 'Action Research' which focuses its attention totally on the Action Research actually means and how it can be done practically as a process. What you will understand the key characteristics, steps involved in the process of Action Research. You will also be able to identify the problems of Action Research and to formulate related hypotheses and will also understand its benefits in present day teaching-learning situations.

5.2 OBJECTIVES

After going through this lesson, you shall be able to:

- explain the concept of action research,

- state the purpose of action research,
- explain the characteristics and process of action research,
- identify the action research problem and formulate action research hypothesis and
- Point out the benefits of action research to the concerned.

5.3 WHAT IS/ IS NOT ACTION RESEARCH? What is

Action Research?

The Research design which uncover effective ways of dealing the 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 concept of action research is based upon the modern Human Organization Theory'. This organization theory is task and relationship centered. It assumes that workers of the organization have the capacity to solve the problems and take decision. Therefore, the opportunities should be given to the workers of the organization to study and solve the current problems of their practice so that they can improve and modify their practices. The workers will be efficient when they will be given freedom for improving and modifying their practices.

Action Research has its origin in the works of the social psychologist Kurt Lewin (1946). He developed the ideas of group decision and commitment to improvement at work situations (classroom and administrative).

Stephen M. Corey has applied this concept first time in the field of education. He has defined the term 'Action Research' as "The process by which practitioners attempt to study their problems scientifically in order to guide, correct and evaluate their decision and actions, a number of people have called Action Research".

According to Corey: "Action research is a process for studying problem by part-owners scientifically to take decision for improving their current practices."

"Research concerned with school problems carried on by school personnel to improve school practice is action research." – S. Backwell.

According to Mouly, "Action Research is an on spot research aimed at the solution of an immediate classroom problem." Therefore, Action Research, a type of applied research, is conducted by

practitioners, to improve practices in educational settings. In other words, it is said that Action Research in education is any systematic inquiry conducted by teachers, principals, school counselors, or other stakeholders in the teaching– learning environment that involves gathering information about the ways in which their particular schools operate, the teachers teach, and the students learn.

The main purpose of action research is to provide teacher researchers with a method for solving everyday problems in schools so that they may improve both student learning and teacher effectiveness. Action research is research done by teachers, for themselves; it is not imposed on them by someone else. Action research is largely about developing the professional disposition of teachers, that is, encouraging teachers to be continuous learners—in their classrooms and of their practice. In conducting research in their own classrooms and schools, teachers have the opportunity to model for students not only the skills needed for effective learning but also curiosity and an excitement about gaining new knowledge.

What is not Action Research?

Action research is not what usually comes to mind when we hear the word “research.” Action research is not a library project where we learn more about a topic that interests us. It is not problem-solving in the sense of trying to find out what is wrong, but rather a quest for knowledge about how to improve. Action research is not about doing research on or about people, or finding all available information on a topic looking for the correct answers. It involves people working to improve their skills, techniques, and strategies. Action research is not about learning why we do certain things, but rather how we can do things better. It is about how we can change our instruction to impact students (Ferrance, 2000).

Check Your Progress-1

Note: a) Answer the questions given below.

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

1. Action research is a type of _____.
2. _____ gave the concept of Action Research first time in the field of education?
3. The concept of action research is based upon _____ theory.
4. Say True or False for the following statements with respect to action research.
 - a) Data are collected systematically
 - b) Results are generalizable.
 - c) Data are systematically analyzed.
 - d) Results are used to improve practice.

5.4 CHARACTERISTICS ACTION RESEARCH

Characteristics of Action Research

The key characteristics of action research will help you to understand the concept of Action Researching a better way which is as follows:

- A practical focus
- The educator—researcher's own practices
- Collaboration
- A dynamic process
- A plan of action
- Sharing research

A Practical Focus:

The aim of action research is to address an actual problem in an educational setting. The action researchers study practical issues that will have immediate benefits for education. These issues may be a concern of a single teacher in a classroom or a problem involving many educators in a building. It may be a school-community issue, an issue with a school policy or structure that constrains individual freedom and action, or a concern of individuals in towns and cities. Action researchers do not undertake this form of research to advance knowledge for knowledge's sake, but to solve an immediate, applied problem.

The Teacher-Researcher's own Practices:

When action researchers engage in a study, they are interested in examining their own practices rather than studying someone else's practices. In this sense, action researchers engage in participatory or self-reflective research in which they turn the lens on their own educational classroom, school, or practices. As they study their own situation, they reflect on what they have learned—a form of self-development—as well as what they can do to improve their educational practices. Action researchers deliberately experiment with their own practices, monitor the actions and circumstances in which they occur, and then retrospectively reconstruct an interpretation of the action as a basis for future action. In this reflection, action researchers weigh different solutions to their problems and learn from testing ideas. Action research has been called “a spiral of self-reflection” (Kemmis, 1994, p. 46).

Collaboration:

Action researchers collaborate with others, often involving co participants. These co participants may be individuals within a school of personnel such as university researchers or professional association groups. It involves establishing acceptable and co-operative relationships, communicating in a manner that is sincere and appropriate, and including all individuals, groups, and issues. Many individuals and groups may participate in an action research project. Individuals may review results of findings with the researchers, help collect data, or assist in the presentation of the final report. Many aspects of the research process are open to collaboration in action research. During this collaboration, role may vary and may be negotiated, but the concept of integrating is central to understanding one's practices.

A Dynamic Process:

Action researchers engage in a dynamic process involving iterations of activities, such as a “spiral” of activities. The key idea is that the researcher “spirals” back and forth between reflection about a problem, data collection, and action. A school based team, for example, may try several actions after reflecting on the best time for high school classes to begin. Reflecting, collecting data, trying a solution, and spiraling back to reflection are all part of the process of action research. The process does not follow a linear pattern or a causal sequence from problem to action.

A Plan of Action:

At some point in the process, the action researcher formulates an action plan in response to the problem. This plan maybe simply presenting the data to important stake- holders, establishing a pilot program, starting several competing programs, or implementing an ongoing research agenda to explore new practices (Stringer, 2007). It may be a formal written plan or an informal discussion about how to proceed, and it may engage a few individuals (e.g., students in a classroom) or involve an entire community(e.g., in a participatory research study).

Sharing Research:

Unlike traditional research that investigators report in journal and book publications, action researchers report their research to educators, who can then immediately use the results. Action researchers often engage in sharing reports with local school, community, and educational personnel. Although action researchers publish in scholarly journals, they are typically more interested in sharing the information locally with individuals who can promote change or enact plans within their classroom or building. Action researchers share results with teachers, principals, school district personnel and parent associations.

Check Your Progress-2

Note: a) Answer the questions given below.

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

1. Which of the following terms is NOT characteristic of action research?
 - a) Commitment
 - b) Control
 - c) Collaboration
 - d) Change
2. Action Research process needs a plan of action so as to conduct it smoothly. True/False
3. The research stream of immediate application is
 - a) Conceptual Research
 - b) Action Research
 - c) Fundamental Research
 - d) Empirical Research

4. The process of Action Research is:

- a) Flexible
- b) Rigid
- c) Constant
- d) Critical

5.5 PROCESS/ STEPS INVOLVED IN CONDUCTING ACTION RESEARCH

In the steps that follow, remember that action research is a dynamic, flexible process and that no blueprint exists for how to proceed. However, several steps in the process can illustrate a general approach for the use of action researcher.

Step 1. Determine If Action Research is the Best Design to Use.

Action research is an applied form of inquiry and it is useful in many situations. one might use it to address a problem, typically one in one's work situation or community. It requires that one has the time to collect and analyze data and to experiment with different options for solving the problem. To help with the process of reflection, one ideally needs collaborators with whom to share findings and who can potentially serve as co researcher on the project. Action research also requires a broad understanding of the many types of quantitative and qualitative data collection to gather information to devise a plan of action.

Step 2. Identification of a Problem to Study.

The most important factor in action research is that an educational fractioned needs to solve a practical problem. This problem may be on that one faces in his/her own practice or in one's community (Kemmis & Wilkinson, 1998). After reflection, one can write down the problem or phrase it as a question to answer.

Different Areas of Action Research in school content Action research, being a scientific method of solving immediate problems in the school set up, could emerge from any of the following areas.

Academic - Classroom situation, methods of teaching, student learning, problems of disabled children and the like.

Social - late coming, not doing home assignments, poor attendance, lack of co- operation of students, lack of physical amenities, student discipline and the like

Curricular - textbooks, time bound syllabus, MLLs, lack of teachers' handbooks, mismatch of age and content, gaps in information and guidance to teachers, arrangement of content, coverage of subject areas etc.

Evaluation - test types (achievement tests, diagnostic tests etc.), periodicity of testing, scoring, giving feedback and the like.

Administrative - planning, training, framing time-table and the like.

Professional – Self growth, desirable attitudes, motivation, leadership and the like.

We can further narrow down these areas into some major concerns which might be hindrances in the smooth functioning of the school. Study the following areas of concern.

1. Late submission of assignments by students
2. Consistent low achievement in academic subjects
3. Unruly behavior of the students
4. Pronunciation problems of the students
5. Lack of reading habits among teachers
6. Lack of co-operation among teachers.

Step 3. Formulation of Action Research Hypotheses

In the above discussion we came to know how a problem could be selected for Action Research. We also saw how we can go about identifying the specific problem, After that here is a need to think and generate a list of alternative causes for the pin- pointed problem. From this list we can choose a cause which we think is the most likely one and start working on it. What we undertake is an intellectual exercise of considering all the causes for the problem and deciding which cause needs to be tackled in solving the problem. Formulating a hypothesis gives precision to our work and helps us to be objective. Now we will discuss about the techniques of formulating an “Action Hypothesis.”

The processes, an investigator may use to examine a problem in the field of education are similar to the ones we use to attack our day to day problems.

Look at the following example.

A teacher notices that one other Students in the IV grade does not show progress in learning “addition of two digit numbers”. Careful observation of this child in the class- room may suggest several possible causes for this problem. This in turn will help the teacher think of suitable remedies.

Based on these possible causes the teacher states HYPOTHESES which are the guessed strategies for solving the problem. Then the teacher designs and carries out a programme aimed at testing each hypothesis and checking the child’s progress.

Without ‘guessing’ the possible causes the teacher can not plan any remedy for the problem.

Once the investigator diagnoses the causes of the pinpointed/specific problems, he/she starts thinking about what concrete action, if taken, would bring about the desired change/solution.

Then he/she formulates hypothesis specifying the immediate ‘actions’ that could be taken to solve the problems.

The hypotheses formulated in action research are called ACTION HYPOTHESIS

Characteristics of a Good Action Research Hypothesis A good action hypothesis should be

1. Logically related to the problem
2. Testable in classrooms situations
3. Clearly stated without ambiguity
4. Directly stated in terms of the expected outcome (should not be a generalized statement)
5. Testable within a considerably short time (maximum of three months)

Different Forms of Stating Action Research Hypothesis

- a) Declarative form: An action hypothesis may be formulated as a statement with a

Positive relationship between the two factors identified, one being the cause and the other being the effect. This is also called a directional hypothesis.

- b)** Predictive form: An action hypothesis clearly predicting the expected outcome which would emerge after the action plan is implemented. This can be stated using 'if and then' statement.
- c)** Question form: Questions can be raised as action hypotheses as what would be the result of the intended action plan.
- d)** Null form: A null hypothesis states that no relationship exists between the factors considered in the problems. This form is mostly used when rigorous statistical techniques are to be used.

An example of action researcher hypothesis is as :

The Problem : Removal of spelling mistakes is dictation of among students of class III

The action hypothesis framed can be :

- Proper practice & drill will remove the spelling mistake.
- Remedial teaching of spelling will remove the spelling mistakes. To form a hypothesis the investigator should
- Have a thorough knowledge about the problem
- Be clear about the desired goal (solution)
- Make a real effort to look at the problem in new ways other than the regular practices (come out from conventional thinking)
- Give importance for imagination and speculation
- Think of many alternative solutions.
- Thoroughly examine the conditions/contexts in which the problem exists and then

- State the hypothesis

Step 4. Locating Resources to Help Address the Problem.

It involves exploring several resources to help study the problem. Literature and existing data may help the researcher to formulate a plan of action. He may need to review the literature and determine what others have learned about solving the issue. Asking colleagues for advice helps initiate a study. Teaming with university personnel or knowledgeable people in the community provides a resource base for an action research project. Individuals who have conducted action research projects can also help the researcher during his/her research study.

Step 5. Identifying Information that Will be Needed.

This means planning a strategy for gathering data. This means the researcher needs to decide who can provide data, how many people he will study, what individuals to access, and the rapport and support he can expect to obtain from them.

Another consideration is what type of data the researcher needs to collect. The choices are to collect quantitative or qualitative data, or both. It is helpful to understand the possibilities that exist for both forms of data. Mills (2011), for example, has organized qualitative and quantitative source, into three dimensions:

- Experiencing—— Observing and taking fieldnotes.
- Enquiring—— Asking people for information.
- Examining—— Using and making records.

The sources of data can be document analysis, questionnaire, observation and interviews, survey, focus group discussion etc.

The choice of data source depends on the questions, time and resources, availability of individuals, and sources of information. In general, the more the space is used and the more triangulation among them, the more one will be able to understand the problem and develop viable action plans (Sagor, 2005). It is probably wise to limit data collection in his first action research study so that one has a manageable amount of information to

analyze.

Step 6. Implementing the Data Collection.

Implementing data collection takes time, especially if the researcher gathers multiple sources of information. In addition, the participants may have limited time to complete instruments or engage in interviews. Keeping an accurate record of the information collected, organizing it into data files for numeric or theme analysis, and examining the quality of the information are important data collection steps.

Step 7. Analyzing the Data

Most of the data collected in an action research problem is qualitative, which means that the researcher must use his/her intellect to analyses and interpret the collected information. It is important for the researcher to sort the data according to research questions. The quantitative data involves the use of sample statistics. The action researcher may decide to analyze the data himself/herself or enlist the help of other educators or data analysts.

He might show his results to others to find out how they would interpret the findings. In most situations, descriptive statistics will suffice for action research data analysis, although he may want to compare some group data or relate several variables. The major idea is to keep the data analysis manageable so that one can identify useful information in formulating a plan of action.

Step 8. Developing a Plan for Action.

A plan may be an informal statement about the implementation of a new educational practice. It might be a plan to reflect on alternative approaches to addressing the problem or to share what the researcher has learned with others, such as teachers, individuals in district offices, or other schools and communities. The action researcher can develop it himself or collaborate with school personnel in writing it. The important point is that he now has a strategy for trying out some ideas to help solve his problem.

Step 9. Implementation the Plan and Reflection.

In many action research projects, the researcher will implement his planification see if it makes a difference. This involves trying out a potential solution to day-to-day problem of school /class and monitoring whether it has impact. To determine this difference, one might consult one's original objectives or the research question that he sought to answer in the action research project.

The researcher also needs to reflect on what he has learned from implementing his plan and sharing it with others. one may need to share it broadly with school colleagues, school committees, university researchers, or policymakers. In some cases, the researcher will not achieve an adequate solution, and he will need to tryout another idea and see if it makes a difference. In this way, one action research project often leads to another.

Check Your Progress-3

Note: a) Answer the questions given below.

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

1. 'Pronunciation problems of the students 'is related with which area of Action Research?
 - a) Social
 - b) Academic
 - c) Evaluation
 - d) Administrative
2. 'Unruly behavior of the students 'is related with which area of Action Research?
 - a) Social
 - b) Academic
 - c) Evaluation
 - d) Administrative
3. Which of the following is Not the form of Action Research hypothesis?
 - a) Declarative
 - b) Null

	c) Logical
	d) Predictive
4.	The statement in context of action research hypotheses, “Don’t think of many alternative solutions”. True/False
5.	Action Research does not promote reflection and self -assessment. True/False
6.	Action Research helps practioners to take decisions to improve their practices. True/False

5.6 BENEFITS OF ACTION RESEARCH

Although some of the educators think that action research is impractical, irrelevant and simply not feasible for practitioners given the exigencies and pressures of working in a school, research can have immeasurable benefits if properly used, for it does the following:

- Creates a systemwide mind-set for school improvement- a professional problem solving ethos.
- Enhances decision making capability.
- Promotes reflection and self-assessment.
- Instills a commitment to continuous improvement.
- Creates more positive school environment in which teaching and learning are foremost concerns.
- Impacts directly on practices.
- Empowers those who participate in the process.

Check Your Progress-4

Note: a) Answer the questions given below.

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

1. Action research does not promote reflection and self-assessment. True/ False
2. Action research helps practitioners to take decisions to improve their practices. True/ False

5.7 LET US SUMUP

Dear learners in the present lesson, we discussed the key characteristics and process of Action Research in educational context. We also came to know about the various areas for the identification of action research problem and understood the various issues related to the formulation of hypothesis in this context.

5.8 LESSON ENDEXERCISE Short Answer

Type Questions

1. List the steps for conducting action research.
2. Describe the benefits of action research.
3. Describe the main purpose of Action Research **Long Answer**

Type Questions

1. Discuss the key characteristics of action research in terms of the applicability of findings.
2. What is action research? Elaborate in detail the types of design for conducting action research process.
3. How as a teacher will you identify the problems of action research and will form the hypothesis in this context?

5.9 SUGGESTED FURTHER READINGS

Best, J.W., & Kahn, J.V. (1998). *Research in education (8th ed.)*. Needham Heights, MA: Allyn and Bacon.

Corey, S.M. (1953). *Action research to improve school practices*. New York: Teachers College Press.

Ferrance, E. (2000). *Action research*. USA: LAB Northeast and Islands Regional Educational Laboratory at Brown University.

Glanz, J. (2014). *Action research: An educational leader's guide to school improvement*. USA: Rowman & Littlefield.

Kemmis, S., & McTaggart, R. (1988). *The Action research planner (3rd ed.)*. Victoria, Australia: Deakin University Press.

Koul, L. (2012). *Methodology of educational research*. New Delhi: Vikas Publishing House Pvt. Ltd.

5.10 ANSWERS TO CHECK YOUR PROGRESS Check Your

Progress-1

1. Applied Research
2. Stephen M. Corey
3. Modern Human Organization Theory 4. (a) F (b) F
(c) F (d) T.

Check Your Progress-2

1. Option (b)
2. True
3. Option (b)
4. (a) Flexible **Check Your**

Progress-3

1. Option (b)
2. Option (a)
3. Option (c)
4. False
5. False
6. True

DEVELOPING ACTION RESEARCH DESIGN**STRUCTURE**

- 6.1 Introduction
- 6.2 Objectives
- 6.3 Types of Action Research Designs
- 6.4 Practical Action Research Design
- 6.5 Participatory Action Research
- 6.6 Let Us Sum Up
- 6.7 Lesson End Exercise
- 6.8 Suggested Further Readings
- 6.9 Answers to Check Your Progress

6.1 INTRODUCTION

Dear learners in the previous lesson we described the concept of action research with its characteristics and process. We also discussed about the identification of action research problem and formulation of hypothesis in this context. Now in the present lesson we will explain two types of action research designs along with their features and usability in present teaching learning situations.

6.2 OBJECTIVES

After going through this lesson, you shall be able to:

- point out the types of action research designs,
- explain ‘Practical action research’ as one of the design with suitable design, and
- explain ‘Participatory action research design’ along with its features.

6.3 WHAT ARE THE TYPES OF ACTION RESEARCH DESIGNS?

Action research means different things to different people. A review of the major writers in education, however, shows that the following two basic research designs are typically discussed (Mills, 2011):

- Practical action research
- Participatory action research

In the following discussion we will discuss these two types of designs in detail.

6.4 PRACTICAL ACTION RESEARCH

Teachers seek to research problems in their own classrooms so that they can improve their student’s learning and their own professional performance. Teams composed of teachers, students, counsellors, and administrators engage in action research to address common issues such as escalating violence in schools, indiscipline among the students, low level of achievement in school subject etc. In these situations, educators seek to enhance the practice of education through the systematic study of a local problem. This form of action research is called practical action research, and its purpose is to research a specific school situation with a view toward improving practice (Schmuck, 1997).

Practical action research involves a small-scale research project, narrowly focuses on a specific problem or issues, and is undertaken by individual teachers or teams within a school or school district. Examples of practical action research studies include these:

- An elementary teacher studies the disruptive behaviour of a child in her classroom.
- A team composed of students, teachers, and parents studies the results of implementing a new attendance policy in elementary school.
- A teacher studies his professional development using technology in teaching.

In all of these examples, action research seeks to improve specific, local issues. It calls for

educators to involve teachers in research to study concerns in their own schools or classrooms and to implement committees in schools to enhance research as an integral part of daily classes and education. In this spirit, educators can test their own theories and explanations about learning, examine the effects of their practices on students, and explore the impact of approaches on parents, colleagues, and administrators within their schools.

A drawback of this approach is that although teachers seek to improve their classroom practices; they have little time to engage in their own research. Although teachers may be good at what they do and familiar with teaching kids in classes, they may need assistance in becoming researchers.

- To understand practical action research, we need to review its major ideas or principles. As identified by Mills (2011), the following principles focus on assumptions about the role of teachers as learners, as reflective practitioners, and as individuals engaging in small-scale research projects:
- Teacher-researchers have decision-making authority to study an educational practice as part of their own ongoing professional development.
- Teacher-researchers are committed to continued professional development and school improvement, a core assumption for any teacher who decides to engage in action research.
- Teacher-researchers want to reflect on their practices. They reflect so that they can improve their practices. They do this individually or in school-based teams composed of students, teachers, and administrators.
- Teacher-researchers use a systematic approach for reflecting on their practices, meaning that they use identifiable procedures to study their own problems rather than using a random, anything-goes design.
- Teacher-researchers will choose an area of focus, determine data collection techniques, analyses and interpret data, and develop action plans.

This final point refers to the process of research. The books about practical action research advance detailed steps that teachers and other educators might use to conduct a study. Mills (2011), for example, discusses several of these models, then advances his own and uses it as the framework for chapters in his book. He calls his model, the dialectic action research spiral. This model provides teachers with a four-step guide for their action research project. Mills emphasizes that it is a model for

teachers to use to study themselves, not a process of conducting research on teachers. It is a “spiral” because it includes four stages where investigators cycle back and forth between data collection and a focus, and data collection and analysis and interpretation. In this procedure, the teacher-researcher identifies an area of focus. This process involves defining the area, doing reconnaissance (self-reflection and description), reviewing the literature, and writing an action research plan to guide the research. Then the teacher-researcher collects data by gathering multiple sources of data (quantitative and qualitative) and using a variety of inquiry tools, such as interviews, questionnaires, or attitude scales. Data collection also consists of attending to issues of validity, reliability, and ethics, such as provisions for informed consent from participants.

The action researcher follows this phase with analysis and interpretation. The process includes identifying themes; coding surveys, interviews, and questionnaires; asking key questions; doing an organizational review; engaging in concept mapping (i.e., visualizing the relationship of ideas); analyzing antecedents and consequences; and displaying findings. Interpretation involves extending the analysis by raising questions connecting findings to personal experiences, seeking the advice of critical friends, and contextualizing the findings in literature and theory.

In the final stage, the teacher-researcher finally completes an action plan. This plan includes a summary of findings, recommended actions, and the identification of individuals responsible for action and those who need to be consulted and informed. The plan also indicates who will monitor and collect the data, the time line for data collection, and the resources needed to carry out the action.

Overall, this process emphasizes practical action research centered around studying a local problem, engaging in inquiry an individual teacher (teacher-as-researcher) or a team, and focusing on teacher development. The following study can illustrate this practical approach to action research.

1. **Topic for Action Research:** Students of VIII Class do not take Interest in Geography subject
2. **The Background of the topic/ Reviewing the related literature:** During the last years, it has been observed that students do not take interest in their geography classes. The concepts of geography are not clear to the students. Geography teaching involves primarily the analysis of causal relationship and the intelligent understanding of phenomena occurring on the earth surface. It is being accomplished by direct and indirect observations and by compilation of basic information of geographical importance. Therefore the subject needs a broad and rich base of perceptual experiences as an important basis for good teaching. Though it is almost impossible

to provide real learning experiences for school children to acquaint themselves with geographical knowledge, the study of the subject could still be made more lively; interesting and comprehensible through wise and intelligent use of tools namely maps, globes, models, specimens which are simply re- production of the reality etc.

There is a need for using a variety of instructional inputs in social studies. Based on research evidence Woolever and Scott (1988) say that social studies teachers, left to themselves, use only limited number of teaching strategies which students find “boring”. The boredom could be relieved if teachers use a variety of teaching techniques not just large group lectures and discussions. Therefore, there is a need for providing a variety of instructional inputs which teachers can use in teaching. Variety in instructional inputs promotes and maintains student interest, accommodates individual learning styles, adjusts for different stages of development and helps in achieving diverse types of instructional objectives.

3. Objectives : This topic is taken for achieving the following objectives:

- (a) To develop the interest among for taking interest in geography class.
- (b) To develop understanding about the use of maps and atlas in geography study.
- (c) To develop the feelings among the students that geography content can be best understood by the use of maps and atlas.
- (d) To raise the level of performance in geography.

4. Importance of the topic for the School: The study of geography is very Essential and useful for the students. It provides the general knowledge about the human phenomenon. The standard of geography may be raised by using various types of teaching strategies.

The teacher deals with instructional processes in dealing with content. When he/ she, as a teacher, tries to develop the instructional process, he/she may think what the change in learners’ behavior will be through the pre-designed learning environment consisting of content, media, activity, resources, learning styles, etc. Hence, the instructional process in social studies maybe considered as providing a learning environment consisting of relevant components with which an individua

interacts and gains experience, leading to the attainment of certain perspective field preplanned learning outcomes. This means that there is a change in the behavior of learners, namely, a change in the cognitive structure or skills or values, attitudes, ideals, etc. Thus, a change in behavior could be overt (behavioristic view) or in internal cognitive structure (cognitivist view). One thing that emerges from the above discussion related to the instructional process is that the teacher has to organize a controlled environment for the achievement of predetermined learning outcome

5. **Field of the problem:** The problem is concerns with the classroom- teaching learning.

6. **The Specification of the Problem:** The problem has been identified in the Govt High School Channi Rama of Class VIII B, Period VI Subject geography. The students of the class are not interested in studying Geography.

7. **Analysis of the Problem:** The causes of the problem may be analyzed with the help of the following observations

S.No.	Causes	Evidence
1.	The teachers do not stress on the use of major tools which are used in teaching of geography.	My experiences and observations as a Teacher.
2.	The geography maps, atlas and globes are not available in the library and in the school	No room for teaching aids for geography subject and there is no entry of any such type of teaching material anywhere
3.	Most of the students do not have the atlas	Enquiring from the students
4.	The geography teachers were not using maps in their teaching.	Student's opinion and teacher's observation and experiences.

8. **Formulation or Action Hypotheses:** The action hypotheses are formulated for the problem. Generally the causes, which are under the approach of the teacher, are considered for this purpose. The following two important action hypotheses are developed.

First Action Hypotheses: The tendency of using teaching aids is promoted by giving the adequate stress on the use of globe, maps and atlas in geography teaching.

Second Action Hypotheses: using the proper teaching aids in teaching geography class, may

develop the interest among the students in studying geography as a subject.

- 10. Design for Testing Action Hypotheses:** The action hypotheses are tested separately by employing different designs. A design has been given for testing the first action hypotheses.

The Design for First Action Hypothesis

S.No.	<i>Initiation of Activities</i>	<i>Techniques</i>	Source	Time
1.	A list is prepared of teaching aids available in the school	Enquiring from the teachers teaching social science by arranging discussion with them during recess period	Teachers provide the names of the teaching aids being used.	Four Days
2.	The students who do not have the atlas will be asked to purchase it.	Teacher will enquire from students	Teacher will locate the Students who are not in a capacity to purchase the Atlas	Three Days
3.	The atlas may be given to poor students from the Book Bank	He will send this test of information to parents also.	He will request the principal for purchasing more copies of atlas from Book Bank	Three Days
3.	The atlas may be given to poor students from the Book Bank	He will send this test of information to parents also.	He will request the principal for purchasing more copies of atlas from Book Bank	Three Days

4.	During geography class teacher will regularly ask the students to bring and use atlas.	The Teacher will supervise the use of atlas by students	He will note the two names of these students who do not purchase atlas	Two Days
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The Data was collected by observation and maintaining record of students, who have used the atlas and globe. An achievement test was conducted to measure their level of performance. These evidences show the improvement in the teaching practices, leads to achievement and interest in the respective subject.

Design for Second Hypothesis

S.No.	Initiation of Activities	Techniques	Source	Time
1.	The teacher provided awareness about the teaching aids available in the school	From the record she checked the availability of maps/ teaching aids in geography room.	She contacted in-charge, the geography room mentioned in the school records	Two days
2.	The teacher arranged the required teaching aids for teaching geography subject	As a teacher of social science, the reviewed course and content prescribed for Glass VIII in geography subject.	The teacher requested the principal and contacted nearby extension service centers.	Four days

3.	The teacher selected related teaching aids for teaching the content in particular lesson of geography.	The teacher considered the content of her lesson.	She got teaching aids (maps, charts) issued from geography room in-charge	Three Weeks
4.	She used proper maps; charts and models in her teaching.	The lesson was developed with the help of teaching aids.	She located the weak and needy students.	Three Weeks (She arranged the Maps/ teaching within three weeks and the students were asked to bring required maps in geography period.)
5.	The teacher asked the students to locate the required places after her presentation of the lesson	Teacher will show these places on map and will supervise the students map work.	Teacher will locate the poor students.	Three weeks

- 11. Evaluation:** After developed action plan to help students, the teacher observed that students were regular and punctual in her class and moreover they very much interested in studying the Geography subject. In formative assessment in the class-room weekly tests, there was remarkable improvement in the learning and achievement of the students. To the principal they revealed that social science is an interesting subject

Sharing and communicating the results

The result of the research maybe communicated to the colleagues. The colleagues may implement

the action plan in their own class room in their own way. The results maybe communicated to the education boards, principal, administrators, parents as well as students and their opinion can be used to improve the action research. By presenting the account of what the teacher has done, her work becomes evidence of how she has learned to do things differently and in a better way. Teacher can publish her research work in the research journals for its wider dissemination. Can get critical response that may help her to work further.

Reflecting on the process

She reviewed what she has done. It gave her opportunity for possible revision for future implementation of the research project. Although in her class of 35 students there were progressive improvement in the learning of the students, but she reported that roll no 5,6,9,11,30 were still creating problem of irregularity.

Check Your Progress-1

Note : a) Answer the question given below.

b) Compare Your Answer with those given at the end of the lesson.

(i) The purpose of Practical Action Research is to research a specific school situation with a view toward improving school practice. True/False

(ii) Practical Action Research involves a large scale research project. True/False

(iii) Practical Action Research process emphasizes engaging in inquiry by an individual teacher. True/False

(iv) An Elementary teacher studying the disruptive behaviour of a student in her class is an example of _____ design.

(v) Which Action Research process emphasizes that teachers are committed to continuous professional development ?

6.5 PARTICIPATORY ACTION RESEARCH

Participatory action research (PAR) has a long history in social inquiry involving communities, industries and corporations, and other organizations outside of education (e.g. Kemmis & Mc Taggart, 2005). Rather than focus on individual teachers solving immediate classroom problems or schools addressing internal issues, PAR has a social and community orientation and an emphasis on research that contributes to emancipation or change in our society. Drawing on the work of the Brazilian Paulo Freire, the German critical theorist Jurgen Habermas, and more recently Australians Stephen Kemmis and Ernest Stringer, this approach has emerged as an action-oriented, advocacy means of inquiry. Often PAR includes qualitative data collection, but it may also involve quantitative data collection.

Individuals refer to participatory action research by different names, such as par- titivator research, critical action research, or classroom action research (Kemmis & McTaggart, 2005, pp. 560-561).

The purpose of participatory action research is to improve the quality of organizations, communities, and family lives (Stringer, 2007). Although espousing many of the ideas of teacher and school-based practical action research, it differs by incorporating an emancipatory aim of improving and empowering individuals and organizations in education (and other) settings. Applied to education, the focus is on improving and empowering individuals in schools, systems of education, and school communities. Participatory action research also has a distinct ideological foundation that shapes the direction of the process of inquiry; the type of issue that commands attention of the action researcher; the procedures of research, especially data collection; and the intent and outcomes of the inquiry.

Kemmis and McTaggart (2005) summarized six central features of PAR:

1. PAR is a social process in which the researcher deliberately explores the relation- ship between the individual and other people. The objective is to understand how social interaction forms and re-forms individuals. Applied to education, participant- tory action researchers might explore teachers working together in teams.
2. This form of inquiry is participatory. This means that individuals conduct studies on themselves. During this process, people examine how their own understandings,

skills, values, and present knowledge both frame and constrain their actions. Teachers, for example, would study themselves to gain a better understanding of their Practices and how this knowledge shapes (and constrains) their work with students.

3. This form of research is practical and collaborative. It is collaborative because it is Inquiry completed with others. It is practical because researchers typically explore acts of communication, the production of knowledge, and the structure of social organization to reduce irrational, unproductive, unjust, or unsatisfying inter- actions. Teachers, for example, might collaborate with other teachers to reduce the levels of bureaucracy in a school that might inhibit classroom innovations.
4. PAR is emancipatory in that it helps unshackle people from the constraints of irrational and unjust structures that limit self-development and self-determination. The intent of a study, for example, might be to change the bureaucratic procedures for teachers in schools so that they can better facilitate student learning.
5. PAR is critical in that it aims to help people recover and release themselves from the constraints embedded in social media (e.g., their language, their modes of work, and their social relationships of power). For instance, teachers may be constrained by a subservient role in the school district so that they do not feel empowered in their classrooms.
6. PAR is reflexive (e.g., recursive or dialectical) and focused on bringing about change in Practices. This occurs through spirals of reflection and action. When teachers reflect on their roles in schools, they will try one action and then another, always returning to the central question of what they learned and accomplished because of their actions.

Check Your Progress-2

Note: a) Answer the question given below.

b) Compare Your Answer with those given at the end of the lesson.

- (i) Participatory Action Research is also called _____
- (ii) Participatory Action Research focuses on individual teachers solving immediate

classroom problems. True/False

(iii) Participatory Action Research has social and community orientation. True/False

(iv) Participatory Action is collaborative because it is inquiry completed with others.
True/False

(v) Participatory Action Research involves spirals of reflection and action. True/False

6.6 LET US SUM UP

To conclude we can say that Practical action research involves a small-scale re- search project, narrowly focuses on a specific problem or issues, and is undertaken by individual teachers or teams within a school or school district. On the other hand Participatory action researchers study issue that relate to a need to address social problems that constrain and repress the lives of students and educators.

6.7 LESSON ENDEXERCISE Short Answer

Type Questions

1. Write the concept of Practical Action Research.
2. Point out two examples of Practical Action Research.
3. Describe briefly the meaning of the term 'Participatory Action Research'. **Long Answer**

Type Questions

1. Write detailed note on 'Practical Action Research'.
 2. Highlight the main features of 'Participatory Action Research'.
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6.8 SUGGESTED FURTHER READINGS

Corey, S.M. (1953). *Action research to improve school practices*. New York: Teachers College Press.

Ferrance, E. (2000). *Action research*. USA: LAB Northeast and Islands Regional Educational Laboratory At Brown University.

Glanz, J.(2014). *Action research: An educational leader's guide to school improvement*. USA: Rowman & Littlefield.

Kemmis, S., & McTaggart, R. (1988). *The Action research planner (3rd ed.)*. Victoria, Australia: Deakin University Press.

6.9 ANSWERS TO CHECK YOUR PROGRESS Check Your

Progress-1

- (i) True (ii) False (iii) True (iv) Practical Action Research
(v) Practical Action Research **Check Your**

Progress-2

- (i) Critical Action Research (ii) False (iii) True (iv) True (v) True

TOOLS OF ACTION RESEARCH

STRUCTURE

- 7.1 Introduction
- 7.2 Objectives
- 7.3 Tools of Action Research
 - 7.3.1 Definitions of Tool
- 7.4 Observation
 - 7.4.1 Planning for Observation
 - 7.4.2 Execution of Observation
 - 7.4.3 Recording and Interpreting the Observation
 - 7.4.4 Advantages and Limitations of Observation
- 7.5 Questionnaire
 - 7.5.1 Classification of Questionnaire
 - 7.5.2 Construction of a Questionnaire
 - 7.5.3 Advantages of a Questionnaire
 - 7.5.4 Limitations of a Questionnaire
- 7.6 Let Us Sum Up
- 7.7 Lesson End Exercise
- 7.8 Suggested Further Readings
- 7.9 Answers to Check Your Progress

7.1 INTRODUCTION

In this lesson you will understand what are the tools which are used in the process of Action Research. Only two tools namely observation and questionnaire will be discussed in this lesson. Questionnaire comprises of a series of questions, may be in a definite pattern, presented or mailed to the individuals to collect requisite information. You will also appreciate the key characteristics, uses and limitations of these two tools of Action Research. You will also go through the examples related to these

tools so that you will understand their importance and limitations in research situations.

7.2 OBJECTIVES

After studying this lesson, you shall be able to:

- explain the concept of tools of Action Research,
- define the method of observation and questionnaire as Action Research tool,
- list out the characteristics, uses and limitations of observation as a tool of Action Research .
- list out the characteristics, uses and limitations of questionnaire as a tool of Action Research.

7.3 TOOLS OF ACTION RESEARCH

Research is an intellectual activity. It is responsible for bringing to light new knowledge. It is also responsible for correcting the present mistakes, removing existing misconceptions and adding new learning to the existing fund of knowledge. A researcher requires many data – gathering tools or techniques. Tools are instruments used to collect information for performance assessments, self- evaluations, and external evaluations. Tools need to be strong enough to support what the evaluations find during research. Depending on the nature of the information to be gathered, different instruments or tools are used to conduct the assessment forms for gathering data. Tools may vary in complexity, interpretation, design and administration. Each tool is suitable for the collection of certain type of information. One has to select from the available tools those which will provide data he seeks for testing hypothesis. It may happen that existing research tools do not suit the purpose in some situation, so researcher should modify them or construct his own.

7.3.1 Definitions of Tool Research tool

maybe defined as:

- Anything that becomes a means of collecting information for study is called a research tool or a research instrument. For example, observation forms, interview schedules, questionnaires, and interview guides are all classified as research tools.
- The instruments used for the purpose of data collection, are measurable and observable for data analysis and interpretation; constructed by researcher according to objectives.

Action Research is more of a holistic approach to problem-solving, rather than a single method

for collecting and analyzing data. Thus, it allows for several different re- search tools to be used as the project is conducted. These various tools, which are generally common to research paradigm, include: participant observation recordings, questionnaire surveys, rating scales, interviews, and case studies. Most of the tools/instruments of data collection can be used in both qualitative as well as in quantitative method of research.

7.4 OBSERVATION

Observation offers the researcher a distinct way of collecting data. It does not rely on what people say they do, or what they say they think. It is more direct than that. Instead, it draws on the direct evidence of the eye to witness events first hand. It is a more antirailway gathering data. Whenever direct observation is possible it is the preferable method to use. Observation is a technique in which the behavior of research subjects is watched and recorded without any direct contact. It involves the systematic recording of observable phenomena or behavior in a natural setting. Observation is the process in which one or more persons observe what is occurring in some real-life situation, and classify and record pertinent happenings according to some planned scheme. It is used to evaluate the overt behaviors, events and the contexts surrounding the events and behaviors in controlled and uncontrolled situations. Patton(1990) has suggested the following five dimensions along which observations vary:

1. First, the observer's role may vary from full participant to a complete outsider without disturbing the subjects who are observed.
2. Second, the observer may conduct the observations covertly, with full knowledge of those being observed, or with only some of those being observed aware of the observation.
3. Third, those being observed may be given full explanations, partial explanations, no explanations, or given a false explanation.
4. Duration of the observation is the fourth dimension.
5. Fifth and final dimension is breadth of focus.

The observations may vary from quite broad programme to quite narrow event. Observational methods have occupied an important place in descriptive educational re- search. These include

observations of the setting or physical environment, social interactions, physical activities, non-verbal communications, planned or unplanned activities and interactions. As a good research technique, observation needs proper planning, expert execution, and adequate recording and interpretation.

7.4.1 Planning for Observation

Observation as a research technique must always be directed for a specific purpose. It is neither haphazard nor unplanned. The planning for observation includes definition of specific activities or units of behavior to be observed, the nature of the groups of the subjects to be observed, the scope of observation-individual or group, determination of the length of each observation period, deciding about the tools to be used in making the observation and recording, etc.

According to Good (1966, pp. 244-245) planning for observation includes the following factors:

1. An appropriate group of subjects to observe.
2. Selection and arrangement of any special condition for the group.
3. Length of each observation period, interval between periods, and number of periods.
4. Physical position of the observer and possible effect on the subject or subjects.
5. Definition of specific activities or units of behavior to be observed.
6. Entry of frequencies or tallies in the record, as a total for the entire observation period or by sub-division of time within the observation period.
7. Scope of observation, whether for an individual child or for a group.
8. Form of recording, including consideration of mechanical techniques and such quantitative factors as number, time, distance and spatial relationships.
9. Training of the observer in terms of expertness.
10. Interpreting of the observations.

7.4.2 Execution of Observation

An expert execution of observation includes:

1. Proper arrangement of specific conditions for the subject or subjects to be observed.
2. Assuming the proper role of physical positions for observing.
3. Focusing attention on the specific activities, or units of behavior under observation.
4. Handling well the recording instruments to be used.
5. Utilizing the training and experience fairly in terms of making the observation and recording the facts.

Observation may be either participant or non-participant. In the participant observation, the observer becomes more or less one of the groups under observation. In such situations, the observer will be in sight of the person being observed and may actually take part in some activity with the observed individual or group. In the non-participant observation, observer takes a position where his presence is not disturbing to the group. He may follow in detail the behavior of one individual or may describe one or two behavior characteristics of a dozen or more individuals.

Observation may also be classified as unstructured and structured. Unstructured observation is mainly associated with participant observation and it is often an exploratory technique. The structured observations are much too formal and they are designed to provide systematic description to test casual hypotheses. Structured observations are executed in controlled situations like classroom or laboratory settings. Interaction analysis of the classroom verbal behavior of a teacher is an example of structured observation. In the unstructured observations, it may not be possible to categorize behavior in advance of observation. Instead of using predetermined categories, the observer considers aspects of behavior in terms of their context or the situations of which they are part.

7.4.3 Recording and Interpreting the Observation

The recording of the observation data may either be simultaneous or soon after the observation. In the former case, the observer goes on recording his observation data simultaneously with the occurrence of the phenomena observed. In the latter case, the observer undertakes to record his observations not simultaneously with his actual observation process, but immediately after he has observed for a unit of time while the details are still fresh in his mind.

In viewing, classifying and recording behaviour, the observer must take utmost care to minimize the influence of his biases, attitudes and values on the observation report. The observer should know what he is looking for in a given situation and should carefully and objectively record relevant data. The

subjectivity on the part of an observer is partly due to his emotional involvement, his selective perceptions and his different powers of recall. In order to overcome the biases introduced by the human observer, various mechanical instruments are used to obtain a more accurate record of events. The use of cameras, tape-recorders, stop-watch, binoculars, audiometer, stethoscope, light meter, thermometers, one-way vision screen or mirror, etc. allows behavior to be measured to a degree of accuracy which could not be achieved by the human observer. It is advisable to develop an observation form or schedule while making observations. The specific behaviors to be observed and recorded should be listed on this form. The observation form should be simple and the behaviors listed on it may be clearly specified and examples given where necessary.

In addition to rating scales and checklists, the direct observation makes use of anecdotes, time sampling method, incident-sampling method, and controlled diary method.

1. **Anecdotes:** The anecdote has been the most widely used method for describing naturalistic behaviour. It is a word description of a behavior episode. There is no set pattern for anecdotal writing, and various styles have been used.
2. **The time sampling method.** It is not usually possible to observe behavior continuously for long periods because of the expenses and dynamic nature of behaviour. By 'time-sampling' method, behaviour can be studied for a number of short periods of time which are systematically spaced over the total period of study. For example, a child's behaviour may be studied for the whole school day by means of a series of observations, each often minutes duration. It is worthwhile to study children over long periods of time by this technique to get a fair picture of their behaviour.
3. **The incident sampling method.** This incident sampling method concerns the observation of the behaviour of an individual in selected incidents or situations in which he becomes involved. It involves the observation of certain instances of behaviour. Observer may have sufficient data to draw inferences about the typical pattern of behaviour of the individual.
4. **The controlled diary method.** In this method, the observer keeps a diary in which he records certain aspects of the behaviour of a subject. The information gathered by controlled diary method is supplemented by the observation data gathered by other means.

7.4.5 Advantages and Limitations of Observation

If properly used, observation method has the following advantages:

1. It provides a direct procedure for studying various aspects of human behaviour, which may be

the only effective way to gather data in a particular situation.

2. It enables the observer to code and record behaviour at the time of its occurrence.

The following are some of the limitations in the use of observation method:

1. A subject may intentionally attempt to exhibit an artificial behaviour when he knows that he is being observed.
2. Observation method is time consuming and sometimes too costly.

Check Your Progress-1

Note: a) Answer the questions given below.

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

- i. Describe any three factors to be kept in mind while planning for 'Observation'?

- ii. Find out the correct steps involved in the effective observation:

- a) Planning, Recording, Execution and Interpretation.
- b) Recording, Planning, Execution and Interpretation.
- c) Planning, Execution, Recording and Interpretation.
- d) None of the above

- iii. Observation is a more natural way of gathering data from the sample. True/False

7.5 QUESTIONNAIRE

A questionnaire is a device consisting of a series of questions dealing with some psychological, social, educational, etc. topic(s) sent or given to an individual or a group of individuals, with the object of obtaining data with regard to some problems under investigation. Goode and Hatt (1952, p. 33) state that in general the word 'questionnaire' refers to a device for securing answers to a series of questions by using a form which the respondent fills in himself. Questionnaire is a popular means of collecting all kinds of data in research. It is widely used in educational research to obtain information about certain conditions and practices, and to inquire into opinions and attitudes of an individual or a group. A questionnaire is either administered personally to a group of individuals or it is mailed to them to save time and money in travel. In the former situation, the person administering the tools has an opportunity to establish rapport with the respondents, to explain the purpose of the study to the respondents, and to explain the meaning of questions to the

respondents that may not be clear to them. In the latter situation, the mailed questionnaire is probably both the most used and most abused data-gathering research tool. It is mostly used when the individuals from whom we desire information cannot always be contacted personally without the expenditure of great deal of time and money in travel. The range of administration of mailed questionnaire maybe national or international. A mailed questionnaire is mostly criticized, because of an unfavourable reaction it generates among the respondents, to answer questions from strangers on subjects they are least interested in. Best (1977, p. 167) cautions that a mailed questionnaire may be used with a group of respondents who have genuine interest in the problem under investigation, who know the sender, or who have some common bond of loyalty to a sponsoring institution or organization.

7.5.1 Classification of Questionnaires

The questionnaires can be classified in terms of the nature of the questions which are used. Questions may be asked in a closed or an open form. The researcher may use one type exclusively or both in combination. Questionnaires that call for short or check responses are known as closed form or restricted type. They include a set of questions to which respondents can reply in a limited number of ways. The respondent is invariably permitted to reply only with 'yes' or 'no-opinion', or is requested to select answer from a short list of possible responses. He is asked to place a tick (✓) mark in a space provided on the answer sheet or he may be requested to underline a response. Sometimes he is asked to insert brief answers of his own. For certain type of information, the closed type of questionnaire is useful, because it is easy to respond, takes little time and effort to fill out, is relatively objective and is fairly easy to tabulate and analyses. While using closed-type of question items, it is advisable to provide for unanticipated responses by allowing an 'open' category or response with a request, 'please specify' or 'kindly mention' which enables the researcher to properly tabulate and classify such responses. The following example illustrates such type of question items:

Please tick (✓) the reasons given below for not introducing the 'grade system marking' by your school.

- a) Non-availability of administrative guidance and support. ()
- b) Non-availability of academic guidance and support ()

- f) Any other, please mention ()

The open-form or unrestricted type of questionnaire calls for a free response in the respondent's own words. The form of the questions is unstructured and no clues are provided to the respondent. The open form of questions provides for greater depth of response and the greatest advantage of this type of questions is freedom that is given to the respondent to reveal his opinion and to clarify his response. However, the responses to such type of questions are sometimes difficult to tabulate, organize and interpret. The following example illustrates this type of question:

Question : State the reasons for not introducing the 'Grade-System of Marking' in your school.

7.5.2 Construction of a Questionnaire

Constructing a good questionnaire requires both ability and perseverance on the part of the

researcher. He should not use a 'shotgun approach' by attempting to cover his field of investigation broadly in the hope that some of the responses will provide answers for which he is searching blindly. There are some points which a researcher may consider useful while constructing, administering and analyzing a questionnaire.

1. **Purposes of the questionnaire.** A good questionnaire must serve two major purposes. First, it must translate the objectives of an investigation into specific questions, the answers to which will provide the data necessary to test the hypotheses and explore the area defined by the objectives. Secondly, the questionnaire must motivate the respondents to communicate the required information. It is essential to include a courteous and carefully constructed covering letter to explain the purpose of the study. The covering letter should assure the respondent that delicate information will be held in strict confidence.
2. **Language.** In the construction of a questionnaire, the primary criterion for the choice of language is that the vocabulary and syntax should offer maximum opportunity for complete and accurate communication of ideas between the researcher and the respondent. Since the researcher has to depend on written language alone to get the required information, he has to be careful while phrasing the questions.
3. **Information level of the respondents.** The information elicited by the questionnaire must lie within the respondent's present level of information. The questions above the information level of respondents may result in resentment and embarrassment among the respondents.
4. **Social acceptance of responses.** The questions must provide the respondent a range of responses which meets his criteria of social acceptability. A question constitutes a threat to the respondent's ego if he is required to give an answer which he feels is socially unacceptable. The respondent should not be confronted with the necessity of giving a socially unacceptable response to a question. The annoying or embarrassing questions must be avoided.
5. **Leading questions.** The questions should be objective with no leading suggestions as to the most appropriate response. There are some words which involve respondents emotionally, either favourably or unfavourably, in a particular culture. It is advisable not to make use of such emotionally 'loaded' words while phrasing questions of a questionnaire.
6. **Sequence of questions.** First, the questions should be limited to a single idea or to a single reference. Secondly, the questionnaire maker needs to give thought to the arrangement of the questions in a questionnaire. The questions should be so arranged that they permit the ideas of the respondents to flow logically. The sequence of questions must facilitate the easy progress of the respondent from item to item and it should lead the respondent to anticipate the next question. Questions should be presented in a good psychological order by adopting the 'funnel approach'. This is a procedure of asking the most general or the most unrestricted questions first and following it with successively more specific and restricted questions. This order helps the respondent to organize his own thinking and motivates him to respond logically and objectively.
7. **The form or type of questions.** Another important consideration that weighs in the matter of constructing a questionnaire is that of 'form or type' of questions. As discussed earlier, the questionnaire may contain closed or open type of questions. Each type of these questions has its merits and limitations and the questionnaire framer must decide which type is more likely to

supply the information required. In some research situations, it is useful to include both the open and the closed

type of questions in combination.

8. **Length of the questionnaire.** A questionnaire should not be any longer than is necessary. The total number of questions must not be so many as to tire or bore the respondents. If too many questions are asked and the respondent becomes tired, the questions at the end of the series may not be well answered.
9. **Expert's opinion.** It is advisable to get all the help from experts for planning and constructing a questionnaire. Questions should be submitted to the experts for criticism and modified accordingly.
10. **Preliminary tryout of the questionnaire.** No matter how careful the questionnaire maker has been in phrasing his questions and designing his questionnaire, he needs to try them out with a few representative samples of the respondents before launching into the actual investigation. The first purpose of the pre-test is to examine the questionnaire from the research point of view. It is suggested that inter- views with respondents should be conducted to see whether the responses fulfil the objectives of the investigation. The second purpose of the tryout is to determine the extent to which the questionnaire fulfils the following two criteria:
 - i) Does the questionnaire promote a congenial and appropriate relationship with respondents?
 - ii) Do respondents understand the questions without having to be explained or re- worded?
11. **Validation of a questionnaire.** The validation of a questionnaire utilizes the same principles and procedures as the validation of any tool of measurement. Each question of the questionnaire must be related obviously to the topic under investigation. In some situations, the questionnaire is validated against the actual overt behaviour, which acts as the external criterion. This is done by relating question responses with the actual behaviour. Follow-up observations or respondent behaviour at a particular time or sometime in the future are also used to estimate the predictive validity of some types of questionnaires.
12. **Reliability of a questionnaire.** The test-retest method is the feasible approach to the working out of the reliability of questionnaires. The comparison of responses

of an alternate form with the original form of questionnaire is also made to estimate the reliability.

13. **Administration of a questionnaire.** The questionnaire can call for written or oral responses. Some questionnaires are designed with the intention that they should be answered in writing, other are designed in a way which require an oral response. Questionnaires which require written replies are administered either by post or in a group situation such as a group of students in a class. It is always advisable to send a self-addressed stamped envelope along with the

questionnaire to exert a moral pressure for return of duly filled questionnaire administered by post. In case of delay, one or two reminders may be helpful. In some situations, it maybe appropriate to send another copy of the questionnaire with the follow-up letter. Questionnaires which call for oral replies are usually presented to one subject at a time in an interview.

The percentage return of questionnaires affects the degree of confidence a re- searcher may place in the data collected. If the percentage of response is greater, the researcher may have greater confidence in the collected data. Aresponse rate of 50 per cent has been considered adequate whereas 60 percent as good.

14. **Analysing and interpreting questionnaire responses.** Quantification of data obtained by the questionnaire is generally achieved through tabulation and counting. The totals are converted into proportions or percentages. Calculation of contingency coefficients of correlation is often made in order to suggest probability of relationship among data. Computation of Chi-square statistics is also advisable. Content analysis is also used to analyse the responses of the unstructured or open- ended questions.

Questionnaire as a research gathering data tool has several advantages and limitations.

7.5.3 Advantages of a Questionnaire

1. Questionnaire is cheap, quick and provides relatively easy access to geographically scattered respondents.
2. It provides respondents with the opportunity to consider their responses after looking up records and consult other people.
3. The anonymity of self-administered questionnaire helps a respondent to answer questions on sensitive issues of confidential nature.
4. The use of mailed questionnaire avoids the hassle of non-contacts i.e. respondent not being in when the researcher calls at his place.
5. The respondents can complete the mailed questionnaire at a time convenient to them. There is no researcher (interviewer) bias because of his absence.

7.5.4 Limitations of a Questionnaire

1. The questionnaire cannot be used with children and illiterates.
2. The return of the mailed questionnaire is often as low as 40 per cent to 50 per cent. As a result of this poor response, the data obtained are often of limited validity. The respondents who return the questionnaires may not be representative of the entire group. It will make the sample a biased one and thus vitiate the findings.
3. Sometimes respondents may not like to respond in writing to the questions of intimate and confidential nature or to the questions involving certain controversial issues.
4. It is sometimes difficult to formulate and phrase questions on certain complex, delicate and intricate problems.
5. There is no check on a respondent who misinterprets a question or gives incomplete or indefinite responses.
6. Sometimes the respondent may modify his earlier original responses to the questions when he

finds that his responses to latter questions are contradicting the previous ones.

7. There is no facility to probe or seek clarification from respondents for their responses. The responses given by the respondents are accepted as final.

Check Your Progress-2

Note: a) Answer the questions given below.

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

1. Enumerate any five factors to be kept in mind while constructing a questionnaire.

2. While framing questions, researcher should keep in mind which of the following :
 - a) Pin-point a word if the researcher wishes to indicate special emphasis.
 - b) Avoid unwarranted assumptions.
 - c) Both a and b.
 - d) None of the above.
3. List out the four limitations of questionnaire.

7.6 LET US SUMUP

In this lesson, you studied about Observation, importance of Observation as a tool of research, which is the process in which one or more persons observe what is occurring in some real-life situation, and classify and record pertinent happenings according to some planned scheme. Also, we discussed about an important research tool of social sciences that is a questionnaire, which is a device consisting of a series of questions dealing with some psychological, social, educational, etc. topic(s) sent or given to an individual or a group of individuals, with the object of obtaining data with regard to some problems under investigation. The questionnaires can be classified in terms of the nature of the questions which are used. Questions may be asked in a closed or an open form. The researcher may use one type exclusively or both in combination. Questionnaires that call for short or check responses are known as closed form or restricted type questionnaires.

7.7 LESSON ENDEXERCISE Short Answer

Type Questions

1. Explain importance of questionnaire in research.
2. What are the advantages of questionnaire?
3. What are the limitations of observation ? **Long Answer**

Type Questions

1. Discuss Observation on a tool of research in education along with its merits.
2. Define questionnaire. What are its types? How can it be constructed ?
3. “Questionnaire is a most convenient and widely used tool in educational research”. Comment.

7.8 SUGGESTED FURTHER READINGS

Adler, P.A., & Adler, P. (1994). *Observational Technique*. In N.K. Denzin & Y S. Lincoln (Eds.).

Cohen, L., Lawrence, M., & Morrison, K., (2007). *Research Methods in Education*, Sixth Edition, Routledge 2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN.

Dwivedi, R.S. (1997). *Research Methods in Behavioural Sciences*. Macmillan India Limited, New Delhi.

Kerlinger, & Fred, N. (1979). *Foundations of Behavioural Research*. New York: H 107, Rinehart and Winston Inc.

Kumar, R. (2006). *Research Methodology*. New Delhi: Dorling Kingsley

Oaks, CA. *Handbook of Qualitative Research* (pp. 377-392). Sage Publications Thousand

www.vipinpatidar.wordpress.com

<https://www.civilengineeringterms.com/research-methodology/definition-research-tool-forms/>

<https://www.web.ca/~robrien/papers/arfinal.html>

https://www.brown.edu/academics/education-alliance/sites/brown.edu/academics/education-alliance/files/publications/act_research.pdf

<https://www.mbaofficial.com/mba-courses/research-methodology/features-advantages-and-disadvantages-of-observation/>

7.9 ANSWERS TO CHECK YOUR PROGRESS Check Your

Progress-1

1. Planning for observation includes the following factors :
 - a) An appropriate group of subjects to observe.
 - b) Selection and arrangement of any special condition for the group.
 - c) Interpretation of the observations
2. c
3. True

Check Your Progress-2

1. Factors to be kept in mind for construction of a questionnaire: (i) Preliminary tryout of the questionnaire (ii) Validation of a questionnaire (iii) Reliability of a questionnaire (iv) Administration of a questionnaire (v) Analysing and interpreting questionnaire responses.
2. Option (d)
3. Following are the limitations of Questionnaire:
 - a) Pre-coded questions can bias the findings towards the researcher.
 - b) Postal questionnaire offers little opportunities to check the truthfulness of the answers.
 - c) It cannot be used with illiterate and small children.
 - d) There is no check on a respondent who misinterprets a question or gives incomplete or indefinite responses.

TOOLS OF ACTION RESEARCH**STRUCTURE**

- 8.1 Introduction
- 8.2 Objectives
- 8.3 Rating Scales
 - 8.3.1 Forms of Rating Scales
 - 8.3.2 Limitations in Constructing and Using Rating Scales
 - 8.3.3 Construction of a Rating Scale
 - 8.3.4 Advantages of Rating Methods
- 8.4 Interview as a Research Tool
 - 8.4.1 Importance of Interview:
 - 8.4.2 Types of Interview
 - 8.4.3 Requirements of a Good Interview
 - 8.4.4 Preparation for Interview
 - 8.4.5 Execution of the Interview
 - 8.4.6 Recording and Interpreting Responses
 - 8.4.7 Advantages of Interview
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- 8.5 Checklist
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 - 8.5.2 Hints on Constructing Checklist
 - 8.5.3 Analysis and Interpretation of Checklist Data
 - 8.5.4 Merits of Checklist
 - 8.5.5 Limitations of Checklist
- 8.6 Let Us Sum Up

- 8.7 Lesson End Exercise
- 8.8 Suggested Further Readings
- 8.9 Answers to Check Your Progress

8.1 INTRODUCTION

Tools are an important instrument to accomplish any task. We use pens to write or to express our ideas; a mechanic uses his tools to repair a machine. Similarly, to conduct research, we also require some tools, whose nature varies from field to field. In social sciences we mainly deal with the study of human ideas and their behavior, various social phenomenon and the implications of various theories that had been developed in this regard. This is one of the most difficult tasks, but social scientists from time to time have tried to devise some reliable tools to inquire more and more in this direction. In the present chapter, we are going to describe three such major tools viz. Rating Scale, Interview and Checklist and their importance in educational research.

8.2 OBJECTIVES

After going through this lesson, you shall be able to:

- describe the meaning of a rating scale,
- explain the different forms of rating scales,
- elaborate the construction, advantages and limitations of rating scales,
- describe the 'Interview' as a tool of research,
- elaborate types of Interview, and
- describe concept, purpose and uses of checklist as a tool in research.

8.3 RATING SCALE

Someone may ask an observer to judge the behaviour he observes and classify it into categories. This is essentially the task he performs when completing a schedule, but he can also be asked to give a numerical value or rating to his judgment. By 'rating' is meant the judgement of one person by another.

Rating scale refers to a scale with a set of points which describe varying degrees of the dimension of an attribute being observed. The rating scale procedures exceed all psychological measurement methods, that depend upon human judgment, for popularity, use and ease of administration. They are used in the evaluation of individuals, their reactions and in the psychological evaluation of stimuli. Rating scales are also used to record quantified observations of a social situation. They may be used to describe the behaviour of individuals, the activities of an entire group, the changes of the situation surrounding them, or many other types of data.

8.3.1 Forms of Rating Scales

Many rating techniques have been developed which enable the observers to ascribe numerical values or ratings to their judgments of behaviour. According to Guilford(1954, p. 263), these techniques have given rise to five broad categories of rating scales:

1. Numerical scales
2. Graphic scales
3. Standard scales
4. Rating by cumulative points
5. Forced choice ratings.

1. Numerical scales. In the typical numerical scale, a sequence of defined numbers is supplied to the rater or to the observer. The rater or the observer assigns to each stimulus, to be rated, an appropriate number in line with these definitions or descriptions. One example of such scale that Guilford (1954, p. 263) used in obtaining ratings of the effective values of colours and odors is as follows:

10. Most pleasant imaginable
9. Most pleasant
8. Extremely pleasant
7. Moderately pleasant
6. Mildly pleasant
5. Indifferent
4. Mildly unpleasant
3. Moderately unpleasant
2. Extremely unpleasant
1. Most unpleasant
0. Most unpleasant imaginable.

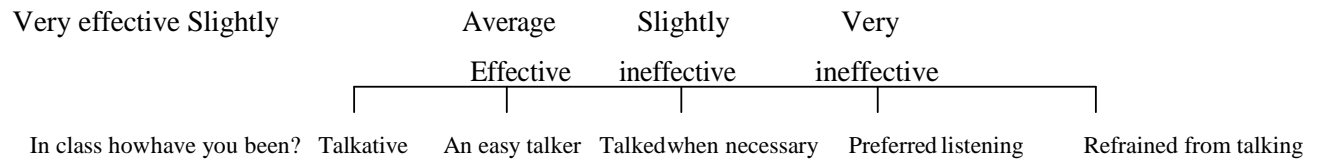
In such type of scales, sometimes zero is placed at the 'indifferent' category and negative numbers below it. But Guilford (1954, p. 264) does not favour the use of negative rating numbers as this type of scale maybe unnatural to those observers or raters who are not well versed in algebra. The use of zero may also tend to suggest a break in the scale and thus destroy 'continuity' of the scale.

Numerical rating scales are easiest to construct and to apply. They are simplest in terms of handling the results. However, numerical scales are often rejected in favour of other types of scales because it is believed that they suffer from many biases and errors.

2. Graphic scales. It is one of the most popular and the most widely used type of rating scale. In

this scale, a straight line is shown, vertically or horizontally, with various cues to help the rater. The line is either segmented in units or it is continuous. If the line is segmented, the number of parts can be varied. Examples of such a scale are as under:

How effective was the power point presentation of types of research in the class by the teacher?



There are many advantages of graphic scales. They are simple and easy to administer. Such scales are interesting to the rater and require little added motivation. The raters can fill them out quickly as such scales do not bother raters with numbers. The graphic scale provides opportunity for as fine discrimination as that of which the rater is capable and the fineness of scoring can be as great as desired. As for disadvantages, there is somewhat greater labor of scoring in connection with some formats of graphic scales.

3. **Standard scales.** In standard scales, a set of standards is presented to the rater. The standards are usually objects of some kind to be rated with pre-established scale values. In its best form, this type is like that the scale of judging the quality of handwriting. The scales of handwriting provide several specimens that have previously been spread over on a common scale by the methods of equal – appear- ing intervals or pair comparisons. With the help of these standard specimens, a new sample of handwriting can be equated to one of the standards or judged as being between two standards.
4. **Rating by cumulated points.** The unique and common feature of rating by acumulated points is in the method of scoring. The rating score for an object or individuals the sum or average of the weighted or un weighted points. The ‘Check- list method’ and the ‘Guess-who technique’ belong to this category of rating.
5. **Forced choice ratings.** In ‘Forced – choice Rating’ methods, the rater is asked, not to say whether the ratee has a certain trait or to say how much of a trait the ratee has but to say essentially whether he has more of one trait than another of a pair.

8.3.2 Limitations in Constructing and Using Rating Scales

Rating scales have several limitations some of them are discussed as under:

Constant errors. Ratings based on human judgments are subject to many sources of personal biases or errors. The well-known constant errors in the rating have been classified into six categories by Guilford (1954, pp.278-280).

1. **The error of leniency.** There is a constant tendency among the raters to rate those whom they know well, or in whom they are ego-involved, higher than they should. Such raters are called 'easy raters'. Some raters become aware of the falling of easy rating and consequently rate individuals lower than they should. Such raters are called 'hard raters'. The leniency error refers to a general and constant tendency for a rater to rate too high or too low for whatever reasons. When rating is too low, the constant error is one of negative leniency. On the other hand, the constant error is one of positive leniency when rating is too high.
2. **The error of central tendency.** In the error of central tendency, most of the raters hesitate to rate the individuals on the extremes of the scale and thus tend to rate the individuals on the middle of the scale. It is more common among the raters who are unknown to the individual. To counteract the error, greater differences in meaning maybe introduced, between 'cues' near ends of the scale than between 'cues' near the center.
3. **The halo-effect.** We judge our fellows in terms of a general mental attitude towards the personality as a whole, a like mental attitude towards particular qualities. Halo-effect is an error which obscures the cluster of traits within an individual. The rater forms a general opinion about the person's merit and his ratings on specific traits are greatly influenced by this general impression. It results in spurious amount of positive correlation between the traits that are rated.
4. **The contrast error.** The contrast error was given its name by Murray (1938). The error is due to a tendency for a rater to rate others in the opposite direction from himself in a trait. For example, in a study the rates were asked to rate individuals in the trait of "need orderliness". It was seen that the raters who themselves were high in orderliness tended to see others as being more orderly than they were.
5. **The proximity error.** The proximity error was first discovered by Stockford and Bissell in 1949. This error also gives rise to undue covariances among some traits like the logical error and the

contrast error. It has been seen that adjacent traits on a rating form tend to inter-correlate higher than remote ones, their degree of actual similarity being approximately equal. This error can be counteracted to some extent by placing similar traits farther apart and the different ones closer together.

8.3.3 Construction of a Rating Scale

The following points may be kept in view while constructing a rating scale:

1. A trait to be rated should be given a trait name and a definition. It will give the rater a clear conception of the scale or the continuum along which he is to evaluate objects.
2. A rating scale should make use of good 'cues'. Rating scale cues have the double purposes of supplementing and reinforcing the definition of the continuum and of providing anchors or mile posts to guide the rates in making quantitative judgments. In order to serve these functions, they must be very carefully written, carefully selected, and carefully placed.
3. There are no hard and fast rules concerning the number of steps or scale divisions to be used in a rating scale. If the number of steps is too small, the raters are not capable of making much discrimination. On the other hand, too many steps in the scale are beyond the rates' limited power of discrimination. In general, 5 to 7-point scales seem to serve adequately.

8.3.4 Advantages of Rating Scales

There are some advantages of rating methods when compared with the method of pair comparisons and method of rank order.

1. Rating scales consume much less time than methods of pair comparisons and rank order.
2. They are far more interesting to the rates, especially if graphic scales are used.
3. Rating methods can be used with raters who have minimum of training.
4. They can be used with large numbers of stimuli.
5. They have much wider range of application and can be used for teacher-ratings, personality ratings, school appraisal, sociological surveys, etc.
6. Best ratings can be obtained by presenting one stimulus to rater at a time.

Check Your Progress-1

Note: a) Answer the questions given below.

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

1. What are rating scales? What are its various types?

2. Highlight any three advantages of using rating scales.

3. (i) Rating scales are used to record observations of a social situation

- (ii) The tendency of the rater to rate those whom they know well, higher than they should, is error of _____

- (iii) The tendency of the rater to rate others in the opposite direction from himself on a trait, is known as error. _____

- (iv) Forming impression about the traits of an individual and generally rating accordingly is known as _____.

8.4 INTERVIEW

Interviews are something more than conversation. They involve a set of assumptions and understandings about the situation which are not normally associated with a casual conversation. Interviews are also referred as an **oral questionnaire** by some people, but it is indeed much more than that. Questionnaire involves indirect data collection, whereas Interview data is collected directly from others in face to face contact. As we know, people are hesitant to write something than to talk. With friendly relationship and rapport, the interviewer can obtain certain types of confidential information which might be reluctant to put in writing. Therefore, research interview should be systematically arranged. It does not happen by chance. The interviews not done by secret recording of discussions as research data. The consent of the subject is taken for the purpose of interview. The words of the interviews can be treated as - 'on the record' and - 'for the record'. It should not be used for other purposes besides the research purpose. The discussion therefore is not arbitrary or at the whim of one of the parties. The agenda for the discussion is set by the researcher. It is dedicated to investigating a given topic. With the help of interview, the researcher collects data from the interviewee such as income, number of children, his attitudes, prejudices, likes, dislikes as revealed by behaviour such as facial expression, tone of voice & confidence etc.

8.4.1 Importance of Interview:

Whether it is large scale research or small-scale research, the nature of the data collection depends on the amount of resources available. Interview is particularly appropriate when the researcher wishes to collect data based on:

- Emotions, experiences and feelings.
- Sensitive issues.
- Privileged information.
- It is appropriate when dealing with young children, illiterates, language difficulty and limited, intelligence.
- It supplies the detail and depth needed to ensure that the questionnaire asks valid questions.
- It is a follow up to a questionnaire and complement the questionnaire.
- It can be combined with other tools in order to corroborate facts using a different approach.

- It is one of the normative survey methods, but it is also applied in historical, experimental, case studies.

8.4.2 Types of Interview

Interviews vary in purpose, nature and scope. They may be conducted for guidance, therapeutic or research purposes. They may be confined to one individual or extended to several people. The following discussions describe several types of interview.

- Structured Interview:** Structured interview involves tight control over the format of questions and answers. It is like a questionnaire which is administered face to face with a respondent. The researcher has a predetermined list of questions. Each respondent is faced with identical questions. The choice of alternative answers is restricted to a predetermined list. This type of interview is rigidly standardized and formal. Structured interviews are often associated with social surveys where researchers are trying to collect large volumes of data from a wide range of respondents.
- Semi-Structured Interview:** In semi-structured interview, the interviewer also has a clear list of issues to be addressed and questions to be answered. There is some flexibility in the order of the topics. In this type interviewee is given chance to develop his ideas and speak more widely on the issues raised by the researcher. The answers are open-ended and more emphasis is on the interviewee elaborating points of interest.
- Unstructured Interview:** In case of unstructured interview, emphasis is placed on the interviewee's thoughts. The role of the researcher is to be as unobtrusive as possible. The researcher introduces a theme or topic and then let the interviewee develop his or her ideas and pursue his or her thought. Allowing interviewees to speak their minds is a better way of discovering things about complex issues. It gives opportunity for in depth investigations.
- Single Interview:** This is a common form of semi structured or un-structured interview. It involves a meeting between one researcher and one interviewee. It is easy to arrange this type of interview. It helps the researcher to locate specific ideas with specific people. It is also easy to control the situation on the part of the interviewer.

- e) **Group Interview:** In case of group interview, more than one informant is involved.

The numbers involved normally is about four to six people. Here one may think that it is difficult to get people together to discuss matters on one occasion and how many voices can contribute to the discussion during anyone interview. But the crucial thing to bear in mind here is that a group interview is not an opportunity for the researcher to questions to a sequence of individuals, taking turns around a table. Group is crucial here, because it tells us that those present in the interview will interact with one another and that the discussion will operate at the level of the group. They can present a wide range of information and varied viewpoints.

- f) **Focus Group Interview:**

This is an extremely popular form of interview technique. It consists of a small group of people, usually between six and nine in number. This is useful for non-sensitive and non-controversial topics. The session usually revolves around a prompt, a trigger, some stimulus introduced by the interviewer in order to focus the discussion. The respondents are permitted to express themselves completely, but the interviewer directs the line of thought. In this case, importance is given on collective views rather than the aggregate view. It concentrates on particular event or experience rather than on a general line of equality.

8.4.3 Requirements of a Good Interview: As a tool of research good interview requires:

- Proper preparation.
- Skillful execution and
- Adequate recording and interpretation.

8.4.4 Preparation for Interview: The following factors need to be determined in advance of the actual interview:

- Purpose and information needed should be clear.
- Which type of interview is best suited for the purpose, should be decided.
- A clear outline and framework should be systematically prepared.
- Planning should be done for recording responses.

8.4.5 Execution of the Interview

- Rapport should be established.
- Described information should be collected with a stimulating and encouraging discussion.
- Recording device should not distract the interviewee.

8.4.6 Recording and Interpreting Responses:

- It is best to record through tape recorder.
- If the responses is to be noted down, it should be either noted simultaneously or immediately after it.

8.4.7 Advantages of Interview: Interviews techniques has the following advantages:

- a) Depth Information-** Interviews are particularly good at producing data which deal with topics in depth and in detail. Subjects can be probed, issues pursued lines of investigation followed over a relatively lengthy period.
- b) Insights-** The researcher is likely to gain valuable insights based on the depth of the information gathered and the wisdom of key informants.
- c) Equipment-** Interviews require only simple equipment and build on conversation skills which researchers already have.
- d) Information Priorities-** Interviews are a good method for producing data based on informant's priorities, opinions and ideas. Informants have the opportunity to expand their ideas, explain their views .
- e) Flexibility-** Interviews are more flexible as a method of data collection.
- f) Validity-** Direct contact at the point of the interview means that data can be checked for accuracy and relevance as they're collected.
- g) High response rate-** Interviews are generally pre-arranged and scheduled for a convenient time and location. This ensures a relatively high response rate.

- h) **Therapeutic**-Interviews can be a rewarding experience for the informant. Compared with questionnaires, observation and experiments, there is a more personal element to the method and people tend to enjoy the rather rare chance to talk about their ideas at length to a person whose purpose is to listen and note the ideas without being critical.

8.4.8 Disadvantages of Interviews:

Irrespective of the above advantages, it has the following disadvantages.

- a) **Time Consuming**-Analysis of data can be difficult and time consuming. The transcribing and coding of interview data is a major task for the researcher, which occurs after the data have been collected.
- b) **Difficulty in data analysis**-This method produce non-standard responses. Semi structured and unstructured interviews produce data that are not pre coded and have a relatively open format.
- c) **Less Reliability**-Consistency and objectivity are hard to achieve. The data collected are, to an extent, unique owing to the specific content and the specific individuals involved. This has an adverse effect on reliability.
- d) **Interviewer Effect**-The identity of the researcher may affect the statements of the interviewee. They may say what they do or what they prefer to do. The two may not tally.
- e) **Inhibitions**-The tape recorder or video recorder may inhibit the important information . The interview is an artificial situation where people are speaking for the record and on the record and this can be daunting for certain kinds of people.
- f) **Invasion of Privacy**- Interviewing can be an invasion on privacy and may be upsetting for the informant.
- g) **Resources**-The cost of interviewer's, travel and of transcription can be relatively high if the informants are geographically widespread.

On the basis of the merits and limitations of the interview techniques, it is used in many ways for research and non-research purposes. Apart from being an independent data collection tool, it may play an important role in the preparation of questionnaires and checklists which are to be put to extensive use.

Check Your Progress-2

Note: a) Answer the questions given below.

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

1. Which of the following makes unstructured interviewing distinct from structured interviewing?
 - a) The procedure is less standardized.
 - b) Allows interviewee to speak his mind in a better way.
 - c) The researcher seeks rich, detailed answers
 - d) All of the above.
2. Which of the following is not a type of qualitative interview?
 - a) Unstructured interview.
 - b) Oral history interview.
 - c) Structured interview.
 - d) Focus group interview.
3. Interviews are conversations with _____
 - a) Fun
 - b) Purpose
 - c) Friendliness
 - d) Informality

8.5 CHECKLIST

A checklist, is a type of informational job aid used to reduce failure by compensating for potential limits of human memory and attention. It helps to ensure consistency and completeness in carrying out a task. A basic example is to do list. A more advanced checklist which lays out tasks to be done according to time of a day or other factors. The checklist consists of a list of items with a place to check, or to mark yes or no. The main purpose of checklist is to call attention to various aspects of an object or situation, to see that nothing of importance is overlooked. For Example, if one has to go for outing for a week, he has to list what things he has to take with him. Before leaving home, if he will check his baggage with the list, there will be less chance of forgetting to take any important things, like toothbrush etc. It ensures the completeness of details of the data. Responses to the checklist items are largely a matter of fact, not of judgment. It is an important tool in gathering facts for educational surveys.

8.5.1 Uses of Checklists

Checklists are used for various purposes. It is useful in educational field in the following ways.

- To collect facts for educational surveys.
- To record behaviour in observational studies.
- To use in educational appraisal, studies – of school buildings, textbooks, instructional procedures and outcomes etc.
- To rate the personality.
- To know the interest of the subjects also. Kuder's Interest Inventory and Strong's Interest Blank are also checklists.

8.5.2 Hints on Constructing Checklist:

Items in the checklist may be continuous or divided into groups of related items. Items should be arranged in categories in a logical or psychological order. Terms used in the items should be clearly defined. Checklist should be continuous and comprehensive in nature. A pilot study should be taken to make it standardized. Checklist can be constructed in four different ways by arranging items differently.

- (1) In one of the arrangements all items found in a situation are to be checked. For Example, a subject may be asked to check () in the blank side of each activity undertaken in a school.
- (2) In the second form, the respondent is asked to check with a yes or no or asked to encircle or underline the response to the given item. For Example, (1) Does your school have a house system? Yes/No
- (3) In this form, all the items are positive statements with checks () to be marked in a column of a right. For Example, (1) The school functions as a community center().
- (4) The periodical tests are held – fortnightly, monthly, quarterly, regularly. The investigator has to select any one of the formats appropriate to his problem and queries or the combination of manias it requires.

8.5.3 Analysis and Interpretation of Checklist Data:

The tabulation and quantification of checklist data is done from the responses. Frequencies are counted, percentages and averages calculated, central tendencies, measures of variability and co-efficient of correlation computed as and when necessary. In long checklists, where related items are grouped together category wise, the checks are added up to give total scores for the category. The conclusions from checklist data should be arrived at carefully and judiciously keeping in view the limitations of the tools and respondents.

8.5.4 Merits of Checklist:

- Students can measure their own behaviour with the help of checklist.
- Easy and simple to use and frame the tool.
- Wanted and unwanted behaviours can be included.
- Personal - Social development can be checked.

8.5.5 Limitations of Checklist:

- Only the presence or absence of the ability can be tested.
- Yes or no type judgement can only be given.

- How much cannot be tested through checklist.

For Example, the researcher wants to test the story telling skill of a student. He can check only whether the student developed or not developed the skill but cannot study how much he has developed? When we want to check yes or no of any ability, checklist is used.

Check Your Progress-3

Note: a) Answer the questions given below.

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

1. What is the main purpose of using Checklist as a tool of research?

2. Name one checklist which we use in research process.

8.6 LET US SUM UP

In this lesson, you studied about 'Rating scale', which refers to a scale with a set of points which describe varying degrees of the dimension of an attribute being observed. We also discussed about their types viz. Numerical Scales, Graphic Scales, Standard Scales, Rating by Cumulative points and Forced Choice Ratings. Ratings based on human judgments are subject to many sources of personal biases or errors as: The error of leniency, the error of central tendency, the halo-effect, the logical error, the contrast error and the proximity error. Another major tool which we have discussed in this lesson is checklist and interview. Checklist is a selected list of words, phrases, sentences and para- graphs, following which an observer records a check mark to denote a presence or absence of whatever is being observed. It calls for a simple yes / no judgment. The main purpose is to call attention to various aspects of an object or situation, to see that nothing of importance is overlooked. Interview is an oral type of questionnaire where the subject supplies the needed information in a face to face situation. It is especially appropriate for

dealing with young children, illiterates, dull and the abnormal.

8.7 LESSON ENDEXERCISE Short Answer

Type Questions

1. Write short notes on: (a) Importance of Interview.(b) Requisites of a good inter- view.
2. What is ratingscale?
3. Briefly explain the uses of Checklist as a research tool. **Long Answer**

Type Questions

1. Explain different types of interview for the purpose of research.
2. Write a note on reliability and validity of ‘Observation’ as a tool of research.
3. What is purpose of using checklist as a tool of research. How is it constructed and interpreted. ? Describe in detail.

8.8 FURTHER SUGGESTED READING

Best, J.W., & Kahn, J.V. (1998). *Research in education (8th ed.)*. Needham Heights, MA:Allyn andBacon.

Cohen, M., & Morrison. (2000). *Research methods in Education (5th ed.)*. New York: Routeledge- Falmer

Corey, S.M. (1953). *Action research to improve school practices*. New York: Teachers College Press.

Creswell, J.W. (1994). *Research Design, Qualitative and Quantitative Ap- proaches*. Denscombe, *Thousands Oaks*, CA: Sage Publications.

Kemmis, S., & McTaggart, R. (1988). *The Action research planner (3rd ed.)*. Australia: Deakin University Press.

Koul, L. (2012). *Methodology of Educational Research*. New Delhi: Vikas Pub-

lishing House Pvt. Ltd.

Martyn. (1999). *The Good Research Guide*. New Delhi: Viva Books Private Limited.

Singh, S.K. (1992). *Methodology of Research in Education*, New Delhi: Sterling Publisher.

Sukhia S. P., & Mehrotra P. V. (1983). *Elements of educational Research*; Allied. New Delhi: Publisher Private Limited

Watts, H. (1985). *When teachers are researchers, teaching improves*. Journal of Staff Development.

8.9 ANSWERS TO CHECK YOUR PROGRESS Check Your

Progress-1

1. Rating scale refers to a scale with a set of points which describe varying degrees of the dimension of an attribute being observed.

Types: 1. Numerical scales 2. Graphic scales 3. Standard scales 4. Rating by cumulative points 5. Forced choice ratings.

2. Advantages of using Rating scales:
 - (i) Rating methods consume much less time than methods of pair comparisons and rank order.
 - (ii) Rating methods can be used with raters who have minimum of training.
 - (iii) They have much wider range of application and can be used for teacher-ratings, personality ratings, school appraisal, sociological surveys, etc.
3. (i) Quantified (ii) leniency (iii) contrast (iv) halo effect **Check Your**

Progress-2

1. d
2. c

3. b

Check Your Progress-3

1. The main purpose of checklist is to call attention to various aspects of an object or situation, to see that nothing of importance is overlooked.
2. Kuder's interest inventory