Indira Gandhi National Open University
Staff Training and Research Institute of
Distance Education

MDE-415
Research For Distance Education

Block

2

RESEARCH MEHODS FOR DISTANCE EDUCATION

MDE-415: Research for Distance Education

(New Course in place of ES-315: Research for Distance Education)

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MDE-415 RESEARCH FOR DISTANCE EDUCATION

Block 1 Introduction to Research in Distance Education

Block 2 Research Methods for Distance Education

Block 3 Tools for Research

Block 4 Data Analysis

Block 5 Computer Applications in Research in Distance Education

BLOCK 2 RESEARCH METHODS FOR DISTANCE EDUCATION

Block Introduction

This is the Second Block of the Course Research for Distance Education. In Block One we presented the basics of Research in Distance Education. In this Block we will present details about Research Methods. It deals with research methods for Social Sciences in general and distance education in particular. Research in Social Sciences deals with human actions, ideas and concepts. Unlike Physical or Natural Sciences, Social Sciences are complex areas so far as they give wider scope for numerous interpretations. This Block will give you a fairly comprehensive account of the method of research which are usually applied in social sciences research. Education constitutes a major area of social sciences and therefore the research methods which we have discussed in this Block have relevance to distance education research as well.

Unit 1 of this Block deals with Empirical Research, Phenomenology and Critical Research. Empirical research depends on observation and induction and is well established as a research method, whereas phenomenology and critical research are the two major approaches that have developed in recent times.

In Unit 2, 3 & 4, we discuss the various methods of research followed in behaviroual sciences. Philosophical Research, Historical Research, Naturalistic Inquiry, Case Study Method, Descriptive Research, Experimental Research and Action Research are the methods covered in these units. The meaning of each method is explained; the major steps to be followed in each method are described; the types of each method are discussed; and the, advantages and disadvantages of each method are briefly outlined.

We hope that this Block will give you the necessary theoretical orientation to comprehend the various methods and enable you to think about your own research projects. We wish you good luck.

LET US BEGIN HERE

The Course on the theme **Research for Distance Education** is divided into five Blocks. This is the fifth Block. It comprises four Units in all. A schematic representation of the design of Units. is given below.

Unit X

X.0 Introduction
X.I Objectives
X.2 Section 1 (Main Theme)
x.2.1 Sub-section 1 of Section 1
x.2.2 Sub-section 2 of Section 1

Check Your Progress

X.3 Section 2 (Main Theme)
x.3.1 Sub-section 1 of Section 2
x.3.2 Sub-section 2 of Section 2

Check Your Progress

Check Your Progress: The Key

X.n Let Us Sum Up

As the scheme suggests, we have divided the units into sections for easy reading and better comprehension. Each section is indicated distinctly by bold capitals I and each sub-section by relatively smaller but bold[2] upper and lower typeface. The significant divisions within sub-sections are in still smaller but bold** upper and lower typeface so as to make it easier for you to see their place within sub-sections. For purposes of uniformity, we have employed the same scheme of "partitioning" in every unit throughout the course.

We begin each unit with the section 'Introduction' followed by 'Objectives' which articulate briefly

- What we have presented in the unit, and'
- What we expect from you once you have finished working on the unit.

In the last section of each unit, under the heading, 'Let Us Sum Up', we summarise the whole unit for the purpose of recapitulation and ready reference.

Besides, we have given self-check exercises under the caption 'Check Your Progress' at a few places in each unit, and at the end of the unit "Possible answers" to the questions set in these exercises.

What, perhaps, you ought to do is to go through the units and jot down important points as you read in *the space provided in the margin.* **(Broad margins in the booklet are there for you to write your notes on).** Make your notes as you work through the materials. This will help you prepare for the examination and also help in assimilating the

content. Besides, you will be able to save on time. Do use these margins. This will help you to keep track of and assimilate what you have been reading in the unit.

We hope that we have given enough space for you to work on the Check Your Progress exercises. The purpose of giving self-check exercises will be served satisfactorily if you compare your answers with the possible ones given at the end of each unit after having written your answer in the blank space. **You may be tempted to have a furtive glance at the possible answer(s),** as soon as you come across an exercise. But we do hope that you will overcome the temptation and turn to the possible answers (which are not necessarily the best answers) only after you have written yours.

These exercises are not meant to be submitted to us for correction or evaluation. Instead, the exercises are to function as a study tool to help you keep on the right track as you read the units.

We suggest the following norms to be strictly practised while you are working through the assignments.

- Write your roll number legibly.
- Before you put anything down in words, assimilate what you have read, integrate it with what you have gathered from your experience to build your answer, and preferably prepare a concept map before starting to write it.
- Make the best use of the Block and additional reading materials by diligently working through the assignments.

Mail us

At the end of this block, we have provided a feedback questionnaire.
Please fill it after you complete this block and send it to us. Your feedback shall be highly useful for future revision and maintenance of the course. Also please take note of the time you devote to studying thisblock. May be. you complete this block after 4-5 sittings. But for every sitting kindly note the time separately so that you can categorically say how much time you took to read this block. You can send the feedback form by post or you can email the same to: *mparhar@ignou.ac.in.* In the email, please mark in the subject area - FOR COURSE COORDINATOR-MDE-415. You may also - contact us for any difficulties related to the programme in general and MDE-415 in particular.

UNIT 1 METHODS OF EDUCATIONAL RESEARCH-1

Structure

1.0 INTRODUCTION

Educational researchers study the socio-cultural implications involved in education. In this regard, different scientific disciplines have influenced educational research in terms of theorisation as well as methods adopted in the pursuit of knowledge. Doing educational research is not just about selecting and constructing a data collection technique. On the contrary, it embraces conceptualization of the problem, theoretical debate, specification of research practices, analytic frameworks, and epistemological presuppositions.

Educational research depends on empirical methods to collect information regarding matters concerning education. In trying to seek explanations for what is observed, most scientists usually make use of positivistic assumptions and perspectives. However, the phenomenologist challenges these assumptions and concentrates primarily on experiential reality and its descriptions rather than on causal explanations.

In critical research, the researcher is prepared to abandon lines of thought which do not get beneath surface appearances. It involves a constant questioning of the perspective and the analyses that the researcher is building up. This unit presents a brief account on **Empiricist** and **Empiricism**, **Phenomenology** and **Critical Paradigm**.

1.1 OBJECTIVES

On the completion of this unit you should be able to:

- Describe the empirical research process,
- Explain the meaning of phenomenology and differentiate it from positivism,
- Explain the phenomenological approaches in social science research,
- List the functions of critical paradigm, and
- Describe the elements and approaches of critical social research.

1.2 EMPIRICISM

An empiricist is one who practices empiricism i.e., the system which, rejecting all a priori knowledge rests solely on experience and induction. To Bacon goes the honor of being the first "Martyr of Empiricism". Bacon (1561-1626), one of the modern scientific thinkers, is known for his emphasis on induction, the use of direct observation to confirm ideas and the linking together of observed facts to form theories or explanations of how natural phenomena work.

Social life is visibly chaotic. Its basic characteristic is flow and flux; its concrete ingredients are people; the substance of our observation is events, each of them unique, just as each human being is unique. As strict empiricists, we must confront the truth that we work with apparent disorder, nonreplicable people and non-repetitive events. The social scientist working in any human society is well aware of this and his/her model of society and of social action is probabilistic.

The confusion is worse for the alien observer than for the resident actor; the latter has been socialized to his/her milieu, and part of his/her socialization is the impression of a model of order. The actor is looking at the same chaos as the observer, but she/he thinks that she/he is seeking something else. The newly arrived social researcher, on the other hand, sees randomness, but she/he assumes that this is a result of his/her ignorance of the system and the insufficiency of his/her observations. To the extent that we treat actors' conduct, and the like as entities, we depart from pure, observer-oriented empiricism.

1.2.1 Empirical Enquiry

Empirical scientific research is essentially a way of looking at things. It can be thought of as a method of approaching to the empirical world. Science consists of theory and facts. A fact is an empirically verifiable observation and a theory tries to find relationships between facts. The facts of science are the product of observations.

Theory construction is the most important objective of empirical scientific inquiries. Theory usually gives orientation to empirical inquiries. Theory guides the collection of relevant data and offers a conceptual scheme to bind them together in a more systematic

manner. Theories represent an improvement in our knowledge. They also help us to predict facts. In a way, facts help to initiate theories and to test the validity of existing theories. They clarify and redefine theory. Theories and facts stimulate each other and contribute to the growth of empirical knowledge.

Empirical studies include the whole gamut of research tools: observation, both participant and non-participant; formal interviews with random samples; semi-structured, unstructured and in-depth interviewing; key informant testimonies; analysis of personal and institutional documents; mass media analysis; archive searching; examination of official statistics; and reviews of published literature. Furthermore, empirical social research also uses a wide variety of analytical techniques; ethnographic interpretation, historical reconstruction, action research, multivariate analysis, structuralist deconstruction and semiological analysis.

1.2.2 Empirical Research Process

Empirical research involves the pursuit of truth as determined by facts and logical considerations. It is aimed at a systematic interrelation of facts by experimentation, observation, and logical procedures. It encourages a rigorous impersonal procedure dictated by the demand of logic and objective procedure. It is a method wherein the investigation proceeds in a systematic and orderly manner.

Empirical research usually consists of the following steps: (1) collecting data by means of careful and critical observation with patience, precision and impartiality, (2) measurement, (3) classification and tabulation of data, (4) analysis and reduction, (5) formulation of hypothesis, and (6) formulation of a theory or a law.

The following are the main features of empirical scientific research:

1. Observation	2. Use of concepts	3. Objectivity
4. Verifiability	5. Predictability	6. Systematic nature

1. Observation

Empirical research relies on observation for obtaining knowledge. In a sense, the keystone of any inquiry is observation. Observation supplies us with the "something" which you then try to understand and explain.

But empirical observation is not casual. It is a conscious and deliberate activity designed to reduce error. It is aided by certain devices which enhance accuracy. These devices usually add great precision to scientific observations, which cannot be achieved by our sense organs. Empirical observation is most fruitful when it is guided by a hunch or a general idea as to what is to be observed. Otherwise, there is a possibility that the empiricist is lost in a welter of facts which he/she may not know what to do with. Meaningful observation results in the establishment of facts. Collection of facts through observation is not only important for verifying empirical theories, but also for building them, modifying or improving them.

2. Concepts

Concepts are the building blocks of scientific empirical research. Scientific theories usually consist of several inter-related concepts. Concepts are fundamental to all human communication and thought. But the concepts that we use in our day to day affairs are not always clear and precise. In some cases, not all would use a word in the same sense. On the other hand, different words may be used to convey a similar meaning.

Empirical research requires that the concepts used are defined with precision. Precision in defining concepts usually fosters clear thinking on the part of the empiricist himself/ herself. At the same time precise definitions convey to others what exactly is meant by the empiricist when he/she uses the concept. Lack of clarity may lead to statements which seem to provide explanations when in fact they do not.

3. Objectivity

Objectivity means that the conclusions we reach in empirical research are not affected by our personal views or values. It also means that similar or same conclusions can be reached by any person who repeats the same set of observations. It permits the repetition of observations under practically identical conditions. This facilitates the verification of facts and theories by many empiricists independently.

4. Verifiability

Any finding is said to be empirical only if it can be verified. If a theory involves things which cannot be verified, the theory tends to be metaphysical rather than scientific. The empirical conclusions are liable for verification at any time. Thus an empirical scientific theory of generalization stands to be rejected at any time. Future observations, new findings in other disciplines may render old theories untenable. This is one of the reasons why scientific conclusions are never final, but are continuously tentative and provisional.

5. Predictability

Empirical researchers are interested in prediction. Precise predictions constitute one of the most impressive achievements of the empirical researches. Predictability usually depends upon two things: (1) the nature of the phenomena themselves and (2) our knowledge of the causes of the phenomena. If the number of causes is more, prediction becomes more and more difficult. Prediction depends, to a large extent on our ability to arrive at precise theories. Precision in prediction also depends upon accurate measurement. All predictions are fundamentally uncertain. We can say that social science predictions as well as predictions in physical sciences tend to be probabilistic. However, it is true that predictions in social sciences usually have a lower probability of success than those in physical sciences.

6. Systematic Nature

Empirical investigation is systematic in many ways. It is thorough and rigorous, as it makes use of designs to guard against errors which may creep in at the time of collection of data as well as at the time of interpretation and drawing generalizations from the data.

Empirical investigation encourages a systematic report on the methods used to collect data, the hypotheses formulated, the techniques used for analysis and the logic used for making generalizations. Because of this the empiricist himself/herself or his/her colleagues have an opportunity of finding flaws that may enter at any stage of investigation. It is in this sense that empirical investigation is self-correcting.

Empirical investigation is systematic in another sense also. It aims at arriving at a set of propositions that are consistent with one another and not self-contradictory. It is the systematic nature of empirical investigations that distinguishes the scientific attitude and temperament from other non-scientific attitudes and temperaments. Sometimes people may reach the right conclusions, but that does not make the statements scientific unless they follow from the right premises. It is the overall procedure followed that sets the empirical scientific investigations and the conclusions apart from others.

Check Your Progress 1

Who is an empiricist? Describe briefly the steps involved in empirical research

Notes: (a) Space is given below for your answer.
(b) Compare your answer with the one given at the end of this Unit.

1.3 PHENOMENOLOGY

Phenomenology is a philosophy of knowledge that emphasizes direct observation of phenomena. Unlike positivists, however, phenomenologists seek to sense reality and to describe it in words rather than numbers: words that reflect consciousness and perception. The philosophical foundations of phenomenology were developed by Edmund Husserl (1859-1938), who argued that the scientific method, appropriate for the study of physical phenomena, was inappropriate for the study of human thought and action. Phenomenologists concentrate on phenomena per se, and try to produce convincing descriptions of what they experience rather than explanations and causes. Good ethnography is usually good phenomenology, and there is no substitute for a good story, well told.

The split between the scientific approach and the humanistic-phenomenological approach pervades the human sciences. In psychology, most research is in the quantitative, scientific tradition, while phenomenology flourishes in clinical work because, its practitioners cogently point out, it works. In sociology, there is a significant, but small, tradition of qualitative, phenomenological research, but the field is mostly dominated by the quantitative, positivistic approach. The reverse is true in cultural anthropology, in which there is a significant, quantitative, positivistic research, but most of the field is qualitatively and phenomenologically oriented.

The term phenomenology needs some clarification because it is talked about a good deal these days and is frequently used in the most general way to mean any sort of experientially based methodology. Even within the Western philosophical tradition the word labels a very broad movement and not a precise school or unitary method. Speaking generally, a phenomenological study is one that is grounded in the direct experience of aspects of one's own consciousness.

1.3.1 Positivism Vs Phenomenology

The positivist versus the phenomenological approach to the study of man and society is considered in terms of one of the major debates in social science research. Many of the founding fathers of sociology believed that it would be possible to create a science of society based on the same principles and procedures as natural sciences such as chemistry and biology. This approach is known as positivism. They believed that this would reveal that the evolution of society followed 'invariable laws'. And that it would show that the behaviour of man was governed by principles of cause and effect which were just as invariable as the behaviour of matter, the subject of the natural sciences.

The behaviour of man, like the behaviour of matter, can be objectively measured. Just as the behaviour of matter can be quantified by measures such as weight, temperature and pressure, methods of objective measurement can be devised for human behaviour. Such measurement is essential to explain behaviour. For example, in order to explain the reaction of a particular chemical to heat, it is necessary to provide exact measurement of temperature, weight and so on. With such measurements it will be possible to accurately observe the behaviour of matter and produce a statement of cause and effect. From a

positivist viewpoint such methods and assumptions are applicable to human behaviour. Observations of behaviour based on objective measurement, from this viewpoint, will make it possible to produce statements of cause and effect. Theories may then be devised to explain observed behaviour. It argues that factors which are not directly observable, such as meanings, feelings and purposes, are not particularly important and can be misleading. For example, if the majority of adult members of society enter into marriage and produce children, these facts can be observed and quantified. They, therefore, form reliable data. However, the range of meanings that members of society give to these activities, their purposes for marriage and procreation are not directly observable. Even if they could be accurately measured, they may well divert attention from the real cause of behaviour. The meanings and purposes they attach to this behaviour are largely inconsequential.

Phenomenological perspectives in social research reject many of the assumptions of positivism. They argue that the subject matter of social and natural sciences is fundamentally different. As a result, methods and assumptions of the natural sciences are inappropriate to the study of man. The natural sciences deal with matter. They do not have meanings and purposes which direct their behaviour. As a result the natural scientist is able to observe, measure, and impose an external logic on that behaviour in order to explain it. He/she has no need to explore the internal logic of the consciousness of matter simply because it does not exist.

Unlike matter, a human being has consciousness — thoughts, feelings, meanings, intentions and an awareness of being. Because of this, his/her actions are meaningful, he/she defines situations and gives meaning to his/her actions and those of others. As a result, he/she does not merely react to external stimuli, nor does he/she simply behave, he/she acts. Imagining the response of early man to fire caused by volcanoes or spontaneous combustion, we can see that she/he did not react in a uniform manner to the experience of heat. He/she attached a range of meanings to it and these meanings directed his/her actions. For example, he/she defined fire as a means of warmth and used it to heat his/her dwellings; as a means of defence and used it to ward off wild animals; and as a means of transforming substances and employed it for cooking and hardening points of wooden spears. Man does not just react to fire, he/she acts upon the terms of the meanings he/she gives to it. The researcher cannot simply observe action from the outside and impose an external logic upon it. He/she must interpret the internal logic which directs the actions of the actor.

The distinction between positivist and pheonomenological approaches is not as clear cut as this section has implied. There is considerable debate over whether or not a particular theory should be labeled positivist or phenomenological. Often it is a matter of degree since many theories lie somewhere between the two extremes.

Check Your Progress 2

Explain the meaning of Phenomenology and how it is different from Positivism.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

1.3.2 Phenomenological Approaches in Social and Educational Research

Hermeneutical Phenomenology

One of the most influential phenomenologies for ethnographic field work is that of Paul Ricoeur (Rasmussen 1971), a French student of Edmund Husserl. Hermeneutics has been derived from the Greek verb hermenenin, meaning to make something clear, to announce or to unveil a message. Hermeneutics involves a dialogue between a text (e.g., myth, drama, fairy story, dream report, oral history, etc.) and the experiences evoked in people participating in the text. The meaning of the text is developed within the consciousness of living people, so that there is a movement from an initial hearing of the text that may then lead to experiences that illuminate the meaning of the text. Later, people may reflect conceptually upon both the text and the memory of experiences related to the text.

Transpersonal Phenomenology

"Transpersonalism" is a movement in science toward the recognition of extraordinary experiences as legitimate and useful data. What makes these experiences extraordinary is that they in some sense go beyond the boundaries of ordinary ego-consciousness.

Transpersonal experiences include such phenomena as out-of-body experiences, visions, possession states, near-death experiences, and meditative, ecstatic, unique and mystical experiences.

To give one example of the application of transpersonal phenomenology to ethnographic fieldwork, Lederman (1988) reported that among Malay healers, the term angin ("Inner Winds") refers to an experience that sometimes occurs during healing rituals. She mentions that her informants declined to define the concept for her, insisting instead that to know its meaning, she would have to experience angin herself. When she finally undertook the healing ritual herself, she experienced angin "like a hurricane" inside her chest. Thereafter, Lederman was able to evaluate the meaning of the "wind" metaphor from direct experience. Angin ceased to be merely a belief and was appreciated as a metaphorical description of a real and profound experience.

Social Phenomenology

Social phenomenology has had an increasing influence upon anthropological thinking about the social dimensions of experience. Schutz advocated the study of society from a special stance that he called the "phenomenology of intersubjectivity".

Here, the object of scrutiny is one's relationship to another person, rather than some nonhuman object in the world. The other person (known as the capital-O "Other") requires a distinct approach in order that the essential qualities of the social relationship may be intuited.

Neurophenomenology

The best and the most direct route to uncovering the essential structures of consciousness available today is to steep ourselves in the cross-cultural evidence pertaining to human experience and then explore the universal structures of experience via the application of a neurophenomenology. The neurosciences provide an independent source of looking directly at the architecture of the organ of experience, the human brain. Phenomenological anthropology provides a kind of cross-cultural laboratory for exploring these universal structures, as it were, from the inside.

Phenomenology has a history in philosophy dating back to at least the "phenomenology of mind" of Georg Hegel in the early nineteenth century and has left a rich legacy of writings, especially those of Edmund Husserl in the early twentieth century. The influence of phenomenology in educational research has been felt only quite recently, however. Whether it applies to recovering the meaning of texts, ascertaining the effects of ritual practices in producing altered states of consciousness, discovering the universal structures underlying social interactions, or uncovering the universal neuropsychological structures producing experience, the telling impact of phenomenology in educational research continues. Probably the most important reason for the current attractiveness of phenomenology is that the issue of consciousness, long excluded from much of scientific discourse, has been reintroduced into the domains of ethnographic fieldwork and ethnological theory. Phenomenological methods can be expected to have enhanced importance to the extent that educational research becomes more focused on meaning and experience in any transpersonal or social encounter.

Check Your Progress 3

Describe any two phenomenological approaches in educational research.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

1.3.3 Phenomenology and Educational Research

The explanations of differential educational attainment that have been presented so far have been largely based on a positivist perspective. They have seen humans reacting to stimuli external to them, to social forces beyond their control. The behaviour of students in the educational system is explained as a reaction to their position in the class structure. Those at the bottom of the stratification system are programmed to fail, those at the top to succeed. They have little say in the matter since their behaviour is largely shaped by forces external to themselves. From an interactionist perspective, man actively constructs social reality. His/her actions are not simply shaped by social forces which act upon him/her. Thus behaviour is not merely a reaction to the directives of subcultures or the pressures of stratification systems. Whereas the behaviour of matter is a reaction to external stimuli, the actions of men and women are directed by meanings. They are created, developed, modified and changed in a process of negotiation.

Cultural deprivation theory provides the standard explanation for the widespread failure of low income Black American students in the educational system. The students simply react to their position at the bottom of the stratification system and predictably fail. From close observation of interaction situations, Labov (1973) provides a very different explanation. He compares three interviews involving an adult and a boy. In the first, the 'friendly' white interviewer presents a black boy with a toy jet plane. He asks him to

describe it and prompts him with various questions. There are long silences followed by short two or three word answers, which hardly provide an adequate description of the plane. This behaviour can easily be explained in terms of cultural deprivation theory. The boy is unable to provide an adequate description because he is linguisitically deprived. His behaviour is a predictable reaction to a culturally deprived environment. Labov offers an alternative explanation based on the boy's interpretation of the situation. He defines the situation as hostile and threatening and therefore his actions are defensive. This is clearly no test of the boy's verbal ability, it simply reflects his perception of the situation.

In the second interview, the context of the interaction is modified. The interviewer sits on the floor, the interviewee is provided with a supply of potato crisps and his best friend is invited along. The change is dramatic. Leon's conversation is articulate and enthusiastic, and, its linguistic terms, rich and diverse. He now defines the situation as friendly and no longer feels threatened by the interviewer. In the first interview he is, in Labov's words, a 'monosyllabic, inept, ignorant, fumbling child', in the second he is a direct, confident, articulate, young man. What does this mean? Labov states, 'It means that the social situations are the most powerful determinants of verbal behaviour and what an adult man can do. This is just what many teachers cannot do'. More generally, it can be argued from an interactionist perspective that success and failure in schools is a product of interaction situations and the meanings that are created, developed and negotiated in such situations. It rejects positivist approaches which assume that human behaviour can be objectively measured and quantified by methods similar to those used in the physical sciences. Thus, factors such as ability cannot be measured in the same way as variables such as weight, temperature and pressure. In order to understand and explain educational success and failure, the interaction processes in the classroom must be examined. The educational researchers must explore the 'ways in which teachers and students interpret and give meaning to educational situations'.

Given the fact that teachers have the power to award grades and assess students, it is important to discover the meanings which direct this process. An early piece of research which attempted to uncover some of these meanings was conducted by Howard S Becker. He interviewed sixty teachers from Chicago high schools and found that they tended to classify and evaluate students in terms of a standard of the 'ideal pupil'. This standard included the teachers' view of what constituted ideal work, conduct and appearance. Teachers interpreted the behaviour of lower class students as indicating lack of interest and motivation and difficult to control. Becker argues that simply by perceiving certain students in this way, teachers experience problems in working with them. He concludes that the meanings in terms of which students are assessed and evaluated can have significant effects on interaction in the classroom and attainment levels in general.

In a study entitled, the Education Decision Makers, Aaron V Cicourel and John I Kitsuse interviewed counselors in an American high school in an attempt to uncover the meanings which lay behind their classification of students. The counselors play an important part in students' educational careers since they largely decide which students should be placed on courses designed for preparation for college entry. Although they claimed to use grades and the results of IQ tests as the basis for classifying students in terms of achievement, Cicourel and Kitsuse found significant discrepancies between these

measures and the ways in which students were classified. Like Becker, they found that the student's social class was an important influence on the way she/he was evaluated within each society.

1.4 CRITICAL PARADIGM

Critical Paradigm emphasises that knowledge is problematic and capable of systematic distortion. The concern of the critical paradigm is to understand the theory as well as practices.

1.4.1 Paradigms

Paradigms are intended to help the researcher work at his/her trade.

The first and foremost purpose of a paradigm is to supply a provisional codified guide for adequate and fruitful analyses. This objective evidently implies that a paradigm contains the minimum set of concepts with which the researcher must operate in order to carry out an adequate analysis and, as a corollary, that it can be used here and now as a guide for the study of existing analyses.

Secondly, a paradigm is intended to lead directly to the postulates and (often tacit) assumptions underlying analyses. Some of the assumptions are of central importance, others insignificant and dispensable, and still others, dubious and even misleading.

In the third place, a paradigm seeks to sensitize the researcher not only to the narrowly scientific implications of various types of critical analyses, but also to their political and sometimes ideological implications. The points at which a critical analysis presupposes an implicit political outlook and the points at which it has bearing on "social engineering" are concerns which find an integral place in the paradigm.

The logic of procedure that a researcher follows, the key concepts, and the relationships between them are often lost in an avalanche of words. When this happens, the critical reader must laboriously glean for the implicit assumptions of the author. A paradigm reduces this tendency for the theorist to employ tacit concepts and assumptions.

Functions of a Paradigm

Paradigms have at least five closely related functions.

First, paradigms have a notational function. They provide a compact arrangement of the central concepts and their interrelations that are utilized for description and analysis.

Second, paradigms lessen the likelihood of inadvertently introducing hidden assumptions and concepts, for each new assumption and each new concept must be either logically derived from previous components of the paradigm or explicitly introduced into it. The paradigm thus provides a guide for avoiding ad hoc (i.e. logically irresponsible) hypotheses.

Third, paradigms advance the cumulation of theoretical interpretation. In effect, a paradigm is the foundation upon which the house of interpretations is built. A paradigm worthy of great confidence will in due course support an interpretative structure of skyscraper dimensions, with each successive story testifying to the well-laid quality of the original foundation, while a defective paradigm will support only a rambling one-story structure, in which each new set of uniformities requires a new foundation to be laid, since the original cannot bear the weight of additional stories.

Fourth, paradigms, by their very arrangement, suggest the systematic cross-tabulation of significant concepts and can thus sensitize the analyst to empirical and theoretical problems which he/she might otherwise overlook. Paradigms promote analysis rather than the description of concrete details.

Fifth, paradigms make for the codification of qualitative analysis in a way that approximates the logical if not the empirical rigour of quantitative analysis. The procedures for computing statistical measures and their mathematical bases are codified as a matter of course; their assumptions and procedures are open to critical scrutiny by all.

1.4.2 Elements of Critical Social Research

Critical social research is extremely varied, but critical methodology is based on a number of building blocks. These blocks should not be considered as discrete units which can simply be placed next to one another. They are elements which are drawn together in various ways in the process of deconstruction and reconstruction. And they are abstraction, totality, essence, praxis, ideology, history and structure.

Critical social research denies that its object of study is 'objective' social appearances. It regards the positivistic scientific method as unsatisfactory because it deals only with surface appearances. Instead, critical social research methodology cuts through surface appearance. It does so by locating social phenomena in their specific historical context. Historically specific phenomena cannot be regarded as independent, on the contrary they are related to other phenomena within a prevailing social structure. Critical social research analyses this structure. Social structures are maintained through the exercise of political and economic power. Such power (grounded in repressive mechanism) is legitimated through ideology. Critical social research thus addresses and analyses both the ostensive social structure and its ideological manifestations and processes.

In examining the context of social phenomena, critical social research directs attention at the fundamental nature of phenomena. Rather than take the abstract phenomena for granted, it takes apart (i.e., deconstructs) the abstraction to reveal its inner relations and thus reconstructs the abstract concept in terms of the social structural relations that inform it.

This process of deconstruction and reconstruction is effected in terms of the wider societal perspective, that is, in terms of a totalistic approach. A totalistic approach denies the relevance of looking at one element of a complex social process in isolation and argues that elements have to be looked at in terms of their interrelations and how they relate to the social structure as a whole. So critical social research is concerned with the

broad social and historical context in which phenomena are interrelated. It is concerned with revealing underlying social relations and showing how structural and ideological forms bear on them. It, then, is interested in substantive issues, and wants to show what is really going on at a societal level. Not only does it want to show what is happening, it is also concerned with doing something about it.

Abstraction

Abstraction is usually construed in terms of a distillation of sensory perception of the world of objects into conceptual categories. We start from the (literally) objective world and select out the recurrent or apparently the core or the defining features until an abstract concept is formulated (at least in our minds if not in a directly communicable form). This process of distillation of some features from a set of observed objects is at the basis of most systems of classification.

The process may be acceptable to phenomenalist approaches to knowledge, which involve an implicit assumption that science begins with factual observations and abstracts from them, but it is not adequate for critical social research. Indeed, the starting point for critical social research is to reverse this normal process of abstract thought.

Critical social research admits that facts do not exist independently of their theoretical context. If facts are not self-evident then concepts cannot be abstracted from them. Critical social research thus works by moving from the abstract to the concrete. It starts with abstract generalizations and investigates them.

Critical methodology's use of abstractions, therefore, differs from the positivist's use because, rather than simply providing a basis for ordering appearances, they are used to get beneath the surface of appearances. Instead of simply adopting an empirical approach and logging housework tasks, a critical approach relates housework to the wider sphere of production and sees it as a work relationship. The penetration of this mode of productive relations begins to get beneath the surface of appearances. The superficial taken-for-granted 'task view' of housework is replaced by dynamic conception which provides the basis for a holistic critique of social processes.

Totality

Totality refers to the view that social phenomena are interrelated and form a total whole. Further, it implies that a social phenomenon should be situated in a wider social context, it requires that social phenomena should not be analysed in isolation. They should not be regarded as encapsulated by a narrowly defined realm which can be investigated in a way that suggests that they are self-contained elements or organisms. A totalistic perspective implies that the components are interrelated into a coherent structure, that they only have meaning in terms of the structure, and in turn the structure relies on the component parts.

In adopting an approach in terms of totality, critical social research attempts to relate empirical detail to a structural and historical whole. Crucial to a critical methodological approach to history and structure are three things. First, an appreciation that social relations are historically specific. Second, an appreciation of the structural relations operating within a historical moment. Third, an appreciation of the structural relations

operating within that historically specific structure and specific phenomenal forms. So, returning to Delphy's example of housework, the French mid-twentieth-century housewife is seen as operating within a family unit whose internal exploitative relations are excluded from national accounting. The unremunerated (as opposed to unpaid) labour of the housewife both maintains the social and labour relationship of the family unit and is maintained by it.

Essence

Essence refers to the fundamental element of an analytic process. Most positivists regard any concern with essences as bordering on the metaphysical. Their only overt acknowledgement is in relation to the reduction of social or physical processes to their essential causal links. Phenomenologists, investigating the social world, view essences in a rather different way. They seek the essential nature of social phenomena or social relations, that is, some kind of a core of being or an engagement with a stream of consciousness, or, less transcendentally, the set of constructs that informs interactive processes. For critical social researchers, essence is a fundamental concept that can be used as the key to unlocking the process of deconstruction. For Delphy, the essential nature of housework was not the set of tasks, nor its lack of payment but its location within the exploitative relations of the family unit. Housework is essentially a work relationship. It is unremunerated work done by one member of a family unit for another.

Praxis

Praxis means practical reflective activity. It is what humans do most of the time. Praxis does not include 'instinctive' or 'mindless' activity like sleeping, breathing, walking, and so on, or undertaking repetitive work tasks. Praxis is what changes the world. For the critical social researcher, knowledge is not just about finding out about the world but it is changing it. It is important, therefore, that a critical social researcher engages in praxis. However, the critical social researcher is not interested in the specific actions or reasons for actions of an individual. Individual actions are simply indicative of social groups operating within an oppressive social structure and/or historical juncture. What critical social research must take account of, in some way, is that changes in social formations are the results of praxis. So the subjects of any enquiry are analysed in terms of their potential for developing group action. Further, however, critical social researchers engage oppressive social structures, and their own enquiries thus embody praxiological concerns. Critical social research is thus intrinsically praxiological. Thus, for example, Delphy argues that the analysis of housework cannot begin until the notion of household unit is overturned.

Ideology

'Ideology' has not been easily translated into English and has tended to be little or poorly analysed in much of the conventional social research. The difficulty in 'objectivizing' ideology has led some social scientists to regard it as beyond scientific analysis and thus not important, or to replace it with terms like 'norms', 'values' and 'central value system'. These alternative concepts, while attempting to operationalize the idea of social legitimations, dispense with the critical element and are of little use in developing a critical analysis which goes beneath surface appearances.

Ideology as a concept has a long history but it developed its current usage as an analytic and critical tool in the work of Marx and has been an important feature of Marxism. Marx suggested that ideology is present from the moment when social relations take on a hierarchical form. There are, arguably, two approaches to a critical analysis of ideology, the positive and the negative views of ideology (Larrain, 1979, 1982).

Ideology, of course, does not simply relate to class exploitation. Gender race and other forms of oppression have been legitimated in ideological terms. Patriarchal and racist ideologies can be seen as part of or alternatives to class-based hegemony. For Delphy, the discussion of housework and a set of tasks reflects a patriarchal ideology which obscures the real relations of production within the family unit.

Structure

'Structure' is a term used in two ways in social research. Its principal meaning and the one applicable to critical social research is of structure viewed holistically as a complex set of interrelated elements which are interdependent and which can only be adequately conceived of in terms of the complete structure. An alternative use of the term 'structure' is to see it as something that can be reduced to its elements. The complexity of a structure is decomposed into a network of linked parts with a view to exposing the elements and simplifying the whole. It is assumed that the elements make sense in their own right. This is more aptly described as a 'system'. Possibly the easiest way to distinguish structure from system is to see a system as congealed patterns of interaction, and structure as underlying model of the world that structuralists seek to identify.

For Delphy, to break housework down into a system of tasks ignores the relationship between the elements and the whole which is one of a transforming social relation. The exploitative nature of the task done as 'housework' can only be seen when the individual domestic labour is related to the family unit and the domestic unit is related to the broader economic unit. To see housework as tasks denies this structural relationship.

History

History refers to both the reconstructed account of past events and the process by which this reconstruction is made, that is, the process of doing history. History writing then involves both a view about the nature of history and the assembling of historical materials. There are a number of ways of 'doing' history and a number of different schemes of categorising history. Rather than assess these differing views, the nature of the historical perspective embodied in critical social research will be outlined.

Critical social research involves two essential elements, the grounding of a generalized theory in material history and the exposure of the essential nature of structural relations which manifest themselves historically. Critical social research does not accept that history is essentially 'factual'. It denies that history exists and is just lying around waiting to be unearthed by the historian. Like the product of the activity of the historian, reconstructing history is the result of an active interpretation of the available archaeological, documentary, or oral evidence. Approaches that adopt a view of history as an interpretative process rather than the gathering of already existing facts are usually referred to as historicist approaches.

Historicism has been adapted as an approach for critical social research in its radical formulations. Radical historicism adopts the basic historicist tenets of history as a presentist, objectivist and interpretative process but in one way or another attempts to dig beneath the surface of historical manifestations.

Structural historicism is the process of reconstructing a honed-down history, devoid of confusing instances, as a result of new perspective gained from a critique of prevailing social structures. This approach analyses the prevailing structure and its ideology, deconstructs it, and then reconstructs a logical history guided by the structural analysis. The point of reference for the historicist reconstruction is not the prevailing social system or contemporary perspective but the radical, dialectically reconstructed, social structure.

So, like all aspects of critical social research, history is not just there waiting to be picked up and fitted into the critical historical account. History has to be researched and critically evaluated as well. Within critical social research the reconstruction of history takes place alongside the structural analysis; it both informs and is informed by it.

Deconstruction and Reconstruction

Deconstruction and reconstruction begin from the abstract concepts, which are applied to, or used in relation to, an area of investigation. In practice, there may be a large list of concepts. It is not necessary to attempt a separate critical analysis of each. They are all interrelated and so the 'key' is to locate a central concept and critically analyse it. From that, the other concepts can be reconstructed.

Before addressing how the central concept is analysed, it is important to note that the deconstructive-reconstructive process is not just abstract concept analysis tacked on to the usual idealized sequence of events in a research undertaking. Critical social research is not embodied in a series of discrete phases. It is not just abstract concept analysis followed by hypothesis generation, data collection, data analysis, and the generation of results, with the implications for a theory added at the end. Critical social research develops the different elements in parallels, each aspect informing each of the other aspects.

The researcher is concerned with a realm of enquiry, usually provoked by a particular question that demands attention, such as, why do some youngsters not make the most of the opportunity offered by the education system, or should women get paid for housework. These questions frame an area of enquiry. The first job is to explore its central concepts. The selection of a central concept is not simple, but, as we shall see in the substantive examples, neither is it impossible.

Take housework; the conventional approach is to see it as a set of tasks. Delphy, addressed it as unpaid domestic work. She showed that deconstructing housework in these terms did not work. Such an analysis failed to address the inconsistencies between work done in one's own home and work done in another's. Nor could it deal with the difference between work which was done at home which was regarded as economically accountable yet unpaid (butchering a pig) and that which was not (cooking the pig). A more useful deconstruction was to see housework in terms of a relation of production, as work done for another family member. The exploitative nature of housework is thus

reconstructable. The hidden nature of this exploitation in economic accounting which focuses on the family unit is revealed in this analysis by analysing the relationships within the family.

To sum up, the dialectical deconstructive-reconstructive process can be conceived as a process of focussing on the structural totality or historical moment. The totality is taken initially as an existing whole. This structure presents itself as natural, as the result of historical progress, i.e., it is ideologically constituted. The critical analysis of the historically specific structure must therefore go beyond the surface appearances and lay bare the essential nature of the relationships that are embedded in the structure. This critique ostensibly begins by fixing on the fundamental unit of the structural relationships and decomposing it. The fundamental unit must be broken down until its essential nature is revealed, the structure is then reconstituted in terms of this essentialized construct. The reconstructive process reveals the transparency of ideology. The whole is grounded in historically specific material reality.

1.4.3 Critical Research Process

Doing educational research is not just about selecting and constructing a data collection technique. On the contrary, it embraces conceptualization of the problem, theoretical debate, specification of research practices, analytic frameworks, and epistemological presuppositions. Data collection is not a self-contained phase in a linear process. Rather, all aspects of the research process are interrelated and all bear on each other. There is no neat linear sequence of events as the idealized research report format (i.e., theoretical background, hypothesis, and design of research instrument, data collection, test of hypothesis, findings, and implications for theory). However much the idealized form of research design and presentation get imposed on other form of research, critical social research is not conducive to such manipulation.

Critical social research deconstructs and reconstructs. But this is not like taking a house apart brick by brick and building a bungalow using the same bricks. Reconstruction is, not just rebuilding but reconceptualization. The nature of the reconceptualization process emerges only as the illusion of the existing taken-for-granted structure is revealed. There is a shuttling back and forth between what is being deconstructed and what is being reconstructed. The nature of both emerges together. In short, critical social research is a dialectical process that cannot be broken down into successive, discrete stages.

So what do you do as a critical researcher (as opposed to what do you say you did when reporting the research)? You have to start somewhere and there is no better place than with the observation, concern, frustration, or doubt that provoked the enquiry. Ask yourself why things are as they appear to be. But frame the question, not in terms of ‘what are the causes?’ or ‘what does this mean?’ but rather as ‘how does it persist?’ Ask ‘how come nothing is done about it?’ or ‘how come no one notices?’ or ‘how is it that people accept what clearly is not in their interest?’ Ask such questions and from there get a clearer picture of what you are really asking about.

Asking these kinds of questions will lead you to three related lines of enquiry. First, what is essentially going on? (Pink packaging of girls’ toys is not about ‘why is it pink?’,

but about ‘why are some toys demarcated as girls’ toys.) Second, why has this historically been the case? (why have girls traditionally had certain toys?) Third, why structures reproduce this state of affairs? (why do firms manufacture, and people continue to buy, these toys for girls?)

Empirical enquiry will start to provide a clearer focus for the questions. (Find out what toys are currently marketed for girls. To what extent are they traditional toys? How long has the tradition been going? What changes have occurred over time? What leads people to continue to buy traditional gender-defined toys?) Through empirical enquiry, broad abstractions can be filled out and made concrete.

Start to broaden the enquiry. Make connections between myths or contradictions that emerge from the empirical enquiry and broader stereotypes or ideological constructs. (Assumptions about girls’ toys reproduce gender stereotypes. Why do these gendered myths persist? Even people who are aware of this stereotyping still buy gendered toys. Why does this anomaly occur?) Relate the myths and/or contradictions back to the empirical data on the one hand and to broader social structures on the other. Gendered toys are bought because children want them? Why? Because they see advertisements for gendered toys on television? What role does the media play in reproducing gender stereotypes? How does marketing target customers? How is gender created in the way advertisers refer to ‘already constituted’ subjects?

Do not just assume relationships as the enquiry develops but undertake further empirical enquiry. (Watch the advertisements, look at school reading books, ask manufactures about marketing strategies, etc.) Ask broader questions of data. (Do manufacturers stick to the same gendered toys because they are easier and safer to market? Why don’t people demand alternatives?) Begin to reveal the nature of ideological forms, how they impinge upon the area of enquiry, and whose interests are served by them? Gradually bring the specific and the societal, the immediate and the historical together in a totalistic analysis.

Avoid sweeping away the enquiry with grandiose but impotent explanations that implicate ‘socialization’, ‘patriarchy’, ‘capitalism’, or ‘racism’. Critical social research is praxiological, so it is necessary to examine in detail how people collude in their own oppression, how they are persuaded to reproduce historical social structures, and so on. It is a close and detailed study which shows how historical oppressive social structures are legitimated and reproduced in specific practices. Critical research thus raises consciousness, subverts in legitimating processes, and provides clear analyses of the nature and operation of the oppressive structures. Critical research must be detailed if it is to be revealing and convincing. Empirical evidence is crucial. Such evidence may arise from asking people questions, or by watching and participating in what people do, or by reviewing what has happened in the past, or by analysing cultural products. Data may be aggregated or treated as unique testimony. It does not matter whether one computes the percentage of toys that are gendered by being packaged in pink; ask children’s television. Do any or all of these things turn to be appropriate to advancing the enquiry. But make sure that techniques are undertaken within a critical methodology. What is important is that nothing is taken for granted and that what is, or has been, done or said is related to historical developments and social structures.

Having done the study and gained an understanding, the production of a report is your chance to share that understanding with others. The 'traditional' approach to reporting empirical work should be avoided. This traditional approach to research reporting tends to a structure which idealizes the research process as a logical sequence of discrete phases. It suggests an introduction which provides an overview of the context, a literature review, the identification of the theoretical concern of the research, the specification of hypotheses, a central block of 'results', an analysis of the results, the implications for theory, and suggestions for further research.

Critical social research is primarily concerned with analysis and reporting of substantive issues rather than the artificial logic of the research process. The substantive issue is the central focus of the work and any critical social research report must indicate what central question is being addressed. A central plot must be identified and this plot sustained throughout. In effect, the core argument remains as a skeleton which is filled out by empirical details.

Check Your Progress 4

What are the two ways in which the term structure is used in social research.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

1.4.4 Approaches in Critical Social Research

Critical social research makes considerable use of four approaches : critical case study, radical historicism, critical ethnography, and structuralist techniques. This is not, in any way, meant to delimit what approaches critical social researchers can adopt nor do these four approaches constitute a set of mutually exclusive alternatives.

Critical case study

In a critical (or theoretical) case study, the researcher deliberately selects, for detailed empirical analysis, a case which provides a specific focus or analysis of a myth or contradiction. This approach is effectively adopted by Cockburn (1983).

A variety of different data collection techniques can be adopted within a critical case study approach. The researchers relied principally on structured interviews augmented by observation in ascertaining the interests, attitudes, social networks and life-styles of their case-study groups. Cockburn preferred in depth-interviewing with the case-study group.

There is nothing inherently advantageous in any particular data collection method for critical case study. The case study is not an end in itself, rather it is an empirical resource for the exploration of wider questions about the nature of oppressive social structures. What is important is that the study is designed to critically address myths or contradictions at the level of actual practices that relate to broader questions about the operation of oppression.

Radical historicism

Radical historicism presupposes that constructing histories is an interpretative process rather than the recording of 'facts'. Although reconstructing the past in terms of the present in one way or another, it attempts, to dig beneath the surface of the historical development of structural forms.

Radical historicism involves the uncovering of historical evidence but the meaning of the evidence depends on a reconceptualization of dominant social structures. The reconstruction of history takes place alongside structural analysis; it informs and is also informed by it. Liddle and Joshi, for example, did not just document the stages in the curtailment of women's freedom in India but related the particular practices, on the one hand, to economic considerations related to the concentration of wealth in upper castes, and on the other, to a concerted effort by men to undermine the female power principle.

Critical ethnography

Critical ethnography is a widely used technique in critical social research. The involvement and close attention to detail which characterizes ethnography makes it useful for rendering visible the invisible, and for revealing anomalies and common-sense notions. A critical ethnography transforms the anomalies and taken-for-granted into contradictions and myths by situating them in broader social and historical analyses.

Critical ethnography thus focuses on the way in which contradictions are negotiated and myths re-presented.

Critical ethnography differs from conventional or traditional ethnography in its attempt to link the detailed analysis of ethnography to wider social structures and systems of power relationships in order to get beneath the surface of oppressive structural relationships. In essence, critical ethnography attempts, in one way or another, to incorporate detailed ethnographic analysis directly into a dialectical critique.

Critical ethnography proceeds by raising substantive questions about structural relationships which the ethnographic study elaborates in terms of actual practice. Like the critical case study, the details of the ethnographic work is a resource in the deconstruction of social structures. Critical ethnography makes use of the same data collection technique as conventional ethnography (in-depth interviewing, participant observation, etc.) and is also reflexive. However, there is far less concern with 'neutrality' both, in terms of the interventionist role of the researcher, and the presentation of a non-partisan perspective.

The intention is to go beyond the grasping of the subjects' meanings. Critical ethnography asks how these meanings relate to wider cultural and ideological forms. It involves keeping alert to structural factors while probing meanings. Through ideological analysis, critical ethnography aims to reveal both contradictions and myths. Inconsistencies, for example, between what people do and what they say are transformed from anomalies to contradictions. What, for example, black community college students had to say about time keeping and what they actually did, was anomalous. It became an analytic contradiction, once it was explained in terms of the notion of 'white man's clock time' lip-service to the white middle-class meritocratic system while living in an everyday milieu that operated on a different sense of time.

Structuralist techniques

There are two main structuralist techniques incorporated into critical social research. First, there is semiological analysis, which attempts to uncover the connoted level of denoted messages. This approach is widely used in relation to the mass media but is applicable to, and derives from, a general approach to the analysis of any sign system. Semiological analysis sees a sign as any cultural symbol which conveys a meaning. The sign is made up of two elements, signifier and signified. The signifier is a sound or image which signifies something. For example, the sound 'dog' is a signifier for a 'four-legged mammal that barks'. What is signified is the concept 'dog'. Hence the sign is the concrete relation between concept (signified) and sound/image (signifier). Signs are arbitrary. They have no intrinsic meaning but take their meaning from the relationship to other signs. The meaning of a sign comes from its difference from other signs. The key of semiological analysis is that, signs do not have intrinsic meaning. Meaning is generated through the relationship of signs.

The second structuralist technique centres around the identification of binary oppositions and narrative sequences. The approach again draws on linguistics and presupposes that the structure of language is inherently dichotomous and, consequently, the symbolic meaning of an image is determined only by differences. When, for example, two

characters in a study are opposed in a binary structure, their symbolic meaning is virtually forced to be both general and easily accessible because of the simplicity of the differences between them. This binary structure operates to provide conceptual differences and each society has a system of such oppositions; it is through them that myths are (unconsciously) understood by members (Levi-Strauss, 1963).

A second aspect of this technique is the deconstruction of a narrative into a set of functions. Propp (1968), for example, in analysing Russian fairy stories, identified a set of shared functions that recurred in the same order. This structuralist approach is transformed into a critical social research process when the binary oppositions and the narrative functions are related to the prevailing socioeconomic and political structure. It is then that their social meaning becomes manifest.

Check Your Progress 5

Describe briefly the approaches in critical social research.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

1.5 LET US SUM UP

Empirical research depends on observation and induction. The empiricist uses all kinds of research tools: observation, both participant and non-participant, formal interviews, structured, semi-structured, unstructured and indepth interviews, analysis of documents, mass media analysis, archive searching, examination of official statistics and reviews of published data.

He/she also uses a wide variety of analytic techniques: ethnographic interpretations, historical reconstructions, action research, multivariate analysis, structuralist deconstruction and semiological analysis.

Phenomenology and critical research are two major approaches that have developed in recent times.

Phenomenological perspectives in social research reject many assumptions of positivism. They argue that the subject matter of social and natural sciences is fundamentally different.

Phenomenology is a philosophy of knowledge that emphasises direct observation of phenomena. Phenomenologists concentrate on phenomena per se, and try to produce convincing descriptions of what they experience rather than explanations and causes. The most important reason for the current attractiveness of phenomenology is that the issue of consciousness, long excluded from much of scientific discourse, has been reintroduced in to the domains of ethnographic fieldwork and ethnological theory. Phenomenological methods can be expected to have enhanced importance to the extent that educational research becomes more focussed on meaning and experience in any transpersonal or social encounter.

The critical educational researchers are not like other researchers who merely talk rather than observe, or merely observe rather than think, or merely think rather than put their thoughts to the test of systematic empirical investigation. Doing critical educational research is not just about selecting and constructing a data collection technique. On the contrary, it embraces conceptualization of the problem, theoretical debate, specification of research practices, analytic frameworks and epistemological presuppositions. Critical research presents the hard core of concept, procedure and inference in the analysis of social research. It does not represent a set of categories introduced anew, but rather a codification of those concepts of problems which have been forced upon our attention by critical scrutiny of current research and theory.

Critical research digs beneath the surface of extensive appearances through direct analysis of social phenomena. The concepts which frame and define an area of enquiry are themselves subject to critical analysis. Specific phenomena are analysed in terms of the way they relate to wider social structures and in terms of their historical manifestations. The critical rebuilding involves a process of conceptual shuttling back and forth between the particular phenomena under investigation and the wider structure and history to which it relates, between the taken-for-granted and the deconstructed concepts and between the theoretical deconstruction and the reconstructed social totality.

1.6 CHECK YOUR PROGRESS: THE KEY

(1) An empiricist in one who practices empiricism, i.e. the system which rejecting all a priori knowledge rests solely on experience and induction.

The steps involved are a) collecting data, b) measurement, c) classification and tabulation of data, d) analysis and reduction, e) formulation of hypothesis and f) formulation of theory.

(2) Phenomenology is a philosophy of knowledge that emphasizes direct observation of phenomena. The difference between phenomenology and positivism is:

- Positivism is a scientific study of social based on the same principles and procedures as natural sciences such as chemistry and biology.
- Phenomenology rejects many of the assumptions of positivism as it regards the subject matter of social and natural sciences to be fundamentally different.
- Meanings, feelings and purpose of the phenomena are not directly observable under positivistic approach.
- Phenomenologists argue that methods and assumptions of the natural science are inappropriate to study man and society.
- Phenomenologist defines situations and gives meaning to his actions and those of others.

(3) The Two approaches are: Hermenutical and Social Phenomenology Hermeneutics involves a dialogue between a text which can be a story or a drama and the experiences evoked in people who are participating in the text. Social Phenomenology has an increasing influence upon anthropological thinking about the social dimensions of experience.

(4) The structure is used as a complex set of interrelated elements which are interdependent and which can only be adequately conceived of in terms of the complete structure. An alternative use of the term structure is to see it as some thing that can be reduced to its elements.

(5) Critical Social Research Uses four approaches. These are:

- Critical case study: the researcher deliberately selects for detailed empirical analysis a case which provides a specific focus for or contradiction.
- Radical historicism: reconstructing the past in terms of the present and digging beneath the surface of historical development of structural forms as an interpretive process.
- Critical ethnography: the involvement and close attention to detail is useful for revealing anomalies and common sense notions.
- Structuralist techniques :
  a) semiological analysis, which attempts to uncover the connoted level of denoted messages.
  b) identification of binary oppositions and narrative sequences for the deconstruction of narrative into a set of functions.

References

[Given below are the titles which have been used to prepare this Unit. It is not suggested that you should go looking for these books to study them in original. If you can manage, you may look for a few titles, but they are not obligatory for completing the course successfully].

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UNIT 2 PHILOSOPHICAL AND HISTORICALMETHOD

Structure

2.0 INTRODUCTION

As you know, education is an interdisciplinary field. The field of educational research has developed through contributions from different disciplines like Philosophy, Psychology, History, Anthropology, Sociology, Economics, Biology, and Mathematics. These disciplines have influenced educational research in terms of theorisation as well as methods adopted in the pursuit of knowledge. On the basis of contributions from different disciplines to methods of research, we classify them broadly into two categories: **Qualitative methods** and **Quantitative methods**.

The qualitative methods treat human mind, especially, the mental insights and impressionistic views as the major means of generating knowledge. But, the quantitative methods rest on objective and standardised means of inquiry and sophisticated statistical designs of analysis for attainment of objectivity and generalisations. They are employed in controlled situations for verification of evidence, theories and their generalisations. Qualitative methods are used for inquiries in different field's viz. Philosophy, History, Social Anthropology and Field Psychology. In educational research, qualitative methods play a major role in dealing with philosophical research, historical research, socio-psychological and context specific problems, prognosis and diagnosis of problem cases in educational situations, evaluation of educational programmes, etc. Depending on the nature of problems under study and certain procedural details employed therein, we come across different qualitative methods in educational research like, philosophical method, historical method, naturalistic inquiry, and case study method. In Units 2 and 3 of this Block we have made an attempt to present the meaning and concepts pertaining to these

methods, special features of each method, their application in educational problems, steps to be considered while conducting studies employing each method, and problems and issues that arise therein. In this Unit, we shall present philosophical and historical methods in some detail and continue our discussion on naturalistic and case study methods in Unit 3.

2.1 OBJECTIVES

On completion of this Unit, you should be able to:

- Explain the various uses of philosophical method in educational research
- Describe the main features of historical method and the ways of conducting historical research in education and distance education and
- Differentiate between philosophical method and historical method.

2.2 PHILOSOPHICAL METHOD

Philosophical studies in education aim at

- assessment of the status of knowledge through analysis of meaning and relationships of different concepts and exposition of underlying assumptions and
- a fruitful synthesis of ideas from different fields concerning educational theories and practices.

In other words, a researcher in the area of educational philosophy aims at analyses of meaning and nature of different educational concepts and the relevance of different kinds of educational practice. He/she identifies appropriate norms and standards for educational practices through cross examination of ideas reflected by different thinkers in the field of education.

The major thrust of research in educational philosophy is as follows:

(i) **Study of the contributions made by a philosopher or groups of philosophers**: Ideas about education are expressed philosophically and are practised through educational processes. There is a direct impact of philosophy on education from the viewpoint of identifying aims and objectives, relevant contents, disciplines, methods, and evaluation processes.

A philosopher or a group of philosophers who follow similar lines of thought may express their ideas about the above aspects at occasions in different forms: speeches, discourses, writings and institutional practices.

An educational researcher may be interested in making an analytical and critical appraisal of the educational philosophy of a thinker or a group of thinkers in order to present their ideas on education in a consolidated, formal, and systematised

form. For example, a researcher interested in the educational ideas of Noble prize winner Tagore will systematically put ideas of Tagore regarding aims of education, curriculum, methods of teaching, discipline, etc.

(ii) **Study of the educational philosophy propounded by a particular school of thought**: Philosophy can be classified under different schools of thought like idealism, naturalism, realism, existentialism, pragmatism, socialism or communism (i.e., dialectical materialism). Every school of thought projects its educational philosophy based on its own ideology regarding the attainment of the basic goals of education. Abstractions and formal statements governing principles and ideas of a school of thought on educational systems can also be considered as one of the areas of philosophical inquiry.

(iii) **Study of the philosophical bases of curriculum**: There are several issues related to theoretical as well as practical aspects of education which have philosophical bases and can be resolved through rational exercises. Several questions raised in the context of curriculum development (e.g., the desirable state of mind to learn, the criteria for identifying the desirable state of mind, etc., are the concerns of an educational philosopher).

Philosophical research pertaining to curriculum development can answer several other questions — what should be the ratio of general and specialized courses at secondary and higher secondary stages, to what extent can subject classification be perfect at the secondary school stage, etc. Research in this area can help us identify objectives, and course contents in the process of curriculum development.

(iv) **Study of the philosophical bases of instructional processes**: Several ways and means of teaching have been grouped under different methods of teaching, but many questions are being raised about the meaning of terminologies, concepts, and activities highlighted under different methods. For instance, how does the term "imparting" differ from "instruction"? , A number of such philosophical questions related to the instructional processes need to be answered through analytical exercises. Through such exercises, clear cut ideas are generated about the activities carried out in educational settings and appropriate norms are suggested from time to time for educational practices. In sharp contrast with teacher directed instruction in the formal system, focus in open and distance education is on learning; hence the onus of learning is on the learners. Essentially, the instructional design and the system in open and distance education has to be different. Philosophical research probes into the alternatives, their worth and social desirability in the overall frame work and understanding of human development.

(v) **Study and philosophical analysis of contributions made by theories in psychology to education**: We are aware of the influence of the developments in the field of psychology like 'developmental psychology', 'need theories' and 'concept formation' on educational process. At a particular time, one or the other theory has been given importance in the educational fields because of its popularity at that time. Further, there is a scope for philosophical inquiries about the relevance and scope of such theories as far as educational practices are concerned. One of the recent developments in the learning theories is andragogy or

psychology of adult learning. Almost invariably, all learners in higher open and distance education are adults. Philosophical studies probes into the contributions of such theories in open and distance education.

(vi) Study and philosophical analysis of social theories which influence education: There can be several issues of education related to imbibing certain social ideals into the system. Issues like freedom in the classroom set up, autonomy of higher education institutions, democratic values in education, equality of educational opportunities, and policies and practices of educational opportunity require philosophical analysis from time to time in order to accommodate the changes which improve/develop societies. This helps us in examining appropriate social aims and norms existing in a given educational set up and suggesting the norms for further development. Before we discuss the steps involved in philosophical research, let us work out the following exercise.

Check Your Progress 1

State briefly in about 30 words the ways in which the major areas of philosophical research can contribute to the development of principles and practices in the area of education.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

2.2.1 Philosophical Inquiry: Main Steps

Philosophical inquiry comprises a few well-defined steps which need to be considered in order to make the inquiry successful. Let us examine each step one by one:

i) Identification of themes: The process of philosophical study starts with the identification of appropriate themes for study. This may be concerned with the areas and issues stated in the introductory part of section 2.2. At this stage, every care has to be taken to ensure that the chosen theme is capable of yielding a system of thought with sound justification. A first hand knowledge of available literature is useful in finalising a theme for inquiry.

The following list of the titles of some doctoral projects may help you perceive the nature of themes selected for philosophical inquiry:

• A Critical Study of the educational implications of existentialism.

• Pedagogy of Distance Education – Study of the "Theoretical Constructs".

• A Critical Study of Rabindranath Tagore as an Educationist.

• Equality of Educational Opportunity - a Philosophical Study.

ii) Collection of data: Keeping in view the theme identified and the preliminary questions raised therein, the researcher must collect all possible data relevant to the theme from the available literature. The sources may be of literary nature, such as write-ups or opinions of the, philosophers concerned and commentaries on the relevant philosophical works appearing in the forms of books, journals, transcriptions, recordings, research reports, etc. Mostly, collecting of such data is possible through library work. For example, while studying the educational ideas of Tagore, the researcher will have to study the works of Tagore and also the literary articles on Tagore regarding education.

This stage is very crucial since the researcher will have to decide the relevance of the data and the way to collect it. You must be clear about the authenticity of the sources of the data and the nature of the data included therein. In other words, first, you should be vigilant about the genuineness of the sources of the data and, secondly, you should examine whether the data collected through the authentic sources are reliable and meaningful for our study or not.

iii) Classification of data and its interpretation: You should logically classify the data under different heads focusing on the theme of investigation. Then, you must interpret the data under each classification keeping in view the main questions you raised in a specific context. Interpretation may follow different processes like description, comparison, appraisal, cross examination, etc. of different ideas or concepts in the context of major questions under consideration.

Interpretation of the data in philosophical research is a scholarly job which rests on the analytical insight and the synthesising ability of the researcher. "The task of interpretation is chiefly that of ascribing a significance, meaning, purpose and relatedness to a common end, and to an apparently heterogeneous mass of data". (Varma: 1965).

You may follow a logical process of interpretation and give substantive references to our judgments/comments; but, there is every possibility of reflecting our subjectivity in the process. Essentially, a researcher studies others' ideas from his/her own point of view. However, conscious efforts must be made to detach ourselves as much as possible and interpret the ideas of others without being influenced by our personal biases.

iv) Reporting the study: The last stage of the work is reporting of the study. In the report, a logical sequence is maintained between the different heads of classification and appropriate conclusions are drawn towards the end of the presentation. At this stage, care is to be taken for clarity and precision of presentation. Moreover, appropriate references with quotations as well as emphasis on necessary points of presentation are to be cited carefully in the report.

Before you proceed to discuss historical research, let us work out the following exercise.

Check Your Progress 2

1) Identify a few suitable topics against the following areas of study (other than the example given in the text).

Areas	Topics
i) Study of the contribution of educational educational philosophers to education.	1) _____
ii) Analysis of some social or psychological concepts which influence distance education.	2) _____

2) How do you analyse and interpret data in philosophical studies? (Answer in 4 lines).

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

2.3 HISTORICAL METHOD

History is understood as the study of the past. Historical research consists of the studies of past happenings. In the process of search for an account of what happened, the historian may reveal several interacting factors that contributed to the occurrence of a particular event within a specific context of time and space. In one sense, the study of history highlights causal relationships of past events and unearths the background for understanding the social phenomena, past as well as present.

Human civilization, culture, education are evolutionary processes rather than temporal revolutionary processes. The schools of psychology have also evolved. Even revolution evolves – India's struggle for independence from Sepoy Mutiny to Gandhian non-violence-non-cooperation. Hence, historical studies are necessary to understand the process of evolution.

History has utilitarian significance. An understanding of our past helps us to develop better perceptions of the dynamics of the present times. It is argued that every occurrence of the present day events has its historical context. History as a study of the route of the march of progress indicates the nature of advance in socio-economic and political contexts. For example, "The History of Distance Education tells how it grew from Pitman's notes to the present day technology-based Distance learning process". It also projects the future needs of society for mass education and the future distance education system through open and conventional universities.

Thus, historical research has been defined by Borg (1963) as,

"The systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusions about past events".

2.3.1 Relevance and Scope of the Study of Historical Research in Education

Study of the history of educational developments and changes in their social, political and economic contexts is essential for a better understanding of the educational problems of the present times. Especially with regard to policy making in education, the policy makers and planners should take note of certain historical findings which may guide them to avoid repeating certain policies which might have been found disadvantageous in the past.

Interpretation of historical data may help them in developing different hypotheses in the context of the development of educational systems at present and thereby, in identifying directions for suitable interventions in the present educational situations. Furthermore, analysis of the trends of educational developments in their historical context is useful in projecting educational plans with reasonable probability of success.

Historical studies of educational institutions, administration, subject matter, and teaching methods have direct significance on the work of those involved in curriculum development, actual instruction, and day-to-day administration and organisation of educational systems. Moreover, the ideas and practices in the present educational set up

have their historical origins. As such, understanding the present situation, practices and ideas require digging into the past.

As specified by Borg and Gall (1983), the subject matter of historical research embraces the following:

(i) General educational history.

(ii) History of educational legislation.

(iii) Historical biography of major contributors in the field of education.

(iv) History of the major branches of education, like curriculum, methods and materials, enrolment, staff development, finance and administration.

(v) Institutional history of education like primary education, secondary education, higher education, distance education, non-formal education, adult education, etc.

(vi) Cultural history of education concerning the fields of Sociology, Anthropology, Literature and Technology.

(vii) History of educational planning and policy formulation.

(viii) Historical critics of education.

Check Your Progress 3

State briefly the relevance of historical studies of an educational system.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

2.3.2 Main Features of Historical Research

Historical method of research or 'historiography' has certain unique features and is generally counted as one of the methods of scientific inquiry. They are:

i) Historical research aims at developing knowledge of past events within a particular framework of time and social-political, economic and cultural context. A historical

researcher attaches importance to the meaning of specific events which have already occurred and explains their causal relationships on the basis of the analysis of the existing data. The history of present higher education in India tells how three universities, Bombay, Calcutta and Madras were created in 1857 in the port cities of India with the implicit aim to supply the required educated manpower at that time. (add more data, e.g. decadal growth of higher education institutions; DE institutions, etc.

ii) The researcher digs into the significant data that tell us about the past events. He/she does not have any control over data since the situations under study do not exist at present. However, each and every piece of information concerning the past events does not get similar treatment at the hands of the researcher. Only those data which are relevant to the problem under investigation are considered for purposes of analysis.

iii) Historical research is conducted on the basis of the analysis of all the known information related to the research problem. It is a fact that the information which actually existed at the time of the actual occurrence of events does not survive till the data of investigation; hence, only those data which survive and are available till today become the focus of the study. In other words, these existing data are considered to be the population information of the problem. However, the researcher may not have full access to all the data existing at the present moment. Consequently, he/she depends on the total information available to him/her through all possible efforts. Because of this limitation, the interpretation made about causal relationships of certain events suffers from serious limitations.

iv) Data concerning the past events are available through different sources. One of the approaches to the classification of historical sources is to treat them as (i) primary sources, and (ii) secondary sources.

Primary sources provide first-hand information about the past events. Direct observation and reporting or recording of experiences can be treated as the primary source of data. There can be different kinds of primary sources such as:

- personal primary sources like a person's direct observation of events in which he/she participated in the past,
- physical artifacts like collections in museums or evidence of historical spots in the form of remains or relics, and institutions of various types,
- mechanical artifacts like films, video films, audio cassettes, and photographs,
- records written by actual participants or observers in the form of constitutions, charters, court decisions, official minutes or records, autobiographies, research reports, letters, genealogies, contracts, deeds, wills, permits, licenses, certificates, bills, receipts, magazines or newspaper accounts, maps, pictures, paintings, books, etc.

Secondary sources of data include second-hand information about past events. For instance, the person who supplies information about the past is neither a participant nor an eye witness of events. Items of this type can be in the form of written materials like newspaper articles, interviews referred to in the articles, magazines, books, research

reports, etc. It is a fact that secondary sources of data are usually of limited worth because of the errors which result when information is passed on from one person to another.

Usually, primary sources of data are given first priority in historical studies with a view to authenticate the presented facts. The second-hand information, which may be found in some distorted form needs to be considered with great care for developing holistic views on the problem. For example, while studying introduction of mother tongue as a medium of instruction in higher education in India – the primary sources will include Woods Despatch and report of the Education Commission. The secondary sources will include reports of seminars and speeches of great leaders showing concern about the use of mother-tongue.

v) The main feature of historical research is the evaluation of historical data. Even when the data are collected through primary sources, doubts can be raised about their validity, reliability and relevance. The process of judging validity, reliability and relevance of data is called historical criticism. This is undertaken in two stages. The two processes are known as external and internal criticism.

   (i) **External Criticism:** External criticism is concerned with testing the authenticity of the sources of data. In other words, every historical researcher must examine whether a document or source is really what it seems to be. The general criteria followed for such criticism depend on
   - contemporary reputation of the source and
   - consistent reputation of the source over the years. This can be traced through a review of the relevant literature. Furthermore, the literary sources can be verified against the authorship of documents by testing signatures, handwriting, scripts, style of writing, language, usage etc. The material sources can be subjected to physical and chemical tests like verification of ink, paint, paper, cloth, stone, metal, wood, etc.

   (ii) **Internal Criticism:** Once the sources are verified, the content of the data is subjected to verification which is known as internal criticism of the data.

At first, the internal consistency of information presented through a particular source is studied. The more internally consistent a set of information, the more accurate it can be. In this context, the researcher must find out the literal as well as the real meaning of the content in its appropriate historical context.

Then, the external consistency of the data is to be evaluated. Even if the authorship of a report or a document is found accurate, the report or the document may include distorted pictures of the past. For studying the accuracy of the content, usually two steps are followed by a researcher. One step is to compare the information derived through two independent sources and the other, is to match new information with the information already available in reliable sources.

To check external consistency of the data, Fox (1969) suggested three major steps : the study should include (i) corroboration of data from two independent sources, (ii) one independent primary source, and (iii) one source reputed for providing contradictory information on any event. It is suggested that in case the researcher finds it difficult to

arrive at matching information available in two comparable sources, he/she may apply his/her professional knowledge and judgment to make the final evaluation.

2.3.3 Historical Research: Main Steps

The main steps in conducting historical research are:

(i) Identifying the problem: The first step in historical research is to select a problem falling in the area of the history of education. The researcher may come across several issues of historical significance. Historical studies may be geared towards an assessment of the educational systems at different stages of socio-political development and how the system got modified and changed as per the requirements of the time.

In this context, Borg and Gall (1983) have suggested five types of topics to be included in the area of historical research in education.

a) Historical studies concerning current social issues such as education of deprived communities, women's education, eradication of illiteracy, etc.

b) Histories of specific individuals, histories of specific educational institutions, and histories of educational movements.

c) Interpretation of ideas or events which had previously seemed unrelated, like linking educational development with socio-economic development of a region historically.

d) Synthesizing old data with new facts to modify or rewrite history or modify a theory.

e) Reinterpretation of past events that have already been studied, especially, those falling in categories listed under items a) and b) above.

The following list of a few doctoral level studies conducted in India will give you an idea of the nature of topics selected in the area of historical research.

- A Study of the Evolution of Distance Education in India.
- The Growth of Education and Political Development in India, 1908-1920.
- A Critical Study of the Emergence of Distance Education Methodology.

ii) Specification of the population data: The second step is about the specification of the population of data relevant for the study of the problem. Even though a lot of information about the past is available in most cases, the researcher is to point out the type of data that are relevant for the study he/she is taking up. The extent to which different types of data (viz. sociological, political, economic, cultural and psychological) concerning the chosen educational problem are relevant is very crucial in the process of one's using the population of information.

iii) Data collection: On the basis of the description of the required population of data, the historical researcher initially develops an over view about the data and judges whether all relevant information is available or not. Study of related literature and

direct scrutiny of information on different sources help the researcher in such an exercise. Moreover, the researcher makes effort to discover new data in addition to what is available at present.

Then, the researcher embarks on the task of data collection. At this stage, he/she should assess the degree of his/her preparedness on the basis of the following prerequisites:

a) the researcher should be familiar with all the data known to exist,

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Fig. 1: Scanning Records

b) the researcher should know the sources of data and be ready for exploring new data from the existing sources (As discussed earlier, the researcher gathers evidence from the primary and the secondary sources and also evaluates the data collected on the basis of different criteria that have evolved beforehand),

c) the researcher should prepare himself/herself to exercise great care in exploring sources and previously unknown data in the context of the problem under investigation.

iv) **Organisation of data:** Having collected sufficient authentic data, the researcher prepares a draft outline of the report. At this stage, the researcher organises data under different headings and tries to depict a holistic picture of the problem. This phase enables the researcher to scrutinise the data in hand to see if the data collected are enough for the study or if there is need for more.

v) **Interpretation of data and report writing**: After collecting all the relevant data, the researcher depicts the events which give details of what happened to whom, in what place, and at what time, etc. The description of events within a specific framework makes a researcher curious to know "why something happened?" This stage poses an intellectual challenge to the researcher since interpretation is to be made about the forces which shaped events and determined policies.

A sound knowledge of related fields like sociology, political science, economics, philosophy, geography, educational management and educational technology enables the researcher to develop a holistic view about the situation and to deduce its implication for the present system of education. In fact, there is no phased activity about historical research in a clear cut sense. Once the first round of data collection is over, the interaction between writing interpretations, selection of additional data, and subsequent interpretations continue till a satisfactory answer is reached by the researcher. The final touch is given to the study by way of preparing a systematic and comprehensive report. It is not only the data which is significant in such studies, but also the ideas and insights of the researcher, especially the interaction which he/she develops between the data and the ideas that are brought in to explain those data.

Check Your Progress 4

Identify a topic of study pertaining to the history of a distance education institution you know about, and state the main steps in conducting historical research.

Notes: (a) Space is given below for your answers.

(b) Compare your answer with the one given at the end of this Unit.

2.4 LET US SUM UP

In this Unit, we have attempted a discussion mainly about the meaning and relevance of the philosophical method of inquiry in educational research, and the different steps that need to be taken to conduct this kind of research in the area of education.

We have also discussed the significance of historical method, its application in the study of various educational problems, the collection and interpretation of data, and the main features of historical research in education.

2.5 CHECK YOUR PROGRESS: THE KEY

1. Philosophical research in education can help:
   - evolve educational systems relevant to given societies
   - shape educational processes along the lines of particular schools of thought or ideologies and
   - resolve theoretically questions related to curriculum, instructional process, educational psychology, and socio educational issues.
2. Some of the ways of handling the data in philosophical studies are as follows:
   - classify the ideas thematically
   - describe the ideas under each theme
   - compare and cross examine them for interpretation
   - use the data to justify various parameters developed by you (as a researcher)
   - synthesize the ideas.
3. An historical study of any educational system helps us understand the historical context in which the growth and the development of that system has taken place. Such an understanding further helps us predict the future of the system. It also helps those involved in planning new systems of education and in formulating new educational policies.
4. The main steps are:
   i) Identifying the Problem
   ii) Specification of the Population
   iii) Data Collection
   iv) Organisation of Data
   v) Interpretation of Data and Report Writing

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UNIT 3 NATURALISTIC INQUIRY AND CASE STUDY

Structure

3.0 INTRODUCTION

This Unit is in continuation to the methods of educational research introduced in Unit 2 of this Block. We'll take up two more methods of research in this Unit — **Naturalistic Method and Case Study**. Naturalistic Inquiry is of relatively recent origin in the field of educational research. As the very expression denotes, investigations concerning social and educational phenomena conducted in natural settings are called naturalistic studies deriving its basis from case studies. Mostly, naturalistic inquiry is identified with the concept of field studies in the areas of 'Anthropology' and 'Sociology'. It has a unique place in research methods in social sciences. It is increasingly attracted attention of educational researchers for certain special features and advantages.

It would be interesting to explore use of Naturalistic Inquiry techniques to bring out the specialties and nuances of open and distance education system in natural setting, e.g. courseware development, programme delivery, learning styles and settings of distance learners.

'Case study' can be defined as an intensive investigation of a particular subject – organizations, processes, etc. in a given situation. The unit of investigation may be an individual or a group of individuals, educational or social institutions, a community or a culture. Applied to open and distance education, case studies can be conducted on distance learners, distance learning institutions or its sub-system like regional centre or a study centre, process like curriculum development, material production, instructional system design and implementation, etc.

We shall look into both Naturalistic Inquiry and Case Study in some detail in this Unit.

3.1 OBJECTIVES

On the completion of this Unit, you should be able to:

- Explain the meaning of Naturalistic Inquiry,
- List the steps in conducting Naturalistic Inquiry,
- Explain the issues of trustworthiness and objectivity in Naturalistic Inquiry,
- Describe the characteristics of the Case Study method of research, and
- Explain the various steps in conducting a Case Study.

3.2 NATURALISTIC INQUIRY

Emergence of Naturalistic Inquiry from the broad framework of 'Case Studies' was sparked off with some kind of ethical issue. Case studies, in conventional format and practice is often biased and subjective. Investigator presents a case the way he/she saw the event, individual, organization, and not necessarily the way event or the individual or the institution is. What the investigator presents is coloured by his/her 'world view' – the way he/she interprets the world. Thereby, the reader of case studies are obliged to see an event the way the investigator wants them to see and believe. A group of scholars proposed an alternative ethical framework where reader will have the freedom to interpret an event or an individual, or an organization. For example, when a case study describes the way the investigator sees a person leading to conclusions like handsome or ugly or good or bad, short or tall, etc. A photograph or a video of the same person will allow the viewers to take their own call. Same person will appear to be handsome to some, but not so to some others. Again, the same person is now being seen through the world view of the viewers. Job of Naturalistic Inquiry is to capture the person in a variety of natural settings.

According to Lincoln (www.blackwellreference.com/public/toc) " Naturalistic inquiry is a label given to certain forms of phenomenological inquiry, including some qualitative research, much interpretive research, and many other forms of non-experimental and non-positivist inquiry, which relies heavily on the assumption that sense making or meaning-making activities constitute forms of reality[ies] as meaningful, or more

meaningful, to study the physical realities when dealing with human research. While positivist and experimental forms of inquiry rely heavily on factors which can be weighed, measured, assessed, or otherwise quantified, naturalistic inquiry – or constructivist inquiry, as it is more accurately labeled today – balances the inquiry focus by moving beyond tangible or measurable variables to focus on the social constructions of research participants".

Similarly, compared to the scientific enquiry, supposedly hall mark of experimental research, Naturalistic Inquiry follows an altogether different conceptual framework which takes into account the following factors:

i) Multiple Realities: First, naturalists assume that there exist multiple realities in social and educational situations which exist in concrete forms. They are perceived by people differently and thus become different mental constructs for different people. In other words, realities are taken to be what people perceive them at a particular point of time. Since social and educational situations keep on changing from time to time, the realities, too, keep on changing. Furthermore, since the realities are context specific, they cannot be tangible in a generalized form.

ii) Meanings and Interpretations: Naturalists emphasise study of meanings given to or interpretations made about objects, events and processes concerning educational situations. To them, changes in terms of social and behavioural phenomena cannot be identified with the concept of physical movements but by external observation alone. An understanding of human behaviour or a social phenomenon involves understanding of how humans see what they are doing or participating in an activity.

iii) Generation of Knowledge: Naturalistic inquiry insists on generation of knowledge resulting from the interaction between the inquirer and the respondents. The respondents answer the questions put by the inquirer in terms of their perception or the meanings they attach to their actions.

Moreover, interactions take place between the inquirer and his/her respondents to achieve maximum levels of responsiveness and insights concerning the problem under investigation.

iv) Generalisation: As stated above, naturalists do not believe in the process of generalisation as propounded by scientists. Naturalists argue that in the process of making generalisation, a lot of meaningful information existing in individual units is undermined; hence, generalised knowledge does not represent real knowledge. For them, the process of knowledge generation must take into account the differences or the real evidence existing in specific situations. That is why; they take into account extreme cases while collecting data. In other words, the highest scores and the lowest scores in achievement in a distance education course are more helpful for them in identifying the problem of distance learners.

v) Human Relations: In the case of human relations several intrinsic factors, events and processes keep on influencing each other constantly. Therefore, it is not possible to identify one-to-one cause and effect relationships in this case of naturalistic studies. To naturalists causality in social sciences cannot be demonstrated in the 'hard' sense as it

is done in the case of physical sciences. Rather, only patterns of plausible influences can be inferred from social and behavioural studies.

vi) Value Systems: Naturalists do not believe in value free inquiry. They assume the influence of value systems in the identification of problems, selection of samples, use of tools for data collection, the conditions in which data are gathered, and the possible interaction that takes place between the inquirer and the respondents. That is why naturalists stress that the researcher's bias cannot be ignored and it must be mentioned in research reports.

3.2.1 Procedural Uniqueness of Naturalistic Method

From the procedural viewpoint, the following need to be highlighted:

i) Holistic approach: Naturalists intend to develop a deeper understanding of a given situation in a holistic fashion. In other words, all possible information concerning all the significant dimensions of the situation under study is gathered with a view to portray the situations in their totality. For example, stagnation in distance education cannot be studied in a partial fashion. It has to be studied in a holistic manner taking into account the composite influence of all the socio-economic and cultural factors.

ii) Insightful inquiry: Naturalists emphasise insightful inquiry, where humans are treated as the sole means of data collection. Qualitative methods like participant observation, informal interviews and discussions, reading of relevant literature, and daily observation notes and diary writing are very often used for fieldwork. However, the use of quantitative techniques like test administration and questionnaire survey are not totally ruled out in the process of data collection under this approach.

iii) No a-priori theory: A researcher goes to the field for data collection without having any a priori (pre-specific) theory in mind. Naturalists apprehend that an a priori restricts the inquiry to those elements which may have been significant prior to developing an understanding of the situation. It blocks the process of holistic inquiry. The naturalist investigator develops theoretical propositions only after interacting with the field. However, it is pointed out by naturalists that there is no insistence on developing theories afresh in each and every inquiry. Experience-based theories in relation to specific situations may act as preliminary guidelines for many naturalistic investigations.

iv) No pre-specific design of study: Prior to fieldwork, naturalists do not make explicit statements on the hypotheses and the conditions in which data are to be collected, analysed and interpreted. The researcher develops only a broad outline of the study in advance. As the inquiry progresses, appropriate design emerges in the field; hypotheses, mostly in the question form are developed therein; final decisions are taken about the sample respondents/situations during the fieldwork; experiences gathered through personal insights, intuition, personal images and apprehensions are recast into appropriate propositions during the period of data collection; and appropriate procedures for analyses are adopted to study the pattern of relationships on the basis of the specific data collected.

v) Naturalistic setting: As stated earlier, naturalists believe in conducting studies in realistic settings. To them, reality cannot be studied in fragmented and controlled situations. They intend to unfold what happens in realistic situations, i.e., a classroom, during contact classes, or any teaching/learning situation rather than studying what can happen in controlled situations.

Check Your Progress 1

List the six aspects of the conceptual framework of naturalistic inquiry. Also describe briefly the procedural uniqueness of the naturalistic method.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

3.2.2 Naturalistic Method: Main Steps

Different opinions have been expressed by naturalists about the procedural details of naturalistic studies. On the one hand the radical naturalists believe in non-specification of the processes of conducting a study. They take fieldwork as an almost mystical process which is non-teachable. Accordingly, an investigator can start his/her fieldwork after learning about the relevant substantive theory or theories and reviewing the empirical results of some field studies related with it.

On the other hand, most experts recommend fieldwork to be made as deliberative as possible, retaining the naturalistic status of the study as a whole. This is to smoothen the processes of the conduct of the study. As stated by Erickson (1986), "Preconceptions and

guiding questions can be developed beforehand. But the researcher should not presume to know at the very outset, where specifically the initial questions might lead next".

The steps can be organised in the following sequence:

i) Identification of broader questions of inquiry: First, the researcher is supposed to specify the pertinent issues or questions related to educational settings which can be resolved or answered through field study. The main focus of the researcher should be on the specific structure of occurrences rather than general character of any educational phenomenon. The issues can be directly linked with improvement of educational practices in specific situations. Questions can be raised not only to study the events or facts but also to identify the perspectives of the individuals involved in particular events or processes. As stated earlier, emphasis should be laid on identifying perceptions of individuals regarding their own decisions or contributions to the occurrence of events or processes. The motto of the educational researcher should be to understand the realities by identifying satisfactory patterns in the actions of individuals participating in educational activities. For instance, in teaching/ learning situations, broader questions can be raised, such as, if relationships between tutors and learners are fully interactional, how do learners give feedback to tutors, or how do learner activities influence tutor productivity or how do the tutors and learners create a learning atmosphere where most of the learners appear to learn?

The above questions guide the preliminary fieldwork and generate further questions in a given context in the course of inquiry. Besides identifying the broad framework of questions, we must prepare a general outline of the sample population to be contacted or situations to be observed in particular contexts, and draw a sketch of the types of instruments or techniques to be employed for data collection.

ii) Collection of the initial level data: Once we identify the broad questions for the investigation, we may make deliberate attempts to identify a full range of variations in the social and the organisational arrangements related to the situations/problems under study. We may start the inquiry in a broader context of the situation before proceeding to investigate specific occurrences of events in an educational set up like a college, or an open university, or a curricular programme. For instance, prior to starting an in-depth inquiry of a distance education institution, we may gather evidence on external social surroundings where the institution functions. This may require us to do an extensive exercise of data collection. After this, we concentrate on in-depth observations or interaction with the situation which is being studied.

iii) Procedures for the collection of data: Data collection can be carried out in different phases. Participant observation is one major possibility. You may be introduced as one of the internal members/participants of the educational set-up under study. It may be possible that real participants of the system like tutors, learners the head of the institution, or the member of the governing body can act as observers for conducting the study. We can collect data through all the relevant and available sources and means such as:

a) Study of available literature, records and documents, diaries, pictures, photographs, teaching-learning materials and aids,
b) Interactions and interviews with the persons concerned with the programme under study, and

c) Direct observation of and experiences regarding the programmes/ situations.

You, as a field worker, would make use of purposive sampling of significant situations or behaviours you want to study, as well as the persons you want to interact with. Flexible approaches are followed in the field to identify

a) the situations where participation can take place more intensely,
b) the persons with whom intensive interaction is required, and
c) the people with whom casual dialogue is needed.

As stated earlier, even though a broad framework of sampling is chalked out prior to data collection, this should remain flexible. Depending upon the requirement and progress of the Inquiry, new samples may have to be added, and earlier decisions of inclusion of some in the sample may have to be modified; the actual process of sampling takes place during field work.

iv) Devices of data collection: You can use different devices for data collection, such as taking notes about an observed situation, using electronic appliances like digital voice recording systems, video or still cameras, taking photographs and collecting relevant documents and literature on the problem. Planned informal interviews/dialogues with different groups of respondents can be conducted and their opinions and perceptions can be recorded either during the time of the interview or immediately after the interview. Daily diaries pertaining to the experiences of the fieldwork also need to be maintained.

You have to maintain separate records regarding (a) what you observe in the situations (b) perception of respondents about the problems/events, and (c) your own perceptions about the persons and their involvement in the issue or programme under study.

Since there is no hypothesis prior to data collection, data are not manipulated directly to test the hypotheses. However, through scrutiny of daily observation records and evidence gathered, you would identify the emerging themes and patterns, phrases, actions, action sequences, expressed thoughts, feelings, etc. This process helps you identify further the meaningful situations to be studied and also the ways in which the complete information can be collected.

As mentioned earlier, fieldwork can be conducted in different rounds. At the end of the first round of intensive fieldwork, you may analyse the data qualitatively, refine the previous questions, and arrive at new specific questions for further verification. This is the stage where you can generate certain context specific hypotheses for minute observation. Moreover, at this stage, your focus is on a more restrictive range of events within the setting, and you begin to look for possible connections or influences between the setting and its surrounding environment. Again, you return to the field with pinpointed questions/hypotheses. Since the scope of inquiry is sharpened at this stage, indepth interaction concerning the pinpointed questions takes place conveniently. It should be noted that in the final stages of fieldwork, the focus becomes more and more specific along with the development of the working hypotheses.

v) Data analysis: In naturalistic studies, data are analysed descriptively. The synoptic

views of descriptive data are referred for interpretation. More specifically, the frequency data are presented in two or three way contingency tables indicating the patterns of behaviour. Occasionally, we use non-parametric statistical techniques (you will read about it in Block 4 Unit 2) like a chi-square test, Man-Whitney two tailed tests or rank-order correlation techniques for the identification of certain patterns of relationships in the context of the specific situation under study. A sound naturalistic study follows a cyclic process of data collection, generation of hypotheses, examination of data, further generation and/or modification of hypotheses, further data collection and verification till specific research questions are identified and the patterns of refined relationships are arrived at. Moreover, the final level analysis of data can provide a ground for identification of specific suggestions for improvement of the system.

Let us do the following exercise before you proceed to highlight the issues and problems related to Naturalistic Inquiry.

Check Your Progress 2

In the process of conducting Naturalistic Inquiry, what is the major focus of study; and how does a researcher conduct a Naturalistic Inquiry? Answer briefly in about 50 words.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

3.2.3 Trustworthiness and Objectivity in Naturalistic Studies

Trustworthiness of findings: There have been attacks on naturalists on the issue of the trustworthiness in their process of inquiry. It is said that qualitative

approaches may bring subjectivity into the inquiry, and the biases of the inquirer may not produce authentic information for others. Moreover, because of subjective interaction, valid knowledge may not be generated. Naturalists have reacted to these objections with force and conviction.

In the recent past, there have been efforts to fix certain standards to check the trustworthiness of naturalistic inquiry. The criteria are outlined as follows:

i) **Credibility** pertains to the level of agreement between researchers' data and interpretations, and the multiple realities that exist in the minds of respondents.

ii) **Transferability** is the quality that makes it possible to derive the accurate meaning of information on interpretation available in specific contexts.

iii) **Dependability** is essentially the stability of information sought and interpretation derived in different situations on a specific issue.

iv) **Conformability** refers to the possibility of studying the collected objective/ systematic information and reaching similar/same conclusions by different researchers.

The naturalistic approaches are guided by the following principles to enhance the credibility, transferability, dependability and conformability of the studies they lead to. The principles are:

a) Prolonged fieldwork can enable one to overcome a variety of possible biases and wrong perceptions which may appear in one short trip. Moreover, it can help us to identify the salient characteristics of the problem/programme under study.

b) Persistent observation of certain typical meaningful features can increase the credibility of the study.

c) Interaction with colleagues helps us evolve suitable designs, share the inquirer's anxieties, apprehensions and feelings concerning fieldwork and share with them the growing insights in the field.

d) A variety of data sources using different investigators with different perspectives can project a more consolidated picture of the field and can enhance the dependability and conformability of the data.

e) Study of the varieties of adequate reference materials like documents, pictures, films, video tapes and audio recordings are essential for increasing trustworthiness of data.

f) Using a variety of methods for data collection can increase conformability and dependability of the data.

g) Cross-checking of data and interpretations by some of the respondents can enhance internal validity of the study. This is a very special feature of Naturalistic Inquiry where respondents are consulted on the authenticity of both data, information and their interpretation. That makes it not only participative, but also ethical.

h) Increasing purposive sampling to collect different instances across a wide range of events can be useful in maximising the range of information and increasing external validity of information.

i) Substantive description of events in specific contexts can be useful in establishing the reliability and dependability of information and conclusion.

The above checks may not guarantee full objectivity, but can reduce personal biases of investigator and can generate a convincing situation regarding the meaningfulness of the study. Unlike a long history of scientific inquiry which has established clear-cut standards for its trustworthiness, naturalistic inquiry has a very recent origin, and is yet to evolve suitable checks to enhance its trustworthiness and authenticity.

Problems of observation: The strength of naturalistic inquiry lies more in the competence of the field worker than the tools, techniques, and designs of data collection. There are several issues pertaining to the experience and expertise of the fieldworker, such as his/her relationship with the group being studied, the ethics involved in the processes of intensive data collection etc. We shall now touch upon some of these issues briefly as follows:

a) First, it is necessary that only an inquirer with a clear understanding of the problem should take up the task of conducting a naturalistic study. Since the meaningfulness of the conduct of the study depends entirely on human approach, it is very important to see 'who' conducts the study and 'how' he/she proceeds with the study.

b) There have been some problems in situations in which an outside inquirer acts as a participant observer. In such cases, there is an apprehension that a stranger who is accepted as an observer may be deliberately informed and invited to observe just because he/she is a stranger. Strangers may notice events that contrast with their expectations. They may affect the behaviour of the group through their influence while assessing the group. The personality traits of the observers and the situations to be studied are the major factors in developing a close affinity between the scholar and the field and making him/her comfortable with the situations.

c) The inside observer, i.e., a person from within the institution who now acts as an observer, may face major problems in the process of data collection. The group member who acts as an observer may confuse his/her role as an observer with that of a group member. He/she may get a biased picture about his/her group or the institution because of his/her personal/emotional involvement with the group. Then, there are ethical constraints too; they chiefly pertain to the confidentiality required within the group. For example, he/she may be denied access to certain situations or documents because he/she is one of the members of the group.

To sum up, the investigator needs a great deal of self awareness and a thorough understanding of the group processes to make the process of naturalistic inquiry meaningful. Most importantly, the investigator must not have any personal agenda or a-priori assumptions.

Check Your Progress 3

Notes: (a) Space is given below for your answers.
(b) Compare your answers with the ones given at the end of thisUnit.

1) State briefly, what measures you have to follow to ensure authenticity of data in naturalistic studies.

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2) What kinds of problem do you anticipate if you are to act a) as an internal observer to observe some of the activities of the institution where you work, and (b) to observe the activities of an outside institution as a participant observer?

Situation a)

Situation b)

3.3 CASE STUDY METHOD

Case study has been so far the most popular methodology in open and distance education. Very large number of researchers (Reddy and Manjulika) and international distance education organizations (Open Schooling: Selected Experiences edited by Mukhopadhyay and Phillips 1994) have successfully adopted to document the state of the art of open and distance education in different countries and universities.
Case study is used extensively in education, business management and other social

sciences. Case studies are essentially in-depth investigation of an individual, a group, an institution, a process or an event. 'Rather than using samples and following a rigid protocol (strict set of rules) to examine limited number of variables, case study methods involve an in-depth, longitudinal (over a long period of time) examination of a single instance or event: a **case**. They provide a systematic way of looking at events, collecting data, analyzing information, and reporting the results. As a result the researcher may gain a sharpened understanding of why the instance happened as it did, and what might become important to look at more extensively in future research. Case studies lend themselves to both generating and testing hypotheses'. (http://en.wikipedia.org/wiki/Case_study as on 27.3.2011).

Further, 'Case studies may be descriptive or explanatory. The latter type is used to explore causation in order to find underlying principles.They may be prospective, in which criteria are established and cases fitting the criteria are included as they become available, or retrospective, in which criteria are established for selecting cases from historical records for inclusion in the study.

Case study research may include both single and multiple case studies. Many researchers use multiple case analysis technique to derive lessons from across the case studies. A distinguished example in the field of Open and Distance Education is the book, ***Leadership for 21st Century Learning edited by Colin Latchem and Donald Hanna.***

Again, case study 'can include quantitative evidence, relies on multiple sources of evidence and benefits from the prior development of theoretical propositions. Case studies should not be confused with qualitative research and they can be based on any mix of quantitative and qualitative evidence. Single Subject Research (http://en.wikipedia.org/wiki/Single-subject_research) provides the statistical framework for making inferences from quantitative case-study data.

In the case of studies on communities, a village, a tribe, a slum area or a culture, each can be considered a unit of investigation. Whatever is the unit of a case study, it is treated as a whole in the context of specific situations. The wholeness is determined through an abstraction of ideas. In one case, an individual's specific behaviour may be perceived as a totality; in another case, a situation consisting of group activities may be treated as a whole. Especially, in educational situations, the units under investigation could be a whole instructional programme, a micro-instructional system, instructional development in a group setting' or in an 'individual setting', allowing the possibility of using a single method or integration of a number of methods.

3.3.1 Purposes of Case Studies

Usually, case studies are conducted for developing a deeper understanding about intricate relationships existing in the process - aspects of specific unit/units through qualitative investigations. In this context, the case study method is not very different from the approaches of naturalists. So, many a time, the case study method is treated as a kind of naturalistic inquiry. For example, the functional aspects of any normal or exceptional institution may be the focus of a case study or any other approach used by the naturalists.

Case studies are conducted with a clinical purpose. They are treated as diagnostic and prognostic measures for clients' treatment. This approach has a psycho-therapeutic background. In educational research, case studies are conducted for resolving different problems and bringing about improvement in institutions facing such problems.

There can be case studies of biographical type which aim at giving an account of an individual or tracing the development of an institution, or an educational programme through longitudinal and prolonged investigation.

3.3.2 Characteristics of Case Study Method

The procedural aspects of a full-fledged case study display certain specific characteristics, viz. continuity in investigation, completeness, authenticity of data, confidential recording, and intellectual synthesis. We shall explain each one of them briefly as follows:

(**i) Continuity in investigation:** Continuous and prolonged enquiry about the situations is necessary till the underlying factors are explored and plausible patterns of their interaction\relationship identified. For example, the problems underlying the student support services cannot be explored in one go. A researcher may have to undertake prolonged inquiries.

(ii) Completeness: A sound case study involves extensive collection of data concerning internal as well as external environment of the unit under study. Data collection continues till the completeness of data is ensured and a complete picture of the unit emerges.

(iii) Authenticity of data: A report of the case study must be based on meaningful, reliable and valid information regarding the case. Several qualitative and quantitative techniques such as interviews, observations, record surveys and administration of test questionnaires find their appropriate application in case studies. Use of multi-techniques approach to data collection and cross -examination of data through different techniques can take care of the authenticity of data. In a case study on learner support services, the problems faced by learners will have to be cross-checked with the functionaries in the system, as well as with the existing records.

Moreover, since the researcher interacts with the typical situations personally, most of the ethical issues regarding the nature of data, the sample situations, or sample respondents, the nature of interactions etc., emerge during the investigation. These issues need to be dealt with care to make the case study ethically meaningful.

(iv) Confidential recording: The necessary data, involving personal and ethical issues like relationships of teachers and pupils with the management, discipline, confidential records, documents about the institution etc., must be handled tactfully and every care must be taken to maintain their secrecy.

(v) Intellectual synthesis: Since a case study involves multi-method inquiry and deals with all significant situations concerning the unit, appropriate synthesis of the data is necessary to depict the uniqueness of the unit and to explore significant relationships. A skilled investigator with theoretical sophistication, insightfulness and writing skills can do justice and prepare a sound case study.

3.3.3 Case Studies in Education

The case study method has a long history in the field of educational research and there are enough instances of case studies on educational matters. It serves, as mentioned earlier, at least two purposes, namely documenting state of the art of an institution, a programme, an event; and diagnosing strengths and weaknesses of the institution, programmes, events, etc. There are case studies on open and distance education institutions as a whole; there are also studies on specific departments and activities of open and distance education like student services, personal contact programmes, curriculum design, quality assurance, etc. As a whole, the understanding of normal cases along with that of exceptional cases can contribute towards generating general reformative schemes to improve educational processes.

Although 'clinical purposes' are often flagged in dealing with case studies, almost all documents on 'Best Practices' in education are case studies.

3.3.4 Case Study: Main Steps

Naturalistic Inquiry as mentioned earlier owes its origin to case study methodology. Therefore, the case study method follows the same steps as are followed in the case of naturalistic inquiry. However, the following six steps are very significant.

(i) Selection of a case for investigation: The first step in any case study is the identification and selection of a case for investigation. It mostly depends on the basic questions of the researcher, such as: 'am I interested in the study of a normal situation with a view to developing deeper insight in the phenomenon? Or am I interested in diagnosing the problems of a typical institution? Or am I assigned the job of evaluating the functioning of an institution? Or am I interested in identifying the underlying factors contributing to the excellent performance of an institution? Once the case is identified, then one needs to determine the status of the case. For this, several pieces of preliminary information are collected about the background of the case through the already available sources. At this stage, the initial exercise in setting the course of research is done; it comprises the following:

- demarcation of the relevant aspects of the case to be investigated;
- preparation of a broad outline of the study of sample situations, and
- preparation of the appropriate tools for collecting the 'benchmark' data about all the pertinent aspects of the case under study.

Answers to these questions would tell us whether you have identified the 'case' properly or not.

(ii) Research tools and instruments: Once the case has been identified, you must define the scope of the case study – what all aspects are you going to study of the institution, or an event or a particular function of the open and distance education? Your choice of selection of tools will be guided by the various aspects (variables) you are going to study. Case study methodology uses both quantitative as well as qualitative data. Hence, you may have to select among available, or develop your

own, standardized tests and inventories, questionnaires, interview schedule, observations schedule, data blanks, etc.

(iii) Data collection: Now we move on to the stage of data collection. In the process of collecting benchmark data about the case, you may make use of both qualitative as well as quantitative techniques like observations, interviews, check lists, proforma, open-ended questionnaires, record surveys, psychological tests, etc. Every care must be taken to use the tools specifically relevant for the case. In most cases, the first round exploratory work is done through personal interaction with the situation under study.

(iv) Analysis of first round data: Through systematic analysis of the first round data, we can identify the more complicated situations or problems, and raise pertinent questions about the influential factors. In the case of clinical investigations, you can state various hypotheses about the solutions to the problems.

(v) Second round investigation: The second round investigation is conducted for only those specific questions or factors which are identified through the analysis of the first round data. Intensive investigations about these specific issues/problems are conducted through prolonged observations, informal and formal interviews, questionnaires, cross-examination of different documents and records, administration of specific tests, etc. At the end of this second round of data collection, analysis and interpretation of data begin. However, during the interpretation of the data, if some more evidence is needed you may go for another round of data collection. Actually, in a case study, the process of data collection, its analysis and interpretation go on in a cyclical order till satisfactory answers to the questions arising in the course of investigation are found and a clear cut picture of the case emerges through investigation. Most case studies aiming at understanding the dynamics of an educational/social unit stop at this stage.

(**vi) Introduction of alternative measures:** In the case of clinical studies, the most suitable alternatives as hypothesised through investigations are introduced at the sixth stage. For example, after a case study on the student support services of a distance education institution, problems may be identified and suggestions for improvement made. These remedial measures may be tried out and their effect observed with respect to improvement in student support services.

(vii) Follow-up activities: Investigations should be made regarding the effectiveness of the alternative measures introduced. Such investigations give us feedback on the strengths and weaknesses of the corrective measures. If you find them to be less effective, you should conduct further studies to arrive at some 'newer' remedial measures and apply them to the case.

Check Your Progress 4

Suppose you select Indira Gandhi National Open University for your case study or any other Institution from your country. Specify the broader components of the unit to be studied and list the different techniques to be used for data collection.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

3.3.5 Scientific Nature of Case Study Method

There have been criticisms against the case study method for lack of scientific approach. One criticism is that the case study method is useful in the exploration of knowledge related to a single unit, but it does not have scope to test hypotheses or confirm any evidence.

However, this limitation of the case study method, cannot undermine its meaningfulness in the process of generating knowledge. Even though the case study method is viewed as a kind of naturalistic inquiry, this method accommodates the process of hypothesising in a manner different from that of the survey and the experimental methods.

(i) Generating hypothesis in the case study method: Hypotheses in the case study method are generally found in the form of questions or statements related to the various aspects of the educational process which are tested or confirmed more qualitatively in the given context of investigation. As stated earlier, while conducting a preliminary study on the unit, we may start with certain broad questions since we have limited experience of the case. Further, in the process of interaction with different educational situations, several statements may be generated for further verifications.

For instance, in an investigation of the counseling session in distance education, you may start with broad questions such as: what is the pattern of interaction between the counselor and the distance learner; and "how is it related to students' achievement?" While observing the pattern, you may witness a high degree of reluctance and lack of application on the part of the counselor, and also poor learner attendance. This could induce you to think further regarding the factors related to the student attendance and reluctance of the counselor in the specific case leading to further questions.

(ii) Testing hypotheses in the case study method: Testing hypotheses in case studies generally follow the qualitative approach, viz., the researcher's insight into and impressionistic views about the process under investigation. However, the data processed in quantitative terms can be integrated with qualitative treatment for developing a holistic perspective regarding the case.

(iii) Generalisation of case study findings: Contributions of the case study method to the process of evidence-generalisation depend on several considerations, viz., the nature of the case under study, the theoretical framework generated, and the extent of objectivity possible. An investigator approaching a case would primarily have the purpose of understanding that particular case in its entirety and, hence, he/she may not be concerned with extending his/her understanding to other cases. However, such an understanding may take the form of further hypotheses which could be tested through other investigations.

There are possibilities of considering the findings of a case which may be significantly similar to another case studied at a later stage. There are situations where studies of different cases can be useful in developing a new trend. For example, Colin Latchem and Donald Hanna's work mentioned earlier have generated some meaningful 'generalisation' on leadership in open and distance education.

Although contribution of the case study to the generalisation of findings seems to be neglected, if not limited, its potential in contributing to theorization cannot be ignored by any insightful researcher.

The issues concerning the objectivity and trustworthiness of the case study method are similar to those of the naturalistic method already discussed in the preceding section.

Check Your Progress 5

Explain briefly in about 50 words the contribution of a case study to the process of generating hypotheses and theories.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

3.4 LET US SUM UP

In this Unit, we have discussed Naturalistic Inquiry and Case Study methods of research. We have focused on the meaning and significance of these methods, their uses in the educational field, steps in conducting studies in each method, and problems and issues raised about them.

- With regard to generating knowledge in context specific situations, Naturalistic Inquiry makes unique contributions in the field of research in social sciences. It uses the researcher's impressionistic views as the main source of knowledge.
- Case study method aims at developing deeper understanding about a case, an institution, a programme or an individual in ways not very different from those used in naturalistic inquiry. A well organised case study can generate meaningful hypotheses for further research through prolonged interaction with the case, use of multi-method investigations and cross-examination of data.

3.5 CHECK YOUR PROGRESS: THE KEY

1) The six aspects of the conceptual framework of naturalistic inquiry are:

i) multiple realities, (ii) meanings and interpretations, (iii) generation of knowledge, (iv) generalisation, (v) human relations and (vi) value systems.

The uniqueness of naturalistic method is to be seen in its holistic approach, — insightful inquiry and its opposition to a priori theories and pre-specific design of study.

2) The major focus of naturalistic inquiry is an understanding the interrelationships of influential factors in a time and context that would reveal the nature of specific and concrete reality. Naturalistic inquiry requires the researcher to interact with the field through participant observation, formulate specific questions in the course of such interaction and continue the inquiry in the field till a clear pattern of relationships is identified and the real nature of events understood.

3) (i) Continuous and prolonged field work, interaction with colleagues, variety of the sources of data and use of multi-methods/techniques, cross - checking of data, increasing sample situations, and substantive description of data can enhance the authenticity of data in naturalistic studies.

(ii) a) Ethical problems, emotional attachment with the field and lack of seriousness in participants' responses.
b) Exaggeration of facts by respondents, and influence of prejudices/biases in assessing the group situations.

4) The following could be the components: the courses offered, students, process of course development, distribution of courses, student support services, evaluation processes, and management of physical and human resources. In this case, both qualitative and quantitative techniques such as, record surveys, interviews, observations, questionnaire - based surveys and achievement tests could be used to collect data.

5) Interaction with situations and analysis of first round data may lead to the identification of questions of causal type. Findings of case studies may be used as hypotheses for further studies, and also extended to cases of similar nature. Generalizations' could be made on the bases of the findings from a number of cases studied in a broader context.

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UNIT 4 DESCRIPTIVE, EXPERIMENTAL AND ACTION RESEARCH

Structure

4.0 INTRODUCTION

As we mentioned earlier, there is a large variety of research methods. Our choice of the 'method' is determined by the features of the research problem and also the field of inquiry. Units 2 in this Block dealt with 'Historical Method' and , 'Philosophical Method'; Unit 3 dealt with 'Naturalistic Inquiry' and "Case Study". Most of these designs are used to investigate into the past – something that has already happened. This Unit deals with methods of research in the present – what is the status of a thing now; and in future – what will happen, if ….. In this unit, we shall discuss three more important research methods, viz., **Descriptive Method,** the **Experimental Method** and **Action Research**.

4.1 OBJECTIVES

After the completion of this Unit you should be able to:

- Describe the steps involved in descriptive research,
- Explain the characteristics and also differentiate among a few types of descriptive research such as survey research, documentary analysis, correlational studies and causal-comparative studies,
- Describe the steps involved in experimental research,
- Identify and explain a few designs for experimental studies,
- Choose appropriate research design for experimental research;
- Describe Action Research and its various stages, and
- Compare Action Research with Applied Research.

4.2 DESCRIPTIVE RESEARCH

The term 'Descriptive' is self-explanatory; research that describes a situation, an event, an institution is descriptive research. It describes the nature of a situation as it exists at the time of study. Wikipedia (http://en.wikipedia.org/wiki/Descriptive_research) notes, '**Descriptive research**, also known as statistical **research**, describes data and characteristics about the population or phenomenon being studied". Descriptive research answers the questions *who*, *what*, *where*, *when* and *how*..... National Sample Surveys (NSS) and Census are descriptive research known to all of you. Census unveils what exists, but not necessarily known by us with accuracy. We know population is growing, but not the exact size of the Indian population; we knew literacy in India is growing, but Census provided you exact information on literacy and also differences in the rate of literacy among men and women and in different states.

You can apply descriptive research in distance education to ascertain the status of certain situation, people, programme, etc. For example, 'Study of socio-economic status of distance education students in India' describes the gender composition, economic or earning status of students, rural-urban composition, etc. The findings (description) of one such study, say in 2005, can be different than what one would find in a similar study in 2012. The aim of descriptive research is to describe "what exists" with respect to variables or conditions in a situation.

There can also be studies depicting relationships between two or more variables. For example, when you study the problem of relationship between age of distance learners and their performance in university examination, you describe a relationship. Although your focus is on relationship between age and performance in university examination, you can describe the relationships with respect to male and female students, rural and urban students, employed and non-employed students, etc.

In yet another type of descriptive research, you may go little beyond and study the cause and effect relationships among variables. You may try to find out the causes of

drop out among the distance education students; or study the causes of difference in drop out among distance learners in management and computer science courses than other postgraduate courses offered through distance education.

4.2.1 Descriptive Research: Main Steps

For ensuring dependability, you must follow certain specific steps in conducting a descriptive research. Let us examine each step carefully.

Select and state a research problem

You can find innumerable research problems in the field of open and distance education. Obviously, you cannot study all the problems. It is, hence, extremely important to select a research area that can make meaningful contribution to the understanding of the state of the art in open and distance education in the concerned area for alleviating problematic situation and improve it further. Also, you must consider feasibility of conducting a research study given the time, resources and your own capabilities. For example, you would have read in the newspapers that for the Census 2011, several million people are involved; several million tons of papers were consumed, and so on. The cardinal principle is to choose a research problem that is not too small to be insignificant but not too big to be impossible.

The choice of research problem can be significantly facilitated by a careful examination of the situation occurring in the field through study of documents, consulting others familiar with the situation, consulting research studies carried out in the field earlier and relevant to the area of the problem you plan to study; examine review of research carried out by scholars, and your own perceived concern. Remember, you must document your findings and understanding of the situation based on these exercises. These will help you to figure out availability of existing knowledge in the field, the contradictions as well as the gaps that exist in the knowledge in the concerned area of your interest. Usually, choice of a research problem is guided by either contradictions or gaps – where there is no research.

Next step is to define and state a research problem. The statement should be self-explanatory at the same time precise. For example, a statement like, 'a study of socio-economic status of distance education students in India' is both short and specific. It specifies the scope of the study, namely socio-economic status, distance education students as the Sample, and India as the geographical spread. Before you formulate your research problem, you'll be better advised to examine statement of research problem from the journals and reports documenting research in distance education.

State research objectives

Stating research problem is the first level of specification. Statement of research objectives is the second but very important stage of specification. In this section, you state objectives with respect to each of the major variables, descriptive relationships, and causal relationships to be covered by your study.

Formulate hypotheses

Third stage is formulating research hypotheses. Please remember, research hypotheses facilitates conducting research by testing the hypotheses; but need not be a necessary component of all research problems. Formulation of hypotheses must be based on scientific assumptions based on valid data and information.

Define variables

In descriptive research, as much as any scientific research in social and behavioural sciences, defining variables occupies a very important space. There are two issues here. First is the choice of variables that you want to include in your study. Let us refer back to our example of study of social economic status of distance education students in India. There can be very large variables in 'socio-economic statuses". You need to choose only such variables that will contribute to better understanding of the situation with respect to students in distance education. Second is defining the variables; sometimes you may need to define in the context of the study, called operational definition. For example, economic status may mean employment status, monthly earning of the learner, monthly earning of the family, per capita expenditure on the family, etc. Since you may not be able to accommodate all the different parameters of the variable, 'economic status', you may have to create your own operational definition to describe the meaning of economic status specifically to your study.

Define sample

In Unit 1, Block 3, we have dealt elaborately with the issue of sample in research. We will recommend you to refer back to the concerned section. Just to remind you, the larger set is the population, namely all those who are enrolled in distance education programs in India. Obviously, they are in millions; and you cannot collect data from all of them. Sample is a subset that should represent the population. In terms of feasibility, you may be able to collect data, say from 400 distance education students. These 400 students should be able to represent the few million students enrolled in open and distance education. To ensure that representativeness of the population, you need to resort to sampling techniques that have been described in the Unit in Block 3. In descriptive research, such representativeness is often established by resorting to some kind of randomization, especially stratified randomization.

Select and/or construct research instruments

Selection or construction of research instruments are directly linked to the choice and definitions of variables. Depending upon the nature of the variable, you may construct or select from an existing repertoire of questionnaires, standardized tests, inventories, data blanks, various types of scales and quasi scales, etc. Although it is desirable that every research instrument is reliable and valid, it may not be possible in all cases. For example, the questionnaire or a data blank may not necessarily be standardized and poses tested psychometric properties. But it is important to subject such instruments to field trial so that you make sure that you can depend upon the data collected through such instruments.

Collect data

There are several techniques of collecting data for descriptive research. Most common in the field of education is collecting data by personally administering the tools constructed for the study. The other alternative is to mail questionnaire or online surveys. The response rate in personally administered mechanism of data collection is high; it also assures quality. Response rate in mailed questionnaire, all over the world is very low, often below 10%. To get response from 400 distance education students, you must send research instruments to about 4000 students. Besides, it is wasteful and expensive, difficult to ensure quality; also respondent and non-respondent students may upset your sampling design. Third is the online response for data collection. Online surveys are most economical as very large number of students can respond.

Analyse data and interpret results

After data collection, data must be carefully screened, cleaned, classified, tabulated and then analyse to find the results. Depending upon the objectives and hypotheses, you may use descriptive statistics like central tendencies; or go further to use correlational statistics to describe relationships between various variables. For more details, read the Block 4 Unit 1 and 2,

You must then make an effort to interpret results – explaining the reasons for the results that you found; explaining possible reasons of relationships between various variables, various events and phenomenon. For example, if rural distance education students drop out more than their counterparts, you must put forward your assumptions and arguments – why is it so?

Write research report

Obviously, final stage in carrying out a descriptive survey is writing the research report. The research report must contain all the elements and stages mentioned above. Argument is a necessary component of research. You must argue at every stage — why did you select the problem; how did you arrive at the statement objectives and hypotheses; reasons for choosing particular set of variables and creating operational definitions; construction and choice of research instruments from an existing inventory of such instruments; choice of sample and data collection; choice of statistics for data analysis; and interpretation and conclusions arrived at from the research study.

4.2.2 Types of Descriptive Research

In this sub-section, we are going to discuss various types of descriptive research. There is nothing sacrosanct about such a categorisation, but it helps us understand the phenomenon (research) more clearly. In this section, we will deal with three types of Descriptive Research. These are two types of Surveys, **Correlational Studies** and **Causal-Comparative Research**. Descriptive case studies are also included under the broad head of Descriptive Research.

i) Survey Studies: Often, descriptive research itself is equated with survey research. It

is better to consider Survey as one category of research under descriptive research. Surveys are conducted to create authentic descriptions of existing situation, phenomena that help carrying out situational analysis, diagnosing problems and make more informed decisions and intelligent plans for improving the situation. The objective may not only be to ascertain the status, but also to evaluate the status against pre-decided norms or established standards. Depending upon the purpose of the survey, you may need to collect ?

- data on the existing status, e.g., study habits of undergraduate students of IGNOU; or
- data on two different samples for comparison against a common standard, e.g. compare achievement of students who studied through distance education versus conventional mode in a dual mode university; or
- collect information on best practices in certain areas of functioning of open learning system, and expert views for improvement, e.g. student support services in distance education programmes.

It should be possible for you to include one or more of the above types into one study. Similarly, surveys can be conducted in a small geographical area or a whole state or even the country. Survey data may be gathered from every member of a population or from a carefully selected sample. For instance, in order to find out the study habits of undergraduate students of IGNOU, a survey may be made of all the undergraduate students of IGNOU with respect to their age group, employment status, socioeconomic status, etc. Alternatively, it can also be a survey of a sample of students belonging to one particular course. The scope and the depth of the study depend primarily on the nature of the problem.

The steps involved in survey research are, in general, similar to the steps for descriptive research described in previous pages. In case of surveys, special attention needs to be paid to the planning - comprising formulation of the problem based on informed decision, choice of sample, designing or choosing data gathering instruments and defining the data gathering process to ensure quality data, appropriate choice of quantitative or qualitative techniques so that generalizations of the results may be possible within the acceptable levels of errors of measurement.

One important technique of survey that needs special attention is **analysis of documents**. A doctoral student in education surveyed the process of decision making in the government by analyzing file noting in the department of education in the state government. Document analysis, as mentioned in the previous Unit, is also extensively used in historical research. In historical research effort is to trace the evolution or state of the art in the past. In Surveys, objective of document analysis is to ascertain the status of an event or a process across systems. For example, analysis of eligibility conditions for distance education graduates mentioned in the prospectus of conventional universities or job advertisements, Supreme Court Judgments on educational litigations, state statutes and acts on education or rulings of a university boards, provide meaningful information and perceptions that may not be possible through conventional surveys of collecting data from individual respondents. Comparative study of curriculum documents of different universities and school boards are quite common and useful for developing and upgrading

curriculum. Similarly, analysis of documents on best practices in education – instructional processes, student evaluation, innovative management, quality management, ICT integrated education, etc. provides sound basis for planning for quality management and management of change.

Document analysis produces valuable information, but the method has certain limitations. Authenticities of documents, quality of documentation, researcher's ability to carefully examine the document and derive implications, are some of the limitations. Some documentary research findings are of little value because the investigators fail to access the representative sample of source materials.

Many studies do not provide information concerning the adequacy of the sampled documents. One must subject each documentary source material to the same rigorous external and internal criticism that a historian does. Sometimes the definitions of categories are ambiguous, and they may change from year to year. The boundaries of some units of analysis, e.g., school districts, age cohort, etc. can also change; different agencies collecting similar data do not always use exactly the same classificatory system. The data collected always reflect the orientation, concerns, self-interests, and the levels of accuracy preferred by the producers of the records, which may not be an accurate reflection of reality or behaviour.

Check Your Progress 1

1. List the steps involved in descriptive research.
2. Describe briefly in about 30 words the objectives of document analysis.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this unit.

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ii) Correlational Studies: As the name indicates, purpose of correlational studies is to explore whether there is any relationship between two variables or characteristics, and to ascertain the degree of such relationships. Thus, "*A correlational study is a*

scientific study in which a researcher investigates associations between variables" (www.psychologyandsociety.com/correlationalstudy.html]

The value of correlational research is to discover relationships among phenomena with a view to predict and, in some situations, controlling their occurrence. Much of social sciences research in general, and educational research in particular, is concerned with establishing interrelationships among variables. They enable us to measure the extent to which variations in one variable are associated with variations in another. We may wish to know, for example, how performance of distance learners are related to their learning skills and study habits; or whether a relationship exists between the number of years spent in full-time education and subsequent annual income, or whether there is a link between personality and achievement.

Correlational studies are generally intended to answer three questions. These are:

a) Is there a relationship between two variables (or two sets of data)? If 'yes', then two other questions follow:
b) What is the direction of the relationship – positive or negative? and
c) What is the magnitude of the relationship as indicated by the coefficient of correlation?

The correlational statistics will help test researchers hypothesis about the relationship between two variables and assess the magnitude of the relationship.

Pearson's product moment, one of the best known measures of correlation, coefficient of correlation range from -1.0 to +1.0, through zero and expresses a relationship in quantitative form.

Where the variations of two variables take the same direction, i.e., as one increases so does the other, a positive relationship is said to exist. A negative correlation, on the other hand, is found when an increase in one variable is accompanied by a decrease in the other variable. The values near zero indicate a weak relationship between the variables, whereas values closer to either +1.0 or -1.0 indicate a stronger relationship in either of the directions. Thus, the coefficient of correlation, tells us something about the relationship between two variables. However, there are other measures that establish relationships among more than two variables. These are known as multiple correlation and partial correlation.

One danger in interpreting correlations is to equate it with causal relationship. This is not necessarily the case. For one thing, there is never more than a probable relationship between variables in any case. For another, it is quite possible for two variables to be related to one another with a high degree of probability, but with a third variable accounting for the nature of relationship. For example, it may be found that there is a negative correlation between measures of anxiety and measures of intelligence. It should not be interpreted that there is a causative relationship between anxiety and intelligence, that is, that pupils are anxious because they are unintelligent or that pupils appear unintelligent because they are anxious. It might be that there are other underlying characteristics of individuals that tend to make some appear unintelligent and anxious, and others, intelligent and not anxious. Interpretation of such a correlation is difficult without

experimental confirmation.

Characteristics of correlational studies

Correlational studies can be broadly classified either as **relational studies** or as **prediction studies**. As a method, the former is particularly useful in exploratory studies in fields where little or no previous research has been undertaken. It is often a shot in the dark aimed at verifying hunches which a researcher has about a presumed relationship between some characteristics or variables. Take the case of complex phenomenon like teacher effectiveness. This is dependent on a number of factors operating singly or in combination. Factors such as intelligence, motivation, person, perception, verbal skills, etc., come to mind as possibly related to teacher effectiveness. A review of relevant research literature help us to take informed decision in choosing variables. Once the variables have been identified, suitable measures may then be chosen to assess them. They are then administered to a representative sample. The scores obtained are then correlated with the criterion variable namely - teacher effectiveness. As it is an exploratory undertaking, the analysis will consist of correlation coefficients only.

Prediction studies are based on the assumption that at least some of the factors that are related to the criterion variable will have power to predict the criterion behaviour. For example, since you know that IQ and General Achievement (GA) are positively correlated, you can predict with some degree of accuracy that an individual with a high IQ will probably have a high GA. To be valuable for prediction, the extent of correlation between two variables must be substantial and, of course, the higher the correlation, the more accurate the prediction.

iii) Causal-comparative studies: The purpose of causal-comparative research, is to identify cause and effect relationship between two sets of variables. Unlike a scientist working in a laboratory, an educator cannot always select, control and manipulate factors that are necessary to study cause-effect relations. In situations that do not allow researchers manipulate the independent variable and establish the controls that are required in "true experiments", they may conduct a causal-comparative study.

In a causal-comparative investigation, a researcher studies a real life situation in which subjects have experienced what he/she wants to investigate. For example, if an investigator wants to study emotional instability, he/she does not place children in a situation where all factors are kept constant except one variable which is manipulated to determine what causes a particular type of emotional disturbance. Rather, he/she chooses children who according to a selected criterion are 'disturbed' and compares them with emotionally stable children. After searching for factors or conditions which seem to be associated with one group and not the other, he/she may present a possible explanation of the underlying causes of the emotional problem.

Another important question is when to use causal-comparative research? Usually, researchers use causal-comparative research when it is unethical to manipulate an independent variable (e.g. depriving a distance education student of study material), or when it is not possible to change or manipulate independent variables like gender, age, etc. or when independent variables have not been changed due to ignorance. (www.affectiveteaching.com)

Limitations of causal-comparative method

i) Lack of control is a serious limitation and weakness of this method of research.

ii) It is usually difficult to identify all the relevant factors causing a particular condition or phenomenon. For instance, students' liking for a teacher depends on a number of factors and a researcher may not be able to identify all the factors. He/she may only be able to identify good teaching and mastery of subject matter as some of the factors effecting students' liking for a teacher.

iii) The joint method of agreement and disagreement requires that a single factor must be the cause for the occurrence or non-occurrence of the phenomenon. But in the case of social phenomena, with which an educational researcher is usually concerned, this condition does not come invariably. In fact, in these situations events usually have multiple rather than single causes. Furthermore, a phenomenon may result not only from multiple causes but also from one cause in one instance and from another cause in another instance.

iv) When a relationship between variables is established, it is difficult to distinguish between the cause and the effect.

v) The classification of subjects into dichotomous groups for the purpose of comparison also presents problems.

vi) In comparative studies of natural situations, the researcher does not have the same control over the selection of subjects as he/she has in experimental studies. It is difficult to identify existing groups of subjects who are alike in all respects except for their exposure to one variable.

Though causal-comparative studies have many limitations, and they do not often produce precise and reliable knowledge that can be gained through rigorous experimental studies, they provide the means of tackling problems that cannot be probed in laboratory situations. Furthermore, they yield valuable information and clues concerning the nature of phenomena and are well suited to many types of field studies seeking to establish causal relationships.

Check Your Progress 2

i) Explain briefly the purpose of correlational studies.

ii) List the weaknesses of causal-comparative studies.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

4.3 EXPERIMENTAL RESEARCH

Experimental research studies are designed for establishing causal relationships. This method begins with a question concerning the relationship between two or more variables. At the same time, the researcher advances one or more hypotheses stating the nature of the expected relationship. The experiment is the event planned and carried out by the researcher to gather evidence relevant to the hypotheses.

The application of experimental method yielded better results in physical sciences; therefore, this method was soon applied to other sciences like biological sciences and medicine. Towards the end of the 19th century, scholars began to apply the same methods to psychological problems, thus beginning experimental psychology. Joseph M. Rice and Thorndike were the early investigators who extended the experimental method to education (Ary et.al. 1972). In its simplest form an experiment has three characteristics:

i) an independent variable is manipulated,

ii) all other variables except the independent variable are held constant, and

iii) the effect of the manipulation of the independent variable on the dependent variable is observed.

The independent variable and the dependent variable(s) are important in an experiment. The independent variable is manipulated or changed by the experimenter. The variable upon which the effects of changes are observed is called the dependent variable, which is observed but not manipulated by the experimenter. The dependent variable is so named because its value is hypothesised to depend upon, and vary with, the value of the independent variable. For example, to examine the effect of different teaching methods upon achievement in reading, an investigator would manipulate method, the independent variable, by using different teaching methods in order to ascertain their effect upon achievement, the dependent variable.

4.3.1 Three Characteristics of Experimental Research

There are three essential ingredients in the conduct of an experiment: **control, manipulation** and **observation**. We shall discuss each of them as follows:

i) **Control:** Control is the first essential ingredient of experimental method. Without control, it is impossible to evaluate unambiguously the effects of an independent variable. Basically, the experimental method rests upon two assumptions regarding variables. These are:

a) If two situations are equal in every respect except for a variable that is added to or deleted from one of the situations, any difference appearing between the two situations can be attributed to that variable. This statement is called the **law of the single variable**.
b) If two situations are not equal, and it can be demonstrated that none of the variables is significant in producing the phenomenon under investigation, or if significant

variables are made equal, then any difference occurring between the two situations after the introduction of a new variable to one of them can be attributed to the new variable. This statement is called the **law of the only significant variable**.

The main purpose of 'control' in an experiment is to arrange a situation in which the effect of variables can be measured. The conditions to be fulfilled under the first law can be obtained more easily in physical sciences. A high degree of control is much easier to achieve in a laboratory setting than in situations outside the laboratory. In the laboratory, there are only a limited number of variables which can be manipulated easily. However, as educational research is concerned with human beings, there are always many variables present in a situation. To attempt to reduce educational problems to the operation of a single variable is not only unrealistic but perhaps impossible as well. Fortunately, you do not require such rigorous control to be introduced in educational settings, for many factors involved in such a setting may be quite insignificant and irrelevant for our study. To this extent, in educational research, the law of the single significant variable is more appropriate. For example, if you were to study the effect of two methods of teaching arithmetic to two groups of children, you are likely to select the two groups which are identical in every respect except in the way they are taught arithmetic. But it is impossible to have two groups that are identical in every respect. So, the endeavour of the researcher should be towards obtaining two groups that are as similar as possible, at least in those factors that are thought to have an effect on achievement in arithmetic.

These could be, general intelligence, motivation, reading ability, etc. Other variables that are not likely to affect achievement in arithmetic can be ignored. For example, height and weight of children need not have any relation with achievement in arithmetic. So, these variables can be safely ignored while establishing the similarity of the two groups. Thus, in experimental studies in education we need procedures that permit us to compare groups on the basis of significant variables. 'Control' is the term used to indicate an experimenter's 'procedures' for eliminating the differential effects of all variables extraneous to the purpose of the study. (An extraneous variable is a variable that is not related to the purpose of the study but may affect the dependent variable). The experimenter exercises controls, for instance, when the groups are made comparable on extraneous variables that are related to the dependent variable. If a variable is known to be unrelated to the dependent variable, it cannot influence the dependent variable and we do not need to control it for its effects.

ii) **Manipulation** : Manipulation of a variable is another distinguishing characteristic of experimental research. It refers to a deliberate operation performed by the researcher. In contrast to the descriptive research, in which the researcher simply observes conditions as they occur naturally, the researcher in the experimental research actually sets the stage for the occurrence of the factors whose performance is to be studied under conditions where all other factors are controlled or eliminated. In educational research and other behavioural sciences, the manipulation of a variable takes a characteristic form in which the experimenter imposes a predetermined set of varied conditions on the subjects. This set of varied conditions is referred to as the independent variable, the experimental variable, or the treatment variable. Then, different conditions are designed to represent two or more values of the independent variable; these may be differences in degree or differences in kind. That is, the independent variable may assure two or more

values and the difference in the values may be of quantitative or qualitative nature. Methods of teaching, attitudes, socio-economic status, personality characteristics, types of motivation, etc. are some common examples of the independent variable in educational research. For example, if the researcher compares two methods of teaching, then method of teaching is the independent variable and can be manipulated by the teacher. We may manipulate a single variable or a number of variables simultaneously.

iii) Observation: In experimentation, we are interested in the effect of the manipulation of the independent variable on a dependent variable. Observations are made with respect to some characteristics of the behavior of the subjects employed in the research. These observations, which are quantitative in nature, may constitute the dependent variable. This needs some explanation.

The dependent variable in educational research is often achievement of some type, such as learning. We are often interested in explaining or predicting achievement. Since learning cannot be measured directly, we can only estimate it through measures like scores in a test. Therefore, strictly speaking, the dependent variable is scores or observations rather than achievement.

Check Your Progress 3

Explain briefly the significance of control, manipulation, and observation in an experimental study.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this Unit.

4.3.2 Steps Involved in Experimental Research

A number of steps are involved in experimental research. Here, we shall talk about four steps to reach the stage of the 'actual experiment'. Brief explanations are needed for steps 3 and 4 only. The steps are:

i) Surveying the literature related to the problem,

ii) Identifying and defining the problem,

iii) Formulating a problem hypothesis, and defining basic terms and variables. Stating of hypotheses is an important step in experimental research. They suggest that an antecedent condition or phenomenon (independent variable) is related to the occurrence of another condition, phenomenon, event, or effect (dependent variable). To test a hypothesis, the experimenter attempts to control all the conditions except the independent variable which he/she manipulates. Then he/she observes the effect on the dependent variable presumably because of the exposure to the independent variable,

iv) Constructing an experimental plan is the next step in experimental research. This refers to the conceptual framework within which the experiment is conducted. This would involve –

- identifying all the non-experimental variables that might contaminate the experiment and determine how to control them. If the researcher is interested in finding out the effect of two particular teaching methodologies on achievement in arithmetic, the pure effect of teaching methodology may get contaminated if the student gets extra coaching in arithmetic at home or some competition is held in the school,
- select a research design,
- select a sample of subjects to represent a given population, assign subjects to groups, and assign experimental treatments to the groups. (Subject implies the respondent or living organism that is studied),
- select or construct and validate instruments to measure the outcomes of the experiment,
- outline procedures for collecting the data and possibly conduct a pilot or "trial run" test to perfect the instruments or design, and
- state the statistical or null hypothesis.

The above steps bring the researcher to the stage when he/she actually conducts the experiment, applies statistical measures to the data obtained, and then tests the significance of the results.

In the next sub-section, we shall take up the various designs involved in experimental method.

4.3.3 Designs of Experimental Study

A research design is very important for the researcher. A well developed design provides the structure and strategy to control the investigation and extract dependable answers to the questions raised by the problem or hypothesis. It is the nature of the problem that determines the appropriateness of the design.

Before we discuss the experimental designs, it will be relevant to look into the terms and symbols which we shall make use of. These are:

i) X represents the **independent variable**, which is manipulated by the researcher; it is also referred to as the experimental variable or the treatment variable.

ii) Y represents the measure of the **dependent variable**. Y1 represents the dependent variable before the manipulation of the independent variable X; it is usually a pre-test of some type administered before the experimental treatment. Y2 represents the dependent variable after the manipulation of the independent variable X; it is usually a post-test administered to subjects after the experimental treatment.

iii) S represents the **subject** or respondent used in the experiment.

iv) E group refers to the **experimental group** — the group that is given the independent variable treatment.

v) C group refers to the **control group** — the group that does not receive the experimental treatment.

vi) R indicates **random assignment** of subjects to the experimental groups and the random assignment of treatments to the groups.

There is a large number of experimental designs. Various authors have classified experimental designs into certain categories. Most common categorization comprises:

- Pre-experimental Design
- True Experimental Design
- Quasi Experimental Design

Some authors like Donald Ary and others (1985) add two more categories, namely

- Factorial Design
- Time Series

Various designs under the above mentioned categories are given in the box below:

Pre-Experimental	True Experimental	Quasi Experimental	Factorial Design	Time Series
• One Group Pre-test Post-test Design • Static Group Comparison	• Randomized Subjects Post-test only Control Group Design • Randomized Matched Subjects, Post-test only Control Group Design • Randomized subject Pre-test Post-test control Group Design • Solomon Three Group Design • Solomon Four Group Design	• Nonrandomized Control, Group, Pre-test Post-test Design • Counter Balanced Design	• Simple Factorial Design	• One Group Time Series Design • Control Group Time Series Design

However, in this section, we will bring before you only a few most frequently used designs, from each of the five categories.

4.3.3.1 Pre-experimental Design

The two designs classified as pre-experimental designs offer minimal control of extraneous variables. Still they are used quite often for educational research. These designs help to illustrate the advantages of more rigorously controlled designs that are presented later.

Design 1. One Group Pre-test Post-test Design

When this design is employed, the dependent variable is measured before the independent variable or treatment is applied or withdrawn, and then measured yet again. The one group design usually involves three steps:

a) administering a pre-test measuring the dependent variable,

b) applying the experimental treatment X to the subjects, and

c) administering a post-test again measuring the dependent variable.

Differences attributed to application of experimental treatment are then determined by comparing the pre-test and post-test scores.

Pre-test	*Independent variable*	*Post-test*
Y1	X	Y2

Design 1. One Group Pre-test Post-test Design

To illustrate the use of this design, let us as distance teachers assume that you want to evaluate the effectiveness of a particular self-instructional material in Physics for undergraduate university students. How can you go about this task?

At the beginning of the academic year, the students are given a standardized test that measures the objectives of undergraduate Physics quite satisfactorily, following which the distance teacher then introduces the self instructional material. At the end of the year, the students are administered the standardized test a second time. Comparing the scores of the two tests would reveal what difference the exposure to the SIM has made.

However, using only one group, as in Design 1, gives us superficial control. The major limitation of the one-group design is that, since no control group is used, the experimenter cannot assume that the change between the pre-test and the post-test scores is brought about by the experimental treatment alone. It is quite possible that some extraneous variables account for all or part of the change. For example, students experience changes with the passage of time; they grow mentally as well as physically, or they may acquire additional learning experiences that would affect the dependent variable. This extraneous variable can be thought of as maturation i.e. with the passage of time students get maturity and this in turn may affect achievement level. Another type of extraneous variable that can operate between the pre-test and the post-test scores and which cannot be controlled is history. History as a source of extraneous variance refers to the specific events that can occur between the pre-test and the post-test other than the experimental treatment. In the example cited above, not receiving material regularly or illness just before the test could decrease achievement scores. Similarly, a crucial discovery in physics could increase widespread interest and hence affect the test scores. In fact, history and maturation become increasingly influential sources of extraneous variance when the time interval between Y1 and Y2 is long.

Another short coming of Design 1 is that it offers no way of assessing the effect of the pre-test Y1 itself. We know that “practice effect” exists when subjects take a test a second time or take an alternate form of the test. In other words, subjects do better the second time even without any instruction or relevant discussion during the interval. This is true not only for achievement and intelligence tests but also for personality tests. In the case of personality tests, a tendency towards better adjustment is generally observed.

To sum up, Design 1 has little to recommend it; without a control group to make a comparison possible, the results obtained in a one group design are basically uninterpretable. The results of the experiment would have been dependable if there could

be a comparable group i.e. control group to which SIM had not been given.

Design 2 utilizes two or more groups, only one of which is exposed to experimental treatment. The groups are assumed to be equivalent in all relevant aspects, they differ only in their exposure to X.

This design is often used in educational research. For example the achievement of students taught by a new method is compared with that of a similar class taught by a traditional method.

Design 2 has a control group or groups, which permit(s) the comparison that is required for scientific respectability. If the experimental group is superior on the Y2 measure, the researcher then has more confidence in his/her conclusion that the difference is due to experimental treatment.

However, there is a basic flaw in this design. Since neither **randomization** nor even **matching** is used to assign subjects to the experimental and control groups, we cannot be sure that the groups are equivalent prior to the experimental treatment. They may differ on certain relevant variables, and it may be these differences rather than X that are responsible for the observed change. Because we cannot be sure that the groups are equal with regard to all the factors that may influence the dependent variable, this design is considered to be lacking in the necessary control and must be classified as pre-experimental.

Group	*Independent Variable*	*Post-test*
E	X	Y_2
C	-	Y_2

Design 2. Static Group Comparison

4.3.3.2 True Experimental Designs

The following two designs belong to the 'true experimental' design, because of the control that they provide. i.e.

(i) Random assignment of subjects to the groups.
(ii) Random assignment of treatment to the groups.
(iii) Post-testing all the groups.

Design 3. Randomized subjects, Post-test only Control Group Design

This particular design requires two groups to which subjects are randomly assigned and each group is assigned to a different condition. No pretest is used; randomization controls all the possible extraneous variables. This does not mean that randomization procedures (like drawing names out of a hat, or flipping a coin) remove the extraneous variables, such as the IQ or age, which may affect the dependent variable, or control their

presence.

These extraneous variables still affect the inquiry; but, now, it is the laws of chance rather than the personal features of E that operate. In fact, the larger the number of subjects used the more equivalent or similar the groups will tend to be. Suppose a researcher wants to study the effect of instructional material on achievement in a course during a contact programme. He/she may randomly assign the students to the groups and provide treatment to one of the groups. The assigning of the treatment will be random. At the end of the contact programme he/she may test both the groups.

After the subjects are assigned to the groups, only the experimental group is exposed to the experimental treatment. Otherwise, in all other respects, the two groups remain similar. Members of both groups are then measured on dependent variable Y2. Scores are then compared to determine the effect of X.

Group	*Independent Variable*	*Post-test*
(R)E	X	Y2
(R)C	-	Y2

Design 3: Randomized subjects, Post-test only Control Group Design

The main advantage of Design 3 is randomization, which assures statistical equivalence of the groups prior to the introduction of independent variable. Design 3 provides controls for the main effects of history, maturation and pretesting; because no pretest is used, there can be no interactional effect of pretest and X (treatment).

Design 4: Randomized Matched Subjects, Post-test only Control Group Design

This design is similar to Design 3 except that it uses a matching technique, rather than random assignment, to obtain equivalent groups. Subjects are matched on one or more variables that can be measured conveniently, such as IQ or reading scores. The matching variables used are generally those that have a significant correlation with the dependent variable. On the basis of these variables, subjects are paired so that opposite members'/ 'scores' are as close as possible; and then, one member of each pair is randomly assigned to one treatment and the other to the second treatment.

Group	*Independent Variable*	*Post-test*
(Mr) E	X	Y_2
(Mr) C	-	Y_2

Design 4. Randomized matched subjects, Post-test only Control Group Design

Matching is most useful in studies where small samples are to be used and where Design 3 is not appropriate. Also, the matched subjects' design serves to reduce the extent to which experimental differences can be accounted for by initial differences between

groups. However, for matching to really become a means of control, the matching of all the potential subjects must be complete, and the assignment of the members of each pair to the groups must be determined randomly. If one or more subjects should be excluded because an appropriate match could not be found, this would bias the sample. When using Design 4, it is essential to match every subject, even if only approximately, before random assignment is effected.

4.3.3.3 Quasi Experimental Design

One of the Quasi Experimental Designs is Non-randomized Control Group, Pre-test Post-test Design. You would notice that randomized control group pre-test post-test design is a true experimental design which we have presented before. The only difference in the quasi experimental design is that the groups are not randomized. Hence they are unlikely to be comparable. In fact, it is on this ground that the design becomes quasi experimental and not true experimental. Since the rest of the design related characteristics remain common with the randomized control group pre-test post-test design of the true experimental design category, we do not need to provide any further details on this design.

Group	*Pretest*	*Independent Variable*	*Post-test*
E	Y_1	X	Y_2
C	Y_1	-	Y_2

4.3.3.4 Factorial Designs

A factorial design is one where two or more variables are manipulated simultaneously in order to study the independent effect of each variable on the dependent variable as well as the effects due to interactions among the several variables. Factorial designs are of two types. In the first type, one of the independent variables may be experimentally manipulated. The researcher is primarily interested in the effect of a single independent variable but he/she must take other variables into consideration which may influence the dependent variables. In the second type of design, all the independent variables may be experimentally manipulated. Factorial designs have been developed at varying levels of complexity. The simplest factorial design is the 2 by 2 (2 X 2) Design. The two independent variables have two values.

Level 1 subject receives Treatment A and others Treatment B. Some level 2 subjects receive Treatment A and other Treatment B.

Attribute Variable X_2	**Experimental Variable X1**	
	Treatment A	Treatment B
Level 1 Level 2	Cell 1 Level 2	Level 3 Level 4

The strength of the factorial design is that it can achieve in one experiment what might otherwise require two or more separate studies.

4.3.3.5 Time Series Design

We have already discussed pre-test post-test designs. They generate one time data on the dependent variable before and after the experimental treatment. There are instances in educational systems where it becomes necessary to compare change in the trend of a particular phenomenon or process or product. For example, let us assume that learners behaviour – attitudes, achievements etc. changes over a period of time. If a specific treatment is introduced in an institution to study the change in attitude or achievement it is useful to study the trend through measurement at certain intervals before the introduction of the treatment. Instead of one time pretest, the test is repeated three or four times before the treatment is administered. This generates data on the trend of behaviour. Similarly after the treatment is administered instead of one time post-test, the post-test is administered several times at intervals. This provides data to derive the trend in the change in behaviour. Since both, pre-tests and post-tests are used over a time; it is called Time Series Design. In a time series design the effect of the treatment on the dependent variable is tested by comparing the trends. This can be represented in the following form:

Y_1	Y_2	Y_3	Y_4	X	Y_5	Y_6	Y_7	Y_8

What we have described above is one group time series design. If you add a control group and repeat the same time series measurement without the treatment of the control group it becomes control group time series design. Similarly control group time series design is represented as.

Group								
E	Y_1	Y_2	Y_3	Y_4	X	Y_5	Y_6	Y_7	Y_8
C	Y_1	Y_2	Y_3	Y_4	-	Y_5	Y_6	Y_7	Y_8

Check Your Progress 4

Draw and compare the figures representing pre-test post-test experimental design and one group time series design.

Notes: (a) Space is given below for your answer.

(b) Compare your answer with the one given at the end of this unit.

4.4 ACTION RESEARCH

Well known social psychologist, Kurt Lewin, then a professor at MIT is credited for creation of '**Action Research'** as a terminology and concept sometime in mid 1940s. 'In his paper "Action Research and Minority Problems" he described action research as **"a comparative research on the conditions and effects of various forms of social action and research leading to social action" that uses "a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action"** (Wikipedia. http://en.wikipedia.org/wiki/Action_research). Action Research is research intended to solve practical problems of an individual or a group or an institution through planned intervention in the day-to-day working. Here, the emphasis lies on solving problems through adoption of alternative practices. Cohen and Manion (1989) described action research as, "a small-scale intervention in the functioning of the real world and a close examination of the effects of such intervention". According to Rory O'Brien (1998) "Action research...aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Thus, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process."

These two definitions highlight several issues that need attention. These are:

- Problem Solving;
- Intervention in Real World;
- Adoption of Alternative Practices;
- Immediate Problematic Situation;
- Goals of Social Science;
- Collaborate with Members;
- Changing the Direction;
- Co-learning.

Aptly then, action research is a participatory and collaborative effort to solve problems and improve ways of working, discovering new and alternative ways, of individuals, groups and organizations. Because the problem solving and discovering new ways is through actual action in real life or field setting, hence it is called action research. In a way, action research facilitates 'learning by doing'. In open and distance education, action research can be undertaken by an individual teacher and non-teacher functionery, a department and the whole institution like an open university. The process of collaboration may include professional researchers who can guide and mentor the process of action research for meaningful results.

There is some interesting resemblance of action research with certain pre-experimental designs, particularly pre-test-post test design. Here pre-test may mean actually a pretest

as in experimental design or may mean a qualitative assessment of the situation before the intervention. Post test can be either a post test or a qualitative assessment of changed situation and 'action' is the intervention.

Action research is not free from criticism. Many critics point out the contradiction between the words and implied meanings of 'action' and 'research'. 'Action' is something here and now, research is a planned, future-oriented activity. Research is preceded by careful planning for application of sophisticated methodology for generating genralizable knowledge. Action is temporal and intended to achieve immediate results without any agenda of generating generalizable knowledge. Whether then 'action research' qualifies to find place in the family of research. Whatever the strength of this argument, this contradiction is only apparent. Action research is a well-developed research technique; it is also widely used in various sectors, especially education.

There is the other end of misunderstanding. Some enthusiastic writers bring all types of research under action research as long as the researcher is a practitioner himself or herself. Action research has a definite meaning and practice distinctly different from other research methods. Super-imposing relevant research methods and processes over action that is here and now is the main intention of action research as a means of solving problems.

On the basis of analyses of a number of action research cases, it becomes evident that it is

- Situational – it emerges out of situational needs; and a solution to a problem is also designed with respect to the situation,
- Collaborative and Participatory – although individuals can carry out action research individually, it is increasingly becoming a team game where practitioners collaborate and participate with other colleagues in the organization and with the researchers, and
- Self-evaluative – just as action research is self-initiated since it evolves out of the perception of problems by the practising individual or group, it becomes self-evaluative where the action research team evaluates the outcome of the exercise.

4.4.1 Action Research Contrasted with Applied Research

The emphasis of action research on problem solving has often been questioned as a topic of research itself. Nevertheless, almost all textbooks on research methodology provide separate treatment to action research, which indicates its acceptability and relevance. However, it is important to differentiate action research from other research methods and designs, particularly applied research. Obviously, if action research intends to solve problems through adoption of alternative practice and assessing its impact, it is not historical, philosophical or even survey type of research. It comes closer to experimental research, particularly, certain types of pre-experimental designs as mentioned earlier. The major departure from applied research is on the very intent of the two types of research studies. Let us see the differences between applied research and action research against a few issues of research methodology (see the table below).

Table 1. Comparison of Applied and Action Research on Methodological Components

Research Methods	Applied Research	Action Research
Goals	Creation of new knowledge through generalization	Locale specific problem solving
Hypothesis	Often formulated on the basis of previous research and theoretical knowledge	Not necessary; can be formulated on the basis of experience and by informed guess of the practitioners
Research design	Sophisticated	Functional & Need based
Treatment	Usually, decided and designed well in advance and not changed during the experiment	Interim review of the effect of treatment leads to modification of the treatment since emphasis is on problem solving
Sample	Randomized or representative	Whatever/whoever is present and are likely to be impacted by action research; Sampling is not an issue
Variables	Carefully chosen and classified under categories like criterion, independent and intervening	Not an issue – whatever be the variables they are there in the problem situation
Tests and measurements	Necessary to check validity, reliability and objectivity; also relevance of norms where normative sampling is necessary	Tests, questionnaires, etc. designed by practitioners; however, instruments with tested psychometric properties like validity, reliability etc. provide better information and feedback
Statistical analysis of data	Sophisticated techniques are used not only to assess the impact of the independent variables on the treatment but also to assess the impact of intervening variables	Simple but scientific analysis that provides adequate feedback to the problem solving efforts is adequate

4.4.2 Partners in Action Research

There are at least three possible partners in action research. First, an individual teacher or an administrator may undertake action research to solve his/her problems in a work situation. The second important possibility is that, a group of teachers can undertake action research together where they have a common problem, like reading or learning skills, discipline, motivation, etc. It is also possible that a group of administrators across educational institutions can undertake action research where they face a common problem. The third possibility is collaboration among practitioners – individual(s) or group(s). This collaborative action research brings the strength of the two or more types of professionals to bear upon the quality of research and also on the quality of the solution arrived at. In this case, action research may take a more sophisticated form than normally it does.

This partnership issue in action research brings us to another dimension. How large an operation can action research be? Well, it depends upon the partners. If it is one individual carrying out a problem solving exercise, obviously, the campus of the action research will be small. When several teachers join on one problem, the research may cover an entire institution. Extending it further, when several teachers or educational administrators across institutions in a district or a state join hands to solve a problem, the research may cover several institutions.

4.4.3 Areas of Action Research

Action research can cover almost every area of activity of an open learning institution. Let us see a sample list.

1. Curriculum Planning and Course Material Development; etc.
2. Programme Delivery and Learning Strategies – Personal Contact Programme, group assignments, projects, cooperative learning, etc.
3. Student Assessment – use of various techniques and tools of assessment, online examination, computer marked assessment, etc.
4. Staff development – in-service staff development programmes, trainings, work groups, workshop designing, etc.
5. Management and Administration – delegation and decentralization, personnel information systems management, management of academic activities, etc.
6. Behavioural changes – attitudes, values, staff motivation, etc.

Thus, almost all areas have the potentiality of using action research for solving problems and for improvement of practices.

4.4.4 Stages of Action Research

There are four major stages in conducting action research. These stages are clearly demarcated. It can be a linear or spiraling process.

- Stage one comprises actual diagnosis of the problem. Often, the perceived

problem is only symptomatic and not the real one. It becomes necessary to go deep into the problem through the symptoms to diagnose it clearly. There can be problems of different order. First order problem is pathogenic where the problem is easily perceptible, e.g. poor performance of students, non-attendance of distance education learners in counseling sessions, irregular staff attendance, lack of satisfaction on the job, etc. Second order problem is where there is no such visible problem, but perception of hidden potential and lost opportunities e.g., increase interactivity during teleconferencing in distance education; improved performance of learners doing already well, etc.

- Stage two is the planning stage where the treatment is designed and methods of assessing the impact are defined.
- Stage three is the actual implementation, collection and analysis of data to assess the change in the magnitude of the problem.
- Stage four is Reflection.

These four stages can be broken down into eight points as shown below:

Stage One – Diagnosis

1. Identification, evaluation and formulation of problems – diagnosing the problem on the basis of symptoms.
2. Preliminary discussions and negotiations among interested parties especially important if the project is to be undertaken by more than one individual and in partnership with professional researchers.
3. Review of literature – though not in all cases, certain types of problem may call for reviewing research literature to learn from experience of similar exercises undertaken earlier.
4. Modification and redefinition of initial statement of problems – the discussion and negotiation of the stage two and review of related literature may warrant redefinition or refining the problem statement for the action research.

Stage Two – Planning the Intervention

5. Selection of research procedure – designing the intervention, choice of personnel – both in-house employee and researchers, administration, choice of material, and methods of evaluation.

Stage Three – Intervention and Impact Assessment

6. Implementation of the project – actually, carrying out the treatment designed on the sample as per the specifications arrived at stage 5 above. This will also include collection of relevant data. In some cases action research may also call for base line information, e.g. students' performance in a particular subject; such information is collected before the treatment is administered to the sample.
7. Interpretation of data – the data collected needs to be interpreted through minimal statistical or qualitative analysis so that the impact of the treatment on

the alleviation of the problem can be assessed.

Stage Four – Reflection

8. Beyond the factual data based results is the role of reflection. The main purpose of Reflection is interpreting the results; exploring and arguing further – the reasons of the findings the way these are, and reflecting on the onward destination.

Although these stages are clearly demarcated, it is possible to interpret them in a linear sequence as well as in spiraling process. Wherever the purpose of a piece of action research is limited to solving 'a unique problem' that is not common, it can afford a linear sequencing and research is over here and now. However, wherever action research is taken up on a typical area of education, e.g. classroom instruction, it is pregnant with unlimited possibilities. Each action research can lead to another level of excellence and performance in the selected area of education. In such areas, action research needs to be seen as a spiraling process.

4.4.5 Action Research in DE: A Case

There is a tremendous scope for action research in open and distance education. It can be taken up in formulating the design of self-instructional material. For example, will the learning improve if self-instructional materials include advance organizers or if it is written in deductive format? Action research can be carried out in personal contact programs, evaluation of distance learners, management of student support services or administration and management of distance learning institutions. Let us conclude with a brief case of an action research in open and distance education carried out in the National Open School of India in early 90s.

With regard to Personal Contact Programmes (PCP), there were two different trends. One, large numbers of students do not attend Personal Contact Programmes. Two, there does not appear to be any difference in the performance of those students who attend and those who do not attend Personal Contact Programmes. So the questions were:

- Is PCP irrelevant for distance learners?
- Is there something wrong with the way PCPs are conducted?

Sharma (1997) decided to confront the second question and find a method so that those who attend PCP perform better. As a teacher of Physics himself, Sharma designed a specific instructional approach for the PCPs and administered the usual weekends on selected topics of Physics for two full months. Students appeared for the final examination and the teacher waited for their results. As soon as the results were declared, he reviewed the results of those who attended the special PCP. He found that all of them had performed better than their counterparts who either attended the normal PCPs or those who did not.

Firstly, the performance in Physics improved by finding an adequate solution to the problem. Secondly, it was evident that there is nothing wrong with PCP as a concept;

there is some problem the way the programme is implemented. PCPs are relevant, impact depends upon how they are designed and implemented.

Check Your Progress 5

Compare the goals of applied and action research.

Notes: (a) Space is given below for your answer

(b) Compare your answer with the one given at the end of this unit.

4.5 LET US SUM UP

In this Unit, we studied three important research methods, viz., Descriptive Method, Experimental Method and Action Research. Descriptive research describes what is and involves the description, recording, analysis and interpretation of conditions that exist. Experimental research describes what will be when certain variables are carefully controlled or manipulated. We also studied various types of descriptive research, like survey, documentary analysis, correlational and causal comparative studies. And lastly we discussed action research in detail.

4.6 CHECK YOUR PROGRESS: THE KEY

1) The steps involved in survey studies in education are: planning, sampling, construction of data gathering instruments, carrying out the survey and processing of the data.

Documentary analysis can show us the existing conditions and practices of an institution, the relative importance of problems in an institution and the difficulty level of learning

materials. It also helps us to (i) evaluate the bias or propaganda found in textbooks and the relationships between objectives and the ways of achieving them, (ii) analyse the weaknesses of students and the errors made by them and (iii) identify the styles, concepts and beliefs of textbook/course writers.

2) Correlational studies are useful to:

- determine the relationship between variables and
- measure the extent to which variations in one variable are associated with the variations in another variable.

The weaknesses of causal comparative studies are: lack of control, difficulty in identifying the relevant causal factors, determining their number in a given phenomenon, classifying subjects into dichotomous groups for the purpose of comparison, lack of control over the selection of subjects.

3) Control is crucial to (i) evaluate unambiguously the effects of an independent variable and (ii) arrange a situation in which the effect of variables can be measured.

Manipulation controls or eliminates the irrelevant factors and arranges a situation in which only relevant factors can be studied.

Observations are made to study specific characteristics in the behaviour of the subjects employed in experimental research.

4) Pre-test Post-test Experimental Design

Group	***Pre-test***	***Treatment***	***Post-test***
E	Y_1	X	Y_2

One Group Time Series Design

Y_1	Y_2	Y_3	Y_4	X	Y_5	Y_6	Y_7	Y_8

Compared to one test each before and after the treatment in pre-test post-test experimental group design, tests are repeated at specified intervals in one group time series design. Whereas time series designs compares the trends of change in the dependent variable, the pre-test post-test experimental design tests one time gain or change in the dependent variable

5) Goals in applied research are creation of new knowledge through generalization whereas in action research the goals are local specific problem solving.

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http://en.wikipedia.org/wiki/Descriptive_research

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Dear Student,

While studying the units of this block, you may have found certain portions of the text difficult to comprehend. We wish to know your difficulties and suggestions, in order to improve the course. Therefore, we request you to fill out and send us the following questionnaire, which pertains to this block. If you find the space provided insufficient, kindly use a separate sheet.

Questionnaire

Enrolment No. | | | | | | | | | |

1. How many hours did you need for studying the units?

Unit No.	**1**	**2**	**3**	**4**	**5**
No. of hours					

2. Please give your reactions to the following items based on your reading of the block:

Items	**Excellent**	**Very Good**	**Good**	**Poor**	**Give specific examples, if poor**
Presentation Quality					
Language and Style					
Illustrations Used (diagrams, tables, etc.)					
Conceptual Clarity					
Check your Progress Questions					
Feedback to CYP Questions					

3. Any other comments:

Mail to:
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