

Block

1

BASICS OF RESEARCH IN SOCIAL WORK

UNIT 1

Introduction of Social Work Research **5**

UNIT 2

Research Review in Social Work **21**

UNIT 3

Research Process I: Formulation of Research Problem **37**

UNIT 4

Research Process II: Preparing a Research Proposal **53**

COURSE INTRODUCTION

Social work is a practice based profession. In order to search answers to questions raised regarding instructions or treatment effectiveness in social work practice, research is essential. The present course, comprising of four Blocks that incorporate sixteen units, deals with social work research. The ultimate purpose of the course is building a knowledge base for social work theory and practice.

In **Block 1**, Basics of research in social work have been described. Major issues such as foundations of scientific research, research review in social work, formulation of research problem and preparing a research proposal are articulated very carefully in this block.

Block 2 is on 'Research Methods in Social Work'. It has enumerated and explained in detail several important methods such as descriptive, exploratory, diagnostic, evaluation and action research and experimental research and qualitative research. The block has also described some special research methods that are known as intervention research methods. These methods are commonly known as single-subject designs research, through which social researchers attempt to improve social functioning of individuals, groups, families and communities.

Block 3 gives an overview of tools and methods of data collection. Unit 1 is about the concept of population, sample and methods of sampling. Subsequent units have focused on various research tools like questionnaire, rating scales, attitudinal scales, interview schedule and data collection procedure.

Once data are collected, the researcher turns his/her focus on scientific processing. The **last block** has the details of data processing and analysis. It narrates how to code data, prepare master chart, re-categorize and tabulate information and make univariate, bivariate and trivariate analysis. This block has also stated very exhaustively the use of descriptive statistics and inferential statistics before describing how to write a research report.

The above cited four blocks will provide you necessary information on the concept, importance and various methods of social work research and also will make you efficient and capable to carry out the same in a time bound manner. Learning of this unit will be helpful to you to carry out a dissertation for MSW/ M.Phil and Ph. D in Social Work.

BLOCK INTRODUCTION

The course on Social Work Research consists of four blocks. Block 1 is on ‘Basics of Research in Social Work’. This block has four units. **Unit 1 is on Introduction to Social Work Research.** This unit provides the foundation of your research activity in social work. In this unit extensive coverage has been given to the meaning of research, scientific research, use of scientific method in social sciences and meaning of social work research. It also provides information on the nature of the social work research and scope of social work research.

Unit 2 is on Research Review in Social Work. This unit deals with review of research in social work: international perspective and national perspective; emerging trends, role of research in social work; programme evaluation, and role of NGOs in research.

Unit 3 is on Research Process I: Formulation of Research Problem. This unit provides information on research process, formation of research problem, evaluation of problem, importance of hypothesis and various types of hypothesis in research

Unit 4 is on Research Process II: Preparing a Research Proposal. It deals with how to prepare a research proposal and provides details about identification of objectives, selection of samples, methods of data collection, data analysis and the presentation of report.

The units of this block have been purposely selected to acquaint you with various aspects of research which can be used in an empirical study. The information in this will become useful when you plan and carry out the dissertation for MSW (2nd year).

UNIT 1 INTRODUCTION TO SOCIAL WORK RESEARCH

Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Meaning of Research and Scientific Research
- 1.3 Scientific Method
- 1.4 Meaning of Social Research and Social Work Research
- 1.5 Nature of Social Work Research
- 1.6 Scope of Research in Social Work
- 1.7 Let Us Sum Up
- 1.8 Check Your Progress: The Key
- 1.9 Further Readings and References

1.0 OBJECTIVES

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

- explain the meaning and importance of social work research;
- describe the nature of social work research; and
- identify the areas of social work in which research is being increasingly undertaken.

1.1 INTRODUCTION

Research is a process by which one acquires authentic and reliable information about a phenomenon. It may be broadly defined “as a systematic inquiry towards understanding a social phenomenon”. It follows the scientific approach to gain knowledge. The most important characteristic of this approach is its thrust on objectivity. To what extent is the research using scientific approach useful in studying the problems of society? How can we acquire reliable knowledge about the various aspects of human experience? To be more specific, how can the scientific approach be of value in understanding social phenomena? In this Chapter we will discuss these questions. Our approach would be first, to understand the meaning of the terms ‘research’ and ‘scientific research’ then to examine the scientific method, its application in social work, its assumptions and finally to take a close look at the approach to find out how it can help social work professionals to solve the problems they face while practicing social work.

1.2 MEANING OF RESEARCH AND SCIENTIFIC RESEARCH

Research

When we observe certain objects or phenomena, we are often unaware of our biases, we do not question them and so we attribute our observations entirely to the

objects or phenomena being observed. In this process, it is possible to arrive at right decision on the basis of wrong reasons or vice versa. This questions the process of observation. Was the observation error-free? While observing are we aware of our limitations? Every method of knowing has certain limitations. Any study to create new knowledge or aiming to increase existing body of knowledge – may be through observation or by some other methods, is called research. As such, research may be described as systematic and critical investigation of phenomena toward increasing the stream of knowledge.

Scientific Research

Science aims at description, explanation and understanding of various objects or phenomena in nature. Research is a special endeavour, which involves systematic and critical investigation towards increasing the stream of knowledge. Now it is easier to define scientific research. We may define scientific research as a “systematic and critical investigation about the natural phenomena to describe, explain and finally to understand the relations among them”.

Check Your Progress 1

Define the terms ‘research’ and ‘scientific research’.

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Conceptual Foundations of Scientific Research

The scientific research is based on two conceptual foundations, namely, facts and theory. In the context of scientific research, fact simply means some phenomenon that has been observed. Scientific research aims at systematic description of observed facts and of their mutual relations. It also aims at understanding their nature and interprets the observed facts and relations. This involves the reduction of observed facts and their relations into a limited number of general statements that account for the observed facts and their relations. These general statements embody a theory (Mohsin 1984 p 4).

There is little agreement among social scientists on what theory is. For example, according to Goode and Hatt (1952); a theory refers to the relationship between facts or the ordering of them in some meaningful ways, whereas to Kerlinger (1973), a theory is a set of interrelated constructs (concepts), definitions and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena.

There are many more explanations of what a theory is. Despite the disagreement, there are certain common points in almost all the explanations. Keeping this in view we can understand a theory as a systematic explanation for the observed facts and their interrelations.

Facts and Theory

Scientific research starts with facts and then moves towards theorising. To be useful, facts must be organised, and the primary purpose of the scientific method is to develop a mechanism of organising the facts as they accumulate and become meaningful from the standpoint of their objectives. Through empirical investigations, scientists gather many facts. As these facts accumulate, there is a need for integration, organisation and classification in order to make the isolated findings meaningful.

When isolated facts are put in a perspective by integrating them into a conceptual scheme, which promotes greater understanding, we approach the domain of science. Significant relationship in the data must be identified and explained. In other words, theories must be formulated.

Theory knits together the results of observations, enabling scientists to make general statements about variables and relationships among them. For example, in Boyle's Law, a familiar generalisation summarises the observed effects of change(s) in temperature on the volumes of all gases by the statements – "When pressure is held constant, as the temperature of a gas increases, its volume is increased and as temperature of a gas is decreased its volume is decreased". This statement of theory not only summarises previous information, but also predicts other phenomena by telling us what to expect of any gas under change(s) in temperature.

Just as fact underlies theory, theories underlie facts – each raising the other like a spiral to an increasingly precise scientific formulation. Facts derive their significance from theoretical framework into which they bring facts into focus. This is well stated by Van Dalen (1973) :

"....there is a constant and intricate relationship between facts and theory. Facts without theory or theory without facts lack significance. Facts take their significance from the theories which define, classify and predict them. Theories possess significance when they are built upon, classified, and tested by facts. Thus, the growth of science is dependent upon the accumulation of facts and the formulation of new or broader theories."

This is particularly true in the early stages of scientific development. In its early stage, research must confine its efforts to seeking answers to highly specific and particularised problems. In the later stage, it tends to strive towards unity by breaking down the very barriers that had made its earlier progress possible. Scientific theories attempt to organise the tiny, rigorously defined bits of knowledge into a more meaningful and realistic structure. This is precisely the function of theory.

Inductive and Deductive uses of theory: Theory can influence the research process using either inductive or deductive process. Inductive process has a researcher beginning with observations and generates tentative conclusions. The other one is the deductive process in which a researcher begins with a theory, then derives hypothesis and ultimately collects observations to test the hypothesis.

Purpose of Theory

There are several purposes to be served by a theory in the development of science. We shall briefly consider three of them here. First, theory summarizes and puts in order the existing knowledge in a particular area. It permits deeper understanding of data and translates empirical findings into a more easily retainable and adaptable form. The theory of oxidation for instance, places into focus many of the chemical reactions common to everyday life.

Secondly, theory provides a provisional explanation for observed events and relationships. It identifies the variables that are related and the nature of their relationships. A theory of learning, for example, could explain the relationship between the speed and efficiency of learning and such other variables as motivation, reward and practice.

Lastly, theory permits the prediction of the occurrence of phenomena and enables the investigator to postulate and, eventually, to discover hitherto unknown phenomena. At the time when the 'Periodic Table' was being completed, for instance, certain gaps were noted in the sequence of the elements. Since theory provides that, there should have been no gaps, scientists were spurred on to look for the other missing elements. In time, these were found, anticipated by theory. Theory, therefore, stimulates the development of new knowledge by providing the lead for further inquiry.

Developing a Theory

It is important to stress that good theories are not born out of imagination; they do not originate merely through arm chair reflection. A theory is built upon collected facts. The investigator then searches, makes intelligent guesses as to how the facts are ordered, adds missing ideas or links, and puts forward a hypothesis; deduces what consequence should follow from the hypothesis and looks for further facts which are consistent or otherwise with the deductions; builds a wider generalisation or conceptual framework on more facts and eventually outlines a theory. Theories are solidly based on evidence. And they are important practical tools which enable us to advance our knowledge still further. Once a theoretical framework has been elaborated, we know what facts to look for to confirm or to deny the theory. Also, we have a conceptual framework inside with which our evidence can be tested.

Theories always involve terms that refer to matters that cannot be directly observed. For example, gravity itself cannot be directly observed, though the effects of gravity can be. Gravity and gravitation are both theoretical terms. The terms of a theory or theoretical statement are sometimes referred to as constructs. Thus, many theories of learning refer to a motivational factor in behaviour. Now motivation is not directly observable. It is a theoretical term. Or, we may say that it is a construct. The term implies that it is a construction of the scientist's imagination.

Check Your Progress 2

Describe briefly the role of theory in scientific research.

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1.3 SCIENTIFIC METHOD

It is obvious that it would be impossible to comprehend the nature and content of research without an appreciation of *method*. The method used in scientific research is usually designated as scientific method. According to George Lundberg (1946), scientific method consists of three basic steps, systematic observation, classification and interpretation of data. Through these steps, scientific method brings about not only verifiability of the facts, but also it lays the confidence in the validity of conclusions. Rubin and Babbie (2010) define scientific method as an approach to inquiry that attempts to safeguard against errors commonly made in casual human inquiry. chief features include viewing all knowledge as provisional and subject to refutation, searching for evidence based on systematic and comprehensive observation, pursuing objectivity in observation, and replicating studies.

The definition requires some more explanations. First when Lundberg (1946) says that scientific method is systematic observation, he means, the scientific investigation is ordered. It aims at discovering facts as they actually are and not as they are desired to be and as such, the investigators can have critical confidence in their conclusions. Second, the scientific method is concerned with ‘classes of objects’ not ‘individual objects’ especially *universality* and *predictability*. The method makes it possible to predict about a phenomenon with sufficient accuracy.

The major characteristics of scientific method are:

- Objectivity,
- Verifiability.
- Replication and
- Prediction.

Let us look at these characteristics more closely:

Objectivity

The most important characteristic of scientific method is objectivity. Research is beyond the subjective bias of the researcher. The researcher makes deliberate efforts to eliminate personal bias and prejudices and resists the temptation to seek only such data that supports his/her hypothesis. The emphasis is on testing, rather than proving the hypothesis. The researcher is prohibited to make personal judgement. Instead it uses the data and logic that lead to a sound conclusion. Objectivity is achieved through standardisation of research instruments and analytical tools.

Verifiability

This is another characteristic of scientific method. Research findings presented for other researchers must be verifiable. Research is a scientific endeavour and hence its findings are open to scrutiny. This characteristic of scientific method, i.e. verifiability, is related to the criteria of objectivity. That is, a study which is based on objective facts can be verified. Verifiability is achieved through two different approaches: first, analysing the same data on the same sample through alternative analytical tools (statistical methods); second, replicating the study on a different sample.

Replication

The third characteristic of scientific method is ‘replication’. Only through replication of a research study the conclusions/results can be confirmed. As such, through the use of scientific method it is possible to replicate the study and verify the results. Only if the research has been carried out by using a scientific method, it can be replicated for verification.

Prediction

Prediction is achieved through the uses of statistical methods and techniques. For example, regression analysis is the most common statistical procedure in quantitative research which predicts about the phenomena under study.

Check Your Progress 3

Describe briefly the characteristics of scientific method.

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Use of Scientific Method in Social Science

Social sciences primarily deal with human behaviour, which is, by and large, complex and dynamic in nature. One cannot, therefore, investigate the human behaviour under guided conditions as in natural and physical sciences. This creates many problems for the researcher such as the problems of subjectivity and individualistic generalisations etc.

The problems arising out of the nature and content of social sciences do not seriously diminish the importance of scientific method for social scientists. Notwithstanding the inherent defects of social sciences, scientific method can be acceptable with its own limitations for the study of social phenomena so far as it helps to arrive at valid generalisations.

Possibilities and Limitations of Use of Scientific Method in Social Sciences

As described above, the social sciences deal with human beings. Hence, the subject of scientific research poses much greater complexity than that in natural sciences. Although problems of discovering principles of human behaviour are difficult, they are not impossible. Social scientists will need to carry out observations as carefully as in natural sciences. Subjective, qualitative judgements need to be supplemented by more exact, quantitative measurements which are not easy to achieve in the case of human beings.

Social sciences have not been able to establish generalisations equivalent to theories of the natural sciences or, to predict events or behaviours accurately. Perhaps, social sciences will never realise the objective of science as completely as natural sciences do. In fact, there are several limitations involved in the application of the scientific method in social sciences.

Check Your Progress 4

Describe briefly the limitations of use of scientific method in social sciences.

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1.4 MEANING OF SOCIAL RESEARCH AND SOCIAL WORK RESEARCH

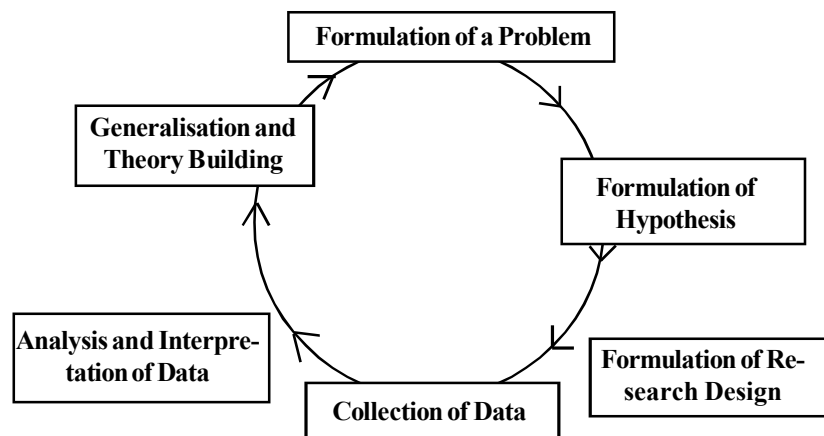
Social Research

The object of social research is clearly the discovery of causal relationships in human behaviour. It is generally acknowledged that in human behaviour, as much as in natural phenomena, a large degree of measurable and predictable sets of associations occur. Social research, then, like research in physical and natural sciences, seeks to establish, measure, analyse these associations in all their variety and intensity (Thomas, 1968, p.294). Social research, however assumes a distinct character of its own in a significant measure when it comes to the application of scientific process as in natural sciences, to social phenomena. Unlike, physical and natural sciences, in social research the objects are conscious and active human beings. The individual behaviour of the objects whether it is free or determined makes the social research really a difficult job. Further, the researcher and object being similar, the scope of an objective approach in social research is limited to a considerable extent.

Social research concerns with social data, which are much more complex than physical data. The basis of all social interactions, whether it is a large complex group or a small cohesive group, is expectations of behaviour, which in turn is result of many factors. The complex nature of social data reduces the power of exact prediction in social research. Most of the subject matter of social research is qualitative and does not admit quantitative measurement. It is more so, because social phenomena are known only symbolically through concepts or terms representing such phenomena.

Social Research Process

The research process is the operational part of a research project. In a research project, there are various scientific activities in which researcher engages in order to produce knowledge. Although each research project is unique in some ways, all projects, regardless of the phenomenon being studied, involve, by and large, some common activities, which are interdependent. The research process is thus the system of these interrelated activities. The various activities are conveniently grouped into six stages as shown in Figure given below.



Social Work Research

Social work research is the application of research methods to the production of

knowledge that social workers need to solve problems they confront in the practice of social work. The knowledge is useful in appraising the effectiveness of methods and techniques of social work. It provides information that can be taken into consideration by social workers prior to making decisions, that affect their clients, programmes or agencies such as use of alternative intervention techniques or change or modification of programme, and so forth.

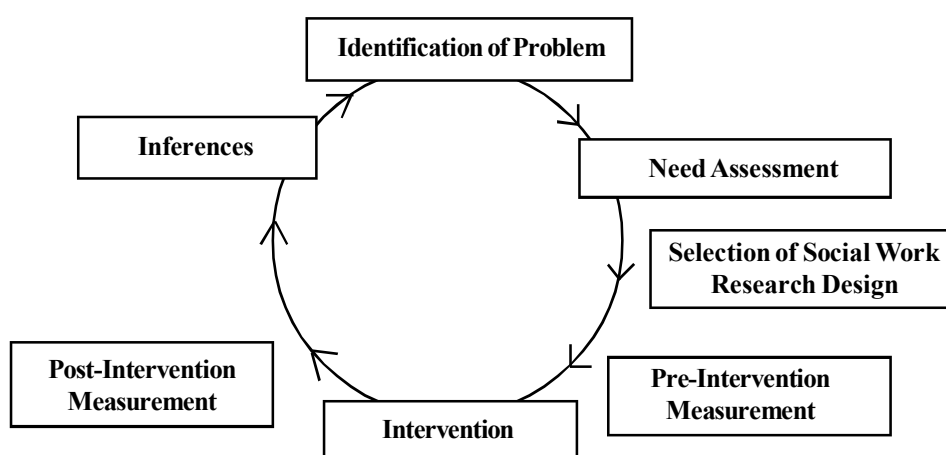
Social work research offers an opportunity for all social workers to make a difference or modification in their practice. There is no doubt about the fact that a social worker will be a more effective practitioner guided by the findings of social work research. Thus, social work research seeks to accomplish the same humanistic goals, as does a social work method. Social work research deals with those methods and issues, which are useful in evaluating social work programmes and practices. It explains the methodology of social research and illustrates its applications in social work settings.

Goal of Social Work Research

Social work is an action oriented profession. As such, the major objective of social work research is to search for answers to questions raised regarding interventions or treatment-effectiveness in social work practice. In other words social work research attempts to provide knowledge about what interventions or treatments really help or hinder the attainment of social work goals. In addition, it also helps in searching for answers to problems or difficulties faced by social work practitioners in the practice of their profession. Ultimately, it helps building a knowledge base for social work theory and practice.

Social Work Research Process

Social work research starts with problem identification and setting up of goals. This is followed by the process of assessment (or need assessment) of the clients problems. After the problem is identified and needs are assessed, the next step is to set up goals to be achieved. The goals are required to be specific, precisely defined and measurable in some way. The third step in the process is to have a pre-intervention measurement, that is, measurement prior to intervention. The pre-intervention measurement is used as basis from which to compare the client's condition after the intervention has been introduced.



Social Work Research Process

Next stage in the process is to introduce intervention. It is important here to note that only a single, coherent intervention be applied during any intervention phase. In the last stage, we assess the effects of intervention by comparing the two measurements, that is, pre-intervention measurement and measurements after intervention.

Check Your Progress 5

Describe the meaning of social work research.

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1.5 NATURE OF SOCIAL WORK RESEARCH

Social work research primarily deals with problems, faced by professional social workers, social work agencies and community in its concern with social work functions. In other words, in social work research the problems to be investigated are always found in the course of doing social work or planning to do it (Dasgupta, 1968).

It is very obvious that in social work research the study of a problem is from the point of view professional social work practise. The designing of research, problems, data collection and its interpretation will have to be attempted in a manner as would be useful to professional social work which would add new knowledge to the social work theory and practice and improve the efficiency of professional social workers.

Social work research mostly draws its inferences through inductive reasoning. That is, inferring something about a whole group or a class of objects from the facts or knowledge of one or few members of that group or class. Thus, in social work research, inductive reasoning carries us from observation to theory through intervention/assessment. Practitioners, for example, may observe that delinquents tend to come from families with low socio-economic status. Based on the assumption that the parent-child bond is weaker in low socio-economic families and that such parents, therefore, have less control over their children, the practitioners may inductively conclude that a weak parent-child bond leads to delinquency.

A substantive part of social work practice is concerned with the micro-level practice, such as working with individuals, groups, or a community. Social work research has to take into consideration the limitations of micro level design of study and techniques.

Social work research lays special emphasis on evaluation. This is one of the reasons that social work research is also understood as evaluative research. Under social work research, varieties of evaluative researches are undertaken. Some of the researches are on impacts or effects, efficacy and effectiveness. Evaluation of agencies and its projects and programmes are some of the specialized areas of social work research.

Check Your Progress 6

Describe the nature of social work research.

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1.6 SCOPE OF RESEARCH IN SOCIAL WORK

While on the theoretical side, social work research re-examines the special body of knowledge, concepts and theories and tries to evolve a systematic theory and valid concepts in the area of social work practice. Social work research may be conducted to know the efficacy of different methods of social work as to search for alternate interventions and treatments.

Identification of social work needs and resources, evaluation of governmental programmes and services, evaluation of programmes and services of social work agencies, are some of the areas in which social work researches are undertaken.

Social work research may be conducted to know the problems faced by professional social workers in social work agencies and communities in their concern with social work functions. Thus, social work research embraces the entire gamut of social work profession: concepts, theories, methods, programmes, services and the problems faced by social workers in their practice. It focusses on micro, mezzo and macro areas of intervention.

Social work research typically focuses on assessment of practitioner's work with individuals, groups, families communities or appraisal of agencies or programmes that involve the continued efforts of practitioners with many clients. As such, the research design, data collection and analytic strategies in social work research vary as a function of unit of analysis and programme of agencies of social work practitioner.

It focuses on or confines itself to select aspects of behaviour and alternate modes of behaviour modifications. It helps to find ways and means to enhance social functioning at the individual, group, community and societal levels.

When the focus of research is on concepts, principles, theories underlying social work methods and skills, social work research is known as intervention research. It also involves the study of the relationship of social workers with their clients: individuals, groups or communities on various levels of interaction or therapy as well as their natural relationships and functioning within the organizational structure of social agencies.

The areas of social work research may be broadly categorized as follows:

- 1) Studies to establish, identify and measure the need for service.
- 2) To measure the services offered as they relate to needs
- 3) To test, gauge and evaluate results of social work intervention.
- 4) To list the efficacy of specific techniques of offering services.
- 5) Studies in methodology of social work.

Social work is a diverse profession and possible broad research areas could be:

- i) Community Development,
- ii) Environment,
- iii) Child Welfare,
- iv) Women Welfare,
- v) Youth Welfare
- vi) Aged Welfare,
- vii) Substance Abuse,
- viii) Poverty alleviation,
- ix) Mental retardation,
- x) Juvenile Delinquency,
- xi) Crime and Corrections,
- xii) Public Health,
- xiii) Disability
- xiv) Migration

The list is not exhaustive. It is only illustrative which enlists broad areas which are very frequently studied by social workers. Again, within one or more problem-areas, research might focus on individuals, families, groups, community organizations or broad social systems. It might deal with characteristics of a larger population, and the services available to them.

1.7 LET US SUM UP

Any study to create new knowledge or aims to increase existing fund of knowledge, may it be through observation or by some other methods, is called research. Whereas scientific research is a systematic and critical investigation about the natural phenomena to describe, explain and finally to understand the relations among them.

Scientific research starts with facts and then moves towards theorising. Theory may be defined as “a set of interrelated constructs (concepts), definitions and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of predicting and explaining the phenomena.

There are several purposes to be served by a theory in the development of science. First, theory summarises and puts in order the existing knowledge in a particular area. Secondly, theory provides a provisional explanation for observed events and relationships. Lastly, theory permits the prediction of the occurrence of phenomena and enables the investigator to postulate and eventually, to discover hitherto unknown phenomena.

Scientific method consists of three basic steps: systematic observation, classification and interpretation of data. The major characteristics of scientific method are: Objectivity, Verifiability, Replication and Prediction.

The aim of social research is to discover causal relationships in human behaviour. It is generally believed that in human behaviour, as much as in natural phenomena, a large degree of measurable and predictable sets of associations occur. Social research, then, seeks to establish, measure and analyse these associations in all their variety and intensity.

Social work research is the application of research methods to the production of knowledge that social workers need to solve problems they confront in the practice of social work. The knowledge is useful in appraising the effectiveness of methods and techniques of social work.

The major objective of social work research is to search for answers to questions raised regarding interventions or treatment—effectiveness in social work practice.

Social work research mostly draws its inferences through inductive reasoning. That is, inferring something from the facts. Thus, in social work research inductive reasoning carries us from observation to theory through intervention/assessment. A substantive part of social work practice is concerned with the micro-level practice, such as working with individuals, groups or a community. Social work research lays special emphasis on evaluation.

Social work research typically focuses on assessment of practitioner’s work with individuals, groups, families communities or appraisal of agencies or programmes that involve the continued efforts of practitioners with many clients.

The areas of social work research may be broadly categorized as : studies to identify and measure the need for service; studies to measure the services offered as they relate to needs; studies to test, gauge and evaluate results of social work intervention; studies to list the efficacy of specific techniques of offering services and studies in methodology of social work.

1.8 CHECK YOUR PROGRESS: THE KEY

Check Your Progress 1

Any study to create new knowledge or which aims to increase existing fund of knowledge — may it be through observation or by some other methods, is called *research*. As such, research may be defined as systematic and critical investigation of phenomena toward increasing the stream of knowledge. We may define scientific

research as a systematic and critical investigation about the natural phenomena to describe, explain and finally to understand the relations among them.

Check Your Progress 2

Theory summarises and puts in order the existing knowledge in a particular area. It permits deeper understanding of data and translates empirical findings. It also provides a provisional explanation for observed events and relationships. Theory permits the prediction of the occurrence of phenomena and enables the investigator to postulate and, eventually, to discover hitherto unknown phenomena. Theory, therefore, plays a significant role in scientific research by providing a sound theoretical framework for further inquiry.

Check Your Progress 3

Scientific method consists of three basic steps; systematic observation, classification and interpretation of data. The major characteristics of scientific method are: Objectivity, Verifiability, Replication and Prediction.

Check Your Progress 4

There are several limitations involved in the application of the scientific method in social sciences. Some of the important limitations are: complexity of subject matter, difficulties in observation, difficulties in replication, interaction between an observer and subjects, difficulties in control and problems of measurement.

Check Your Progress 5

Social work research is the application of research methods to the production of knowledge that social workers need to solve problems they confront in the practice of social work. The knowledge is useful in appraising the effectiveness of methods and techniques of social work.

Check Your Progress 6

Social work research mostly draws its inferences through inductive reasoning; that is, inferring something from the facts. Thus, in social work research inductive reasoning carries us from observation to theory through intervention/assessment. A substantive part of social work practice is concerned with the micro-level practice, such as working with individuals, groups, or a community. Social work research lays special emphasis on evaluation.

Check Your Progress 7

The broad areas of research in social work may be categorised as follows:

- i) Community Development,
- ii) Environment,
- iii) Child Welfare,
- iv) Women Welfare,
- v) Youth Welfare
- vi) Aged Welfare,
- vii) Substance Abuse,

- viii) Poverty alleviation,
- ix) Mental retardation,
- x) Juvenile Delinquency,
- xi) Crime and Corrections,
- xii) Public Health,
- xiii) Disability
- xiv) Migration

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UNIT 2 RESEARCH REVIEW IN SOCIAL WORK

Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Research Review in Social Work: International Perspectives
- 2.3 Research Review in Social Work: National Perspectives
- 2.4 Let Us Sum Up
- 2.5 Check Your Progress: The Key
- 2.6 Further Readings and References

2.0 OBJECTIVES

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

- analyse the trends of research in social work in a few selected areas;
- state the different research methodologies used in social work;
- list the findings of studies conducted in India and abroad; and
- work out further research priorities in social work.

2.1 INTRODUCTION

Social work is a *practice* profession. As such, the major objective of social work research is to search for answers to questions raised regarding interventions or treatment effectiveness in social work practice. In other words social work research attempts to provide knowledge about what interventions or treatments really help or hinder the attainment of social work goals. In addition, it also helps in searching for answers to problems or difficulties faced by social work practitioners in the practice of their profession. Ultimately it helps building knowledge base for social work theory and practice.

Social work encompasses a broad spectrum of subjects related with both theory and practice. Most probably, this is the reason research studies available on these areas have yet to be compiled in an exhaustive manner. We can, however, group the areas of research in social work as follows.

- 1) Studies to establish identify and measure the need for service.
- 2) To measure the services offered as they relate to needs
- 3) To test, gauge and evaluate results of social work intervention.
- 4) To list the efficacy of specific techniques of offering services.

In this Chapter, an attempt has been made to introduce you to different areas of research on social work. Under each area, a synoptic view of research studies has been projected covering objectives, methodology and findings of the studies.

2.2 RESEARCH REVIEW IN SOCIAL WORK: INTERNATIONAL PERSPECTIVES

Research articles pertaining to social work published in various international journals of interest to professional social workers can be broadly classified into four categories: (a) evaluation research; (b) refinement in measuring techniques; (c) practitioner-researcher integration; (d) use of research techniques by practitioners in monitoring their intervention activities (Abstract, NASW).

A review of the state of art of research in social work in the western world reveals that there is no single 'composite' western picture or profile. Hence, first we scan the scene in the English speaking world based on the availability of literature from these countries.

Till 1960, in the western world, social work research was in an underdeveloped state even in the US, where the profession of social work has a much longer tradition than elsewhere.

Most of the researches in social work employed survey research designs and were concerned with description of different social problems using basic statistical methods. Only a few of these researches used experimental research designs and were concerned about research methodologies, causal and diagnostic analyses through correlations and path analyses. Obviously, these researches followed hypothetico-deductive model of social science research.

But one is pleasantly surprised at the change that has taken place in this situation during the later part of last century or so, because of the changes in emphasis on researches in social work practice areas.

For example, shift of emphasis from just description of social problems to problems of psychic imbalances and familial disturbances is noteworthy. Correspondingly, research concerning social work intervention through case-work method assumed greater importance in affluent countries. Almost simultaneously, research in social work intervention through group work, community organisation and administration of welfare services, received recognition in the field of social work research.

A cursory glance at researches undertaken during the 90's of the last century in this part of the globe shows that a substantive part of social work research is concerned with the micro-level practice, such as working with individuals, groups, or a community.

As a sequel to this shift in the nature of research and problems attended to, increasing emphasis was placed on a variety of evaluation studies and involvement of (non-social worker) practitioners in multidisciplinary researches (Abstract, NASW).

Demand for higher standards of social work services and accountability of professional social workers paved the way for use of computer technology in social work research. Computer assistance was in demand to reduce non- or para-social work activities in order to minimize undue-utilization or wastage of social work skills (Abstract, NASW).

In fact, the most encouraging trend was the use of computer softwares related with research techniques by practitioners. It was realized that so long as social work practitioners do not make use of computers as a part of their functions neither practice nor research can develop substantially. Essentially then, practitioners had to

evaluate their interventions with clients by using systematic research techniques with the help of computers.

Thus social work research practitioners were helped to, empirically, describe what they are doing with their clients and why they are following a particular course of treatment as well as monitor the effect of their interventions. Correspondingly, there was a sharp decline in survey research pertaining to description of different social problems, causal and diagnostic analyses in the areas of social work.

This shift in research emphasis might have occurred because traditional researchable issues had by then been exhaustively studied and/or had established comprehensive patterns or trends. Another probable reason for the movement away from traditional researches could be consistent demand for higher standards of social services.

It might be also due to the increasing demands of accountability of professional social workers. As Brenner (1976) says, "The current crisis in accountability has illuminated the failure of traditional researches to provide sufficiently relevant, effective and efficient modes of inquiry into social services." Many researchers (Rubin and Babbie, 2010) have laid emphasis upon evidence based practice. According to them evidence based practice decisions in light of the best research evidence available. It encourages practitioners to integrate scientific evidence with their practice expertise and knowledge of the idio-syncratic circumstances bearing on specific practice decisions.

Currently, in western world, Social Work research methodology links social work knowledge and practice. The Task Force on Social Work Research sponsored by the National Institute of Mental Health, completed a three-year study in which it examined the current status of research in social work, one of the key professions that employs social and psychological interventions for the purpose of helping people solve problems of growth and adaptation (Austin et. al.1991).

Among the chief observations made by the task force are : more researchers are required to do research that informs social work practice; and there are deficits in the structural arrangements of research, i.e., a paucity of structures to facilitate collaborative efforts between universities and social agencies. It is further noted that the Council on Social Work Education has reaffirmed its position that schools of social work, to be accredited, must provide instruction that teaches students how to evaluate the effectiveness of their practice.

With respect to these considerations and in reference to the state of the art of research in the social work professions, the three emerging issues are : conceptualization of intervention research, so that it allows social work theoreticians and researchers to distinguish intervention research, from other modalities; a new model of research on the design and development of intervention; and guidelines for conducting intervention research in direct practice with individuals, groups and families, as well as in community organizations.

Intervention research, which is focused on the development of knowledge about interventions, as being comprised of Intervention Knowledge Development, Intervention Knowledge Utilization, and Intervention Design and Development. Intervention Knowledge Development employs conventional social research strategies to produce knowledge from the social and behavioral science that can be applied to social work practice; and Intervention Knowledge Utilization employs a variety of procedures, such as meta-analysis, marketing strategies, and demonstrations, to

package and disseminate knowledge about innovative interventions. Intervention Design and Development is the heart of intervention research because it focuses on the development of new interventions as well as on the requirements for adapting previously used interventions to changing conditions such as population demographics, new social problems, reduced resources, etc. it is the methodology and practice of Intervention Design and Development that provides the uniqueness of intervention research. Paradoxically, the design and development of interventions that are effective has long been a favourite rallying cry for human service practitioners seeking relevant knowledge yet, it is that research that has been most neglected (Thomas, 1984; Rothman, 1980).

The model of Intervention Design and Development combines and integrates the essential features of two pioneering efforts in the field; social R and D and Research and Development in the Human Service. This integrated model is comprised of six phases; problem analysis and project planning; information gathering and synthesis; design early development and pilot testing; evaluation and advanced development; and dissemination. The research focuses on various aspect of these phases and provide a clear view of the creativity that is necessary to develop relevant interventions that achieve practice goals. One may form an impression that design and development can be time-consuming and complex, and so become disinclined to engage in this type of research. This would be a serious mistake and would reinforce the observation of the Task Force on social Work Research that research directly related to social work practice is often neglected. Authors further suggest that intervention-oriented researchers must conceive of research on serious social problems as involving possibly more than research by one individual i.e. research may be programmatic, involving inter-as well as intra-disciplinary efforts by teams of researchers. The conception is useful for either individual or team research. In addition, researchers can carry out research on various aspects of the model as applied to the development of particular intervention (Rothman, 1980; Thomas, 1984).

There is no particular trend in research technique that is employed in Intervention Design and Development. Both quantitative and qualitative research modalities are used in relation to a particular type of intervention that is being produced. The research experiences that are described help the reader to develop a conceptual and methodological stance for conducting various aspects of intervention research. In addition, they provide a useful frame of reference for theoretician's instructors, supervisors and practitioners. It helps in comprehending the very meaning of interventions and in their development, prior to testing for their effectiveness.

Steven (1994) emphasizes that meta-analyses should be conducted by those who are familiar with the literature that is being synthesized. One should not simply combine and summarize effect sizes without understanding the details of the studies that are summarized. James K. Whittaker and Elizabeth M. Tracy (1994) show how research can be focused on the design of practice guidelines for the use of network interventions with high risk youth and families. They illustrate the importance of designing interventions that are compatible with the philosophy, values, and goals of community agencies and social programs; and they demonstrate the value of their research, nothing that it is time consuming (Forness, 1994).

Reid (1994) develops a strategy for the research development of a single intervention, the family problem-solving sequence. His strategy involves the initial development, modification of intervention through single case studies; the aggregation and further

analysis of those studies; and the construction of a more rigorous design. This strategy promises to be especially useful in clinical research efforts.

William J. Intervention Research needs to be conducted in practice settings. A researcher may be engaged in a design and development project in which he or she creates the practice environment in a laboratory-type situation; for example research sponsored by a federal agency, such as that described by Edwin J. Thomas (1994) in evaluating and further developing a unilateral family therapy approach with spouses of alcoholics. Or, the research may be conducted by outside researchers who use the social agency as a laboratory, as in the illustration of the research by James K. Whittaker (1994) and Elizabeth M. Tracy (1994). Or, further still, the research may be reflective of collaborative efforts by university researchers and agency personnel. Currently, there is increased federal funding available for collaboration in the areas of mental health and child welfare. Of particular importance is the discussion by Yeheskel Hasenfeld and Walter M. Furman (1994) who analyze three collaborative researches and development projects from the perspective of inter-organizational exchange, and offer guidelines for facilitating inter organizational collaboration. Employing concepts such as power balance, structural centrality, stability, linkages, and motivational compatibility, the authors provide many useful insights and ideas.

Ronald H. Rooney (1994) discusses strategies for enhancing professional education. He believes the model of intervention research could be disaggregated so that relevant research could be performed within various phases of the model; and among his suggestions, he advocates more instruction about intervention research in graduate courses and more use of the practice of intervention research in doctoral education. This is very timely because the introduction of intervention research methodologies and issues in doctoral education most clearly should be given the highest priority.

In summation, current researches provide a wealth of ideas about Intervention Design and Development. They offer conceptual schemes, results from recent design and development studies, guidelines, strategies, and methodologies. There is important material in each research, which should be read by students, scholars, practice theoreticians, and researchers in the social work professions and related disciplines. The contents are provocative and should lead to discussion and further research that will inform practitioners about effective practice innovations at the individual and system levels.

Check Your Progress 1

- 1) Describe briefly the significant changes in the trend of social work research after 60's at the international level.

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2) Describe briefly the reasons for the use of computers in social work research.

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2.3 RESEARCH REVIEW IN SOCIAL WORK: NATIONAL PERSPECTIVES

From all available information it seems that until about fifties, student research was almost the only research activity in the schools of social work in India. The change in the number and nature of social work research took place as a result of the impetus given to social research in general by the Planning Commission, Government of India. Since research was implied in planning, the Planning Commission set up a Research Programmes Committee whose function, inter alia, was to farm out studies in different fields and aspects to different research agencies and institutions in order to obtain base-line data for planning purposes. The Research Programmes Committee was followed by the Central Social Welfare Board which sponsored a few field studies in the area of social welfare undertaken by schools of social work because they were assumed to be the repositories of social work knowledge and research expertise and hence the appropriate media through which to bring forth meaningful action related research findings.

As a sequel to this development, a number of research studies were undertaken by schools of social work covering a wide range of research areas like :

- i) Community Health,
- ii) Community Mental Health,
- iii) Child Welfare,
- iv) Women Welfare,
- v) Youth Welfare,
- vi) Elderly Care,
- vii) Substance Abuse,
- viii) Poverty Alleviation,
- ix) Mental Retardation,
- x) Juvenile Delinquency,
- xi) Crime and Corrections,
- xii) HIV and AIDS,
- xiii) Slums & Slum Populations etc.

A review of these studies shows that most of the researches employed survey research designs and were concerned with description of different social problems using basic statistical methods. Only a few of these researches used research designs for causal and diagnostic analyses. Obviously, these researches followed hypothetico-deductive model of social science research.

An overall review of the state of the art of social work research would reveal that for quite a few reasons there has been little growth and practically no developments in the social work research in India. This is evident from observation made by social work education at different points of time in India – 1961, 1972, and 1977. These show that there has been serious stagnation or at least very poor growth in social work research in India. Given the fact that social work education was introduced in India in 1938, Saiyid Zafar Hasan pointed out in 1961 that ‘very little has been done which is really worth’. In 1972, Ranade lamented that “social worker is far from impressive from either the qualitative or the quantitative angle”.

As the Committee on Social Science Research observed, “Much of the research in social work cannot meet the standards of rigorous social work research and there is conspicuous absence of competent criticism which would ensure minimum standard of quality. There has also been an obvious fragmentation of research in this field and unrelated studies on different problems. Even where a number of studies have been done on the same problem these are invariably non-comparable because the methodological tools differ, the basic concepts vary and the very presentation of findings is divergent. The sporadic nature of research in social work and related fields in India has, to a large degree, contributed to the poor quality in terms of initial preparation of design of the study, reliability and accuracy of data, strength of evidence to justify conclusions and lucidity of presentation” (Planning Commission, 1968).

This may be due to the fact that researchers have been following hypothetico-deductive model of social research. This dominant paradigm mainly focuses on quantitative measurement, experimental design, and probability sampling and multivariate parametric statistical analysis. The research based on this model has hardly any relevance to social work practice.

Research curriculum in social work education has traditionally been modelled on social science research. This is most probably the reason why research in social work in India is in no way different from the social science researches. As such, social work researchers, largely, view the culmination of research as the drawing of conclusions from the research findings through the process of deductive reasoning. These conclusions, obviously, contribute neither to knowledge base of social work nor to the social work practice. Seldom do they try to test the interventions or evaluate the outcome of their interventions. The research findings have hardly any relevance to social work practice. As a consequence, social work researchers and social work practitioners as well fail to see the link between social work research and social work practice. Most of them develop a notion that they have nothing to do with research.

The Emerging Trend

Social work research needs to emerge from a shadowy existence and occupy an equal place with other methods of social work. Research and practice should be perceived as allied aspects of social work and bound by the common goal of

advancing and consolidating the theory and practice of social work. Common areas need to be identified to merge research with theory and practice emphasizing on combining research training with field work (Monette, 1986). It is evident from the above discussion that social work research needs change in its focus, especially in the areas of research design, measurement, and sampling so that the research findings become relevant and useful for social work profession and thereby demonstrate the accountability of social work interventions.

Stimulating Research in Social Work

Social workers have to realize that it is on them that the primary responsibility of expanding the horizons of social work devolves. The present dependence on social science research model must be dispensed with and appropriate social work research be evolved to enable social work professionals to relate research with social work practice.

The perspectives and methods of science can provide a framework for social work research. Most of the knowledge used by social work researchers lacks a strong empirical basis - an unavoidable limitation of profession that deals with the elusive complexities of psychological and social phenomena. Social work educators can make use of scientific orientation in motivating social work doctoral research students to go for empirical testing of the various knowledge bases of social work - theories, principles and concepts taught in the theory classes. Research will provide empirically grounded knowledge, which in turn can make a significant change in the attitude of the students and educators towards the profession.

In most of the research studies conclusions are based on percentage analysis of data. Statistical tests are indispensable in research to analyze and interpret the data. Curricula of all schools of social work have courses on research methodology and statistics. Many also offer laboratory training on use of the SPSS (Statistical Package for Social Sciences) and AtlasTi and nVivo. Dissertations are also a part of their field work which equips them with skills to collect data, interpret their findings and as required evaluate the interventions.

In most of the doctoral research dissertations in social work, research scholars have used survey research designs. Further, a good number of these researches were confirmatory researches. It is imperative for social work researchers, to realize that social work research is a problem solving method and it seeks to accomplish the same humanistic goals as does social work practice. For this, social work researchers have to use appropriate research designs to study specific topics from the field work experiences related to social work. The areas of social work research may be broadly categorized as follows:

- 1) Studies to establish, identify and measure the need for service.
- 2) To measure the effectiveness of services offered as they relate to needs
- 3) To test, gauge and evaluate results of social work intervention.
- 4) To list the efficacy of specific techniques of offering services.
- 5) Studies in methodology of social work.
- 6) To develop evidence based practice models for social work education.

It is very obvious that in social work research the study of a problem is from the point of view of social work and more so from the perspective of professional social work. The designing of research problems, data collection and its interpretation is attempted in a manner as would be useful to professional social work which would add new knowledge to the social work theory and practice and improve the efficiency of professional social workers.

The greatest drawback of social work research has been the lack of fit between research and practice. Practice of social work often draws from practice wisdom than from research, while research studies are not necessarily practice-oriented. Consequently, practice and research are treated independently at the training level and the approach, therefore, continues in the post-training careers of social workers. The gulf between researchers and practitioners over the years has widened. There is an imperative need that social work educators disseminate research findings in a manner appropriate for use by the various stakeholders.

The practitioners, due to their preoccupation with service delivery systems are least concerned about research. Both the contentions underscore the need to solidify the relationship between schools and agencies by integrating research and practice (Ried, 1978).

Thus, as research and practice have co-existed parallel to each other, it is important that practice-oriented research be facilitated so as to add to the indigenous literature for social work education and practice.

Role of Research in Social Work

Social work research has a challenging task ahead of it to meet the growing demands of higher professional standards and accountability. The demands for accountability on the part of social work profession - empirical evidences showing what kind of relationship would enhance the achievement of clients' goal- are becoming louder and broader in scope (Monette, et. al.1986). In a sense, the profession has to prepare itself to accept the clients rights to demand that social workers justify their actions and recommendations on specific and demonstrable grounds.

Another development in social work research has been the demand for higher professional standards. This motivated many professionals to begin defining social work as a scientific discipline and social work practice as a 'scientific practice' or 'data-guided practice' (Thomas, 1971: Bloom, 1978). This calls for improving the empirical knowledge base for social work education and practice, and delivering more effective services to the clients (Hopps, 1989). To meet the growing demands of higher professional standards and accountability, research has to play multifaceted roles. For this, conscious efforts have to be made to restructure the social work research curriculum and integrate research into theory and practice.

This is a challenging task for social work researchers. The challenge is also to recognize the ways in which *research*, *theory* and *practical* components can be linked by incorporating research into practice settings and by shaping practice settings into research opportunities (Reid, 1978).

The main impetus to research has come from use of computer software such as SPSS (Statistical Package for Social Sciences and AtLasTi and NVivo).

Programme Evaluation Research

Although non-governmental organisations (NGOs) have increased in number, there have been very few systematic evaluation researches of their effectiveness (UNDP, 1993). To contribute effectively to sustainable human development, NGOs as well as donor/funding agencies have to recognize the significance of social work research.

Thus evaluation research can play multifarious roles to make services more effective (Monette, 1986). In order to enhance programme effectiveness, evaluators have assessed problems and needs of a programme/target population. They have assessed the extent and location of the problems, the programme as well as the target population's characteristics, problems, expressed needs and desires (Monette, 1986). This information has been used to guide programme planning and implementation concerning such issues as the type of services to offer, how to maximize service utilization by targeted sub-groups, where to locate services, and so on (Jain, 1992).

Role of NGOs in Research

In the recent past, the amount of public and private funds for social welfare programmes has grown manifold. As funding has increased, those providing the funds have sought valid and reliable evidence regarding whether programmes achieve their goals.

Although, project executors should welcome evaluation of their projects but in reality, there appears to be some kind of hesitation and resistance against the use of systematic evaluation. This reaction and resistance on the part of project executors escalate when external experts or agencies undertake the evaluation on behalf of the funding agencies.

In some cases, a researcher is considered an outsider to a project and his knowledge and competence in drawing conclusions on the success or failure of a project is always questioned and challenged. Nevertheless, adopting scientific methods and techniques of evaluation research has given a positive image to the evaluator, which marks him as a "partner in progress". The researcher/evaluator is now being accepted as an expert who can provide very useful feedback to the project being evaluated. Hence, he is not only accepted but is sought after.

The prevailing approach to evaluation has to be replaced by systematic project/programme evaluation consisting of need assessment, process and outcome evaluation, interventions effectiveness etc. And finally, projects/programmes have to be modified through the feedback received by systematic evaluation.

Evaluation researches, despite claims of having led to improvements in the execution of programmes, have also brought to the light, the fact that there are "very few successes worth to be put on record, especially in terms of post intervention sustainability" (Glaser, 1979). The poor virtually in every country on the planet are reaping fewer rewards of development than those in high income groups. The net outcome is that poor people, even when helped by successful projects still remain poor.

Programme Evaluation: The Approach

NGO performance and outcome need to be examined from the perspective of their effectiveness. So far, systematic evaluation of performance and the net outcome of NGOs have not been given proper attention either by the NGOs themselves or by

the funding organizations (Bloom, 1995). Most of the NGOs do not undertake evaluation research to assess their performance or outcome. Instead, they present individual “success stories” to justify their performance and while assessing the outcome they present data without giving reference to the baseline.

The donor/funding agencies, on the other hand, largely depend on annual progress reports, which are again “success stories”. They do send evaluators/experts teams for assessment of the performance and outcome of the NGOs activities (Freeman, 1985). The assessment of NGOs by the team is by and large based again on annual reports submitted by the NGOs and on partial evidences collected during their field visits. Hence, it is difficult to judge how effective NGOs performance and their outcome are.

Donor/funding agencies and NGOs have to realize that monitoring and evaluation are integral part of the project/programmes. They have to establish a system of monitoring and evaluation. Donor/funding agencies that have been able to respond sensitively and flexibly to the “success stories” may have to think whether funding of projects, which are not systematically evaluated, is justifiable.

Recent Trends in Social Work Research

Evaluative research is being undertaken under a variety of captions, the simplest and commonly known is the follow-up studies. Studies on implications or efforts, efficacy and effectiveness, measurement of effects, durability of effects are also need to be added to the list.

Different client levels are covered for evaluation. At the individual level, for instance, Single Subject Design (N=1), subject as his- own control- research are some of the research studies reported recently.

Lal Das, *et. al.* studied “Effect of Social Work Intervention on Attempted Suicide using *multiple component single subject design* and reported that cognitive therapy appeared to be most effective in reducing the suicidal ideation and depression in the client. The article reports the results of a study evaluating the effectiveness of an intervention package on a male young adult who attempted suicide. Data indicate that cognitive therapy was found to be the most effective in the intervention package consisting of crisis intervention, cognitive therapy and developing problem-solving skills.

Effectiveness of social work intervention in case of psychosomatic pain disorder was evaluated employing *AB Single Subject Design Research*. The research study reports that client showed a considerable improvement. It is clear from the findings that cognitive behavioural approach coupled with problem-solving skills and applied in systems perspective is the effective programme to deal with psycho-somatic pain disorder. The findings also reflects that to get the effective results, we need to focus our intervention at different levels, where problematic elements were observed e.g. in the present case intervention was directed at client-level, family-level and also at peers-level. However, the findings of the study need to be considered in context of several methodological limitations. The study being a *single subject research design* has limited generalizability. But this is true that it will be of great help for practitioners to apply the same intervention package with other such cases. It will also help practitioners to maintain data to evaluate practice with each client.

True experimental research design was used for testing causal relationships that

Value Clarification causes change in orientation towards vision and values by comparing a group of students who have been exposed to values clarification process with one that has not been exposed. The researcher attempted to assess the impact of value-clarification as a process to enhance the level of orientation towards vision and values amongst students of management. The findings indicate significant changes in the experimental group in orientation towards vision and values.

Social work is a practice profession. As such, the major objective of social work research is to search for answers to questions raised regarding interventions or treatment effectiveness in social work practice. In other words, social work research attempts to provide knowledge about what interventions or treatments really help or hinder the attainment of social work goals. In addition, it also helps in searching for answers to problems or difficulties faced by social work practitioners in the practice of their profession. Ultimately it helps building knowledge base for social work theory and practice.

Social work needs to develop a research paradigm that emphasizes a combination of qualitative and quantitative measurements, quasi-experimental design, non-probability sampling and multivariate non-parametric statistical analysis.

Social work research offers an opportunity for social workers to significantly improve their professional standards and accountability towards their interventions. Research has a multifaceted role to play in this direction. Steps like redesigning the research curriculum for social work, integration of research, theory and practice, stimulating research in social work and emphasis on need-based research methodology have to be taken to demonstrate the role of research in social work education. Research what has been discovered is important, but equally important is how it has been discovered. Hence, professionals need to be trained in research methodology. It is, therefore, important that social work schools lay emphasis on research at all levels - be it graduate, post graduate, M.Phil or doctoral research. Towards this papers on research methodology, and production of dissertations as part of field work are desirable. Most schools of social work have taken steps in this direction.

Check Your Progress 2

- 1) Describe briefly the significant changes in the trend of social work research after 90's at the national level

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2.4 LET US SUM UP

Till 1960, most of the researches in social work in west employed survey research designs and were concerned with description of different social problems using basic statistical methods. Only a few of these researches used experimental research designs and were concerned about research methodologies, causal and diagnostic analyses through correlations and path analyses. Obviously, these researches followed deductive model of social science research.

Significant change took place in this situation during the later part of last century because of the changes in emphasis on researches in social work practice areas. For example, shift of emphasis from just description of social problems to problems of psychic imbalances and familial disturbances is noteworthy.

Researches undertaken during the 90's of last century in this part of the globe shows that a substantive part of social work research is concerned with the micro-level practice, such as working with individuals, groups or members of a community.

Demand for higher standards of social work services and accountability of professional social workers paved the way for use of computer technology in social work research. Computer assistance was in demand to reduce non- or para –social work activities in order to minimize undue utilization or wastage of social work skills.

The most encouraging trend was the use of computer softwares, such as the Statistical Packages for Social Sciences (SPSS) related with research techniques by practitioners. It was realized that so long as social work practitioners do not make use of computers as a part of their functions neither practice nor research can develop substantially. Essentially then, practitioners had to evaluate their interventions with clients by using systematic research techniques with the help of computers.

This shift in research emphasis might have occurred because traditional researchable issues had by then been exhaustively studied and/or had established comprehensive patterns or trends. Another probable reason for the movement away from traditional researches could be consistent demand for higher standards of social services. It might be also due to the increasing demands of accountability of professional social workers.

Currently, in western world social work research methodology links social work knowledge and practice. In India, an emerging trend of research in diverse practice areas has been a positive trend. Curricular changes have been made accordingly. Students at M.A., M.Phil level increasingly take up dissertations under supervised mode.

As a sequel to this development, a number of research studies have been undertaken by schools of social work covering a wide range of research areas in social work.

Most of these researches employ survey research designs and are concerned with description of different social problems using basic statistical methods. Only a few of these researches use research designs for causal and diagnostic analyses. Obviously, these researches followed hypothetico-deductive model of social science research.

2.5 CHECK YOUR PROGRESS: THE KEY

Check Your Progress 1

At the International level, significant changes in social work researches were: Changes in emphasis from just description of social problems to problems of psychic imbalances and familial disturbances, researches in social work practice areas and use of computer technology in social work research.

Check Your Progress 2

Demand for higher standards of social work services and accountability of professional social workers paved the way for use of computer technology in social work research. Computer assistance was in demand to reduce non-or para-social work activities in order to minimize undue utilization or wastage of social work skills (Abstract, NASW).

It was realized that so long as social work practitioners do not make use of computers as a part of their functions neither practice nor research can develop substantially. Essentially, then, practitioners had to evaluate their interventions with clients by using systematic research techniques with the help of computers.

Significant changes in the trend of social work research after 90's at the national level are: Evaluative researches undertaken under variety of captions; follow-up studies, studies on implications or efforts, efficacy and effectiveness, measurement of effects, durability of effects, Single Subject Design (N=1),

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UNIT 3 RESEARCH PROCESS I: FORMULATION OF RESEARCH PROBLEM

Structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 The Research Process
- 3.3 Formulation of Research Problem
- 3.4 Hypothesis
- 3.5 Let Us Sum Up
- 3.6 Check Your Progress: The Key
- 3.7 Further Readings and References

3.0 OBJECTIVES

In this Unit, we concentrate on the selection, definition, statement, and evaluation of the research problem. It also deals with the nature, importance and formulation of hypothesis, the features of a usable hypothesis, its various types and utility in the research process. On completion of this Unit, you should be able to:

- describe the important sources for the selection or identification of research problems;
- explain what is meant by the ‘definition’ of the problem;
- describe the criteria which are helpful in the evaluation of a research problem; and
- explain the meaning of hypothesis and its importance, and various types of hypotheses.

3.1 INTRODUCTION

To claim knowledge as part of a scientific discipline it is essential that it can be proved by reason and experience (observation). The claim is evaluated on two criteria, viz., *logical validity* and *empirical verification*. These two criteria are translated into various activities of researchers through the research process. Chapter 3 and Chapter 4 intend to describe the research process in detail.

Formulation of research problem, the first step in the research process, is considered the most important phase of a research project. This step starts with the selection of a suitable problem from the field chosen by the researcher. In the area of social work, several problems exist which may have reference to pure, applied, or action research. The choice and formulation of a suitable problem is one of the most difficult tasks for a researcher, especially if he/she is a beginner. There are many sources which a researcher may consult in order to formulate a suitable research problem, or from which he/she may develop a sense of problem awareness. This chapter is devoted to describe the various activities involved in the process of problem formulation, such as defining the problem, statement of the problem, operationalisation of the variables, evaluation of the problem, formulation of the hypothesis, etc.

3.2 THE RESEARCH PROCESS

The research process is the blue print of research project. In a research project, researcher engages himself/herself in various scientific activities in order to produce knowledge. Although each research project is unique in some ways, all projects, regardless of the phenomenon being studied, involve, by and large, some common activities. All these activities are interdependent. The research process is a system of these interrelated activities. The various activities are conveniently grouped into six stages as shown below:

- Stage I : Selection and Formulation of a Problem
- Stage II : Formulation of Hypothesis
- Stage III : Formulation of Research Design
- Stage IV : Collection of Data
- Stage V : Analysis and Interpretation of Data
- Stage VI : Generalizations.

The stages of research are interdependent. The researcher usually enters the research process at stage I. However, when one enters second stage, one has to draw on past studies to formulate his/her hypothesis. Similarly, to select a research design the researcher has to keep in mind the problem and the hypothesis. A researcher, who has no knowledge of how to collect and analyse data, may find himself / herself unable to formulate a testable hypothesis, or formulate the research design. This brief discussion on the research process makes it very clear that each of these six stages of research process is dependent upon others.

The research process is also cyclic in nature (as shown in Figure). In fact, the research process is not complete even at the stage VI i.e. “Generalization”. The process leads to two situations: The first situation may be that the data did not support or only partially support the hypothesis. In this situation the researcher must return to the stage I. He/she, then, may decide to reformulate the problem and also hypothesis and then list it exactly as before. In the second situation, that is, even if the research is successful and the findings of stage VI confirm the hypothesis of stage II, it is advisable to repeat the study preferably with a different sample with a view to reconfirm the findings. This will also support the contention that the hypothesis cannot be rejected.

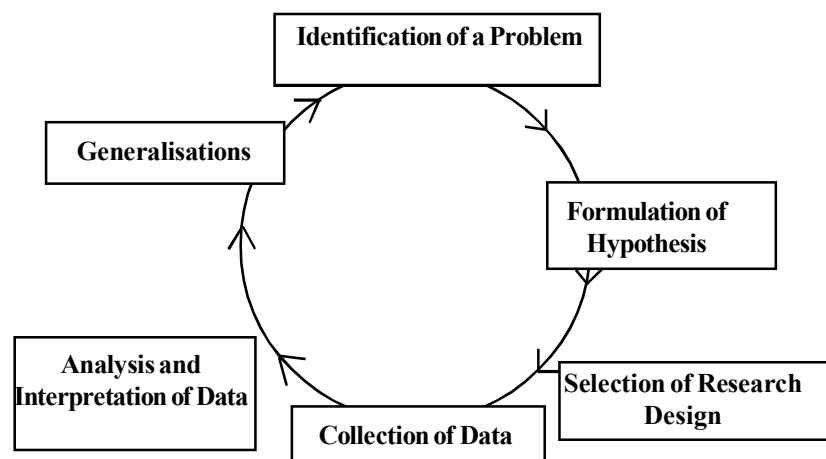


Figure 1: Stages of the Research Process

Another characteristic feature of the research process is ‘self correction’. In a situation, when the data does support or only partially support the hypothesis and the researcher has sufficient reasons to believe that the hypothesis is adequate then he/she may decide that the failure to confirm the hypothesis is due to error in selecting a sampling design or in the measurement of the key concepts or in analysis of data. In these situations, the researcher may decide to repeat the study beginning with the faulty stage after rectifying the faults. Finally, the six stages of the research process make the study potentially replicable. The researcher designs his/her study in such a way that either the researcher or others can replicate it. The replication of study substantiates the fact further that the findings are not due to mere coincidence.

Check Your Progress 1

1) Explain the process of research.

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3.3 FORMULATION OF RESEARCH PROBLEM

Formulation of research problem constitutes the first stage in the research process. Essentially, two issues are involved in formulation of research problem viz., understanding the problem thoroughly and rephrasing the same into meaningful terms from an analytical point of view.

The best way to understand the problem is to discuss it with one’s own colleagues or with those having some expertise in the subject. In an academic institution, the researcher can seek the help from a teacher or a guide who is usually an experienced person. Often the teacher puts forth the problem in general terms and it is up to the researcher to narrow it down and phrase the problem in operational terms. In governmental or non-governmental organisations, the problem is usually earmarked by the administrative heads with whom the researcher can discuss as to how the problem originally came about and what considerations are involved in its possible solutions.

The researcher must at the same time examine all available literature to get himself/herself acquainted with the selected problem. He/she may review the literature concerning the concepts and theories and also the empirical literature consisting of studies made earlier which are similar to the one proposed. The basic outcome of

this review will be the knowledge as to what research questions have been explored and what the findings were. This will enable the researcher to specify his/her own research problem in a meaningful context. After this, the researcher rephrases the problem into analytical or operational terms i.e., state the problem in as specific terms as possible. This task of defining a research problem is a step of greatest importance in the entire research process. The problem to be investigated must be defined unambiguously, for that will help discriminating relevant data from irrelevant ones. Care must, however, be taken to verify the authenticity and validity of the facts concerning the problem. The statement of the problem determines the data which are to be collected, the characteristics of the data which are relevant, relations between variables which are to be examined, and the choice of the method and techniques to be used in these investigations. If there are certain pertinent terms, the same should be clearly defined and the operational definitions be provided. In fact, formulation of the problem often follows a sequential pattern where a number of formulations are set up, each formulation more specific than the preceding one, each one phrased in more analytical terms, and each more realistic in terms of the available data and resources.

Definition of the Problem

Once a research problem has been identified, it needs to be defined. The definition of a problem amounts to specifying it in detail and narrowing it down to workable size. Each question and subordinate question to be answered is specified at this stage and the scope and limits of investigation are determined. In this stage of research the overall plan for the research project must be set out in logical order to see if it makes sense. The research topic should be defined in such a way that it is clearly understood. If you are studying, for example, alcoholism you need to put your research question into a framework which suggests that you are very clear and specific about the problem of alcohol consumption and abuse. In short, topics of research must be grounded in some already known factual information which is used to introduce the topic and from which the research questions will emerge. Usually, it is necessary to review previous studies in order to determine just what is to be done. While defining the problem, it is necessary to formulate the point of view on which the research study is to be based. In case certain assumptions are made, they must be explicitly stated.

Statement of the Problem

A good statement of a problem must clarify exactly what is to be determined or solved or what is the research question. It must restrict the scope of the study to specific and workable research questions. So, you are required to describe the background of the study, its theoretical basis and underlying assumptions, and specify the issues in terms of concrete, specific, and workable questions. All questions raised must be related to the problem. Each major issue or element should be separated into subsidiary or secondary elements, and these should be arranged in a logical order under the major divisions.

Operationalisation of Variables

In stating a problem, the researcher should make sure that it is neither stated in terms so general as to make it vague nor specified so narrowly as to make it insignificant and trivial. The most important step in this direction is to specify the variables involved in the problem and define them in operational terms. To illustrate, suppose

you state that you want to study the “Effectiveness of Self-help Groups on the Empowerment of Rural women”. This statement is broad and it communicates in a general way what you want to do. But it is necessary to specify the problem with much greater precision. For this the first step is to specify the variables involved in the problem and define them in operational terms.

The variables involved in the problem are “effectiveness” and “empowerment”. Please note that these expressions are to be understood beyond their dictionary meanings. For example, the dictionary meaning of “effectiveness” is “producing the desired effect”. This meaning is not sufficient for research purposes. It is important for you to specify exactly what indicators of effectiveness you will use or what you will do to measure the presence or absence of the phenomenon denoted by the term “effectiveness”. Similarly, you have to define the other variable “empowerment” also in terms of the operations or processes that will be used to measure them. In this study, you might choose to define “effectiveness” as the improvement made by the rural women in scores on a standardised scale. The term ‘empowerment’ might refer to the scores on the achievement test in empowerment.

It is worth noting that the problem should be stated in a way that it indicates a relationship between two or more variables. It should involve neither philosophical issues, values nor questions of judgement that cannot be answered by scientific investigations. However, research may bring forth qualitative data that may highlight the impressions of respondents on personal concerns. These are subjective in nature and cannot be generalized.

Evaluation of the Problem

You, as a researcher, should evaluate a proposed problem in the light of your competence and professional experience, possible difficulties in the availability of data, the financial and field constraints, and limitations of time. After evaluating a broad research problem you have to narrow it down to a highly specific research problem. You formulate the problem by stating specific questions for which you would seek answers through the application of scientific method.

It is worthwhile for you to ask yourself a series of questions before you undertake the research. The questions should be helpful in the evaluation of the problem on various criteria. All such questions must be answered affirmatively before the study is undertaken. What are the questions that we should ask?

i) Is the problem researchable?

There are certain problems that cannot be effectively researched through the process of research. A researchable problem is always concerned with the relationship existing between two or more variables that can be defined and measured. The problem should be capable of being stated in the form of workable research question that can be answered empirically.

ii) Is the problem new?

There is no use in studying a problem which has already been adequately investigated by other researchers. To avoid such duplication, it is essential to examine very carefully the literature available in the field concerned. The problem should be selected only when you are convinced that it is really a new problem which has never before been investigated successfully. However, it must be noted that a researcher may

repeat a study when he/she wants to verify its conclusions or to extend the validity of its findings to a situation entirely different from the previous one, or to a new population.

iii) Is the problem significant?

The problem should be such that it is likely to fill the gaps in the existing knowledge, to help to solve some of the inconsistencies in the previous research findings, or to help in the interpretation of the known facts. The results or findings of a study should either become a basis for a theory, generalisations or principles. Besides, they should lead to new problem for further research or have some useful practical applications.

iv) Is the problem feasible for the particular researcher?

a) Research competencies

The problem should be in an area in which the researcher is qualified and competent. He/She must possess the necessary skills and competencies that may be needed to develop and administer the data-gathering tools and interpret the data available for analysis. The researcher should also have the necessary knowledge of research design, qualitative and quantitative techniques of data analysis etc. that may be required to carry out the research to its completion.

b) Interest and enthusiasm

The researcher should be genuinely interested in and enthusiastic about the problem he/she wants to undertake for research.

c) Financial considerations and feasibility

The problem should be financially feasible. The researcher should ascertain whether he/she has the necessary financial and temporal resources to carry out the study. The cost is an important element in feasibility. It is important to estimate the cost of the project and assess the availability of funds. This will determine whether the project can be actually executed.

d) Administrative considerations

In addition to personal limitations, financial and time constraints, the researcher should also consider the nature of data, equipment, specialised personnel, and administrative facilities that are needed to complete the study successfully. He/she should check whether he/she is able to get the co-operation from various administrative authorities for collecting various types of data.

e) Time

Projects are a time-bound exercise. Most of you, if not all, are already engaged in more than one activity in office, at home and/or in some social organizations. It is important to assess the time required to complete a study, besides the assessment of total period, it is necessary to identify the particular span of the year in relation to the nature of the study.

Check Your Progress 2

- 1) In the light of our discussion till now, think and suggest of a research problem in your own area of specialisation. State the variables of the problem you have identified and state briefly how it is *new, significant and feasible* for research.

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3.4 HYPOTHESIS

After the selection and formulation of research problem, the formulation of hypothesis(es) is the next important step in the research process. A hypothesis is defined as “A tentative proposition” suggested as a solution to a problem or as an explanation of some phenomenon (Ary et. al. 1985). This step establishes the problem and the logic underlying the research study. Questions which the researcher has designed to answer are usually framed as hypothesis to be tested on the basis of evidence. The formulation of the hypothesis(es) is typically determined with the help of the implications of the related literature and the deductive logic of the problem under investigation.

Importance of Hypothesis

It may be mentioned here that hypotheses are not essential to all researches, particularly, in the early stages of exploration of a problem. And it should not be assumed that failure to develop a hypothesis is necessarily a sign of lack of scientific orientation. However, a hypothesis may be conceived as an assumption which merits consideration and needs to be tested against the available empirical evidence. That is why it is suggested that a hypothesis is to be used as a pivot around which the investigation revolves, limiting thereby the field of investigation to a definite target and also determining the observations to be made and the ones to ignore.

A good hypothesis has several basic characteristics. We discuss some of them as follows:

- i) **Providing direction:** Hypotheses provide direction to research and prevent review of irrelevant literature and collection of useless or excessive data. They enable you to classify the information from the standpoint of both ‘relevance’ and ‘organisation’. This is necessary because, a given fact may be relevant with respect to one hypothesis and irrelevant with respect to another, or it may belong to one classification with regard to first hypothesis or to an entirely different classification with regard to the second. Thus, hypotheses ensure the collection of relevant data necessary to answer questions arising from the statement of the problem. For example, in a research problem, “Impact of

Development and Levels of Living among Scheduled Castes and Tribes”, the researcher may frame the hypothesis – higher the development, higher will be the level of living among the Scheduled Castes and Tribes. The researcher will collect data about the indicators of development and living standards of Scheduled Castes and Tribes.

- ii) **Hypothesis should be testable:** Hypotheses should be stated in such a way as to indicate an expected difference or an expected relationship between the measures used in the research. The researcher should not state any hypothesis that she/he does not have reason to believe that it can be tested or evaluated by some objective means. Hypotheses are the propositions about the relationships between variables. These can be tested empirically.
- iii) **Hypothesis should be brief and clear:** Hypothesis should be stated clearly and briefly. It makes problem easier for the reader to understand and also for the researcher to test. The statement should be a concise statement of the relationship expected.

Characteristics of a Good Hypothesis

There are some important aspects to be looked into to judge the worth of a hypothesis in research. A good hypothesis must be:

- i) consistent with known facts and theories, and might be even expected to predict or anticipate previously unknown data,
- ii) able to explain the data in simpler terms,
- iii) stated in the simplest possible terms, depending upon the complexity of the concepts involved in the research problem, and
- iv) stated in a way that it can be tested for its being probably true or false, in order to arrive at conclusion in the form of an empirical or operational statement.

Formulation and Testing of Hypothesis

Hypotheses are formulated to explain observed facts, conditions, or behaviours and to serve as a guide in the research process. The statements or tentative generalisations which constitute hypotheses are partly based on facts and explanations, and are partly conceptual. Hence, there are certain necessary conditions that are conducive to the formulation of hypothesis. These are:

- i) **Deducing a hypothesis inductively:** You may deduce a hypothesis inductively after making observations of behaviour, noticing trends or probable relationships. For example, as a social worker you observe community leaders’ behaviour in the village. On the basis of your experience, you may attempt to relate community leaders behaviour with their personal characteristics such as their level of education, castes, socio-economic status, and so on. On the basis of these observations, you may be able to formulate a hypothesis that attempts to explain these behavioural relationships in a community setting.
- ii) **Limiting the problem:** Here we need to state that the basic understanding of the literature pertaining to the problem under investigation also becomes essential in view of the fact that the already existing corpus of knowledge on the particular problem is too detailed to be incorporated in the process of hypothesis formulation. Hence, the researcher must have the ability to comprehend the

available evidence in support or against the expected relationships so as to remain within the limits of the problem while formulating the hypothesis.

- iii) **Deriving a hypothesis deductively:** Hypotheses are also derived deductively from the theory. Such types of hypothesis, called “deductive hypotheses” are formulated by studying a particular theory in the area of one’s interest and deducting hypothesis from this theory through logic. This is possible when a researcher has a versatile intellect and can make use of it for restructuring his/her experiences in research. Creative approach to problem solving so badly needed by a researcher, is the product of sound attitude, and agile intellect. This view is more relevant to descriptive and historical research in which the abundance of literature with a number of contradictory/supplementary theories may divert the researcher from the right path. Therefore, you have to exercise great restraint and display considerable patience to keep yourself on the right path. You have to develop certain habits and attitudes, besides saturating yourself with all the possible information about the problem and also think open-mindedly about it before proceeding further in the conduct of the study.
- iv) **Hypothesis from analogies, conversations, etc.:** Analogies also lead a researcher to clues that may prove to be useful in the formulation of hypotheses and for finding solutions to problems. For example, a new social situation resembles an old one with respect to a particular set of factors. If the researcher knows that the factors correlate in a particular fashion in the old situation, he/she may hypothesize in terms of trends in the relationship to be expected in the new social situation. However, it is to be mentioned here that use of analogies must be made cautiously as there are not fool-proof tools for finding solutions to problems.

Sometimes, especially the inter-disciplinary research conversations and consultations with experts are also found to be useful in the formulation of hypotheses. To study the relationship of increasing literacy rate in the rural population with the changing pattern of social development requires consultation with experts while formulating hypotheses. However, formulating hypothesis on the basis of analogies, anecdotes and conversations should be done rarely, only as exceptions.

Forms of Hypothesis

To arrive at some conclusions pertaining to a particular research problem, a hypothesis is generally stated in testable form for its proper testing. It may be stated either in **declarative** form, the **null** form or the **question** form. What do these three forms mean?

Declarative hypothesis

When a researcher makes a positive statement about the outcome of the study, we get a declarative hypothesis. For example, the hypothesis “**The performance of the creative persons’ on problem solving tasks is significantly higher than that of the non-creative ones’** is stated in the declarative form. Here the researcher makes an attempt to predict the future outcome. This prediction is based on the theoretical formulation of what should happen in a particular situation if the explanations of the behaviour (performance on problem solving tasks) which the researcher has given in his/her theory are correct.

Null hypothesis

A null hypothesis is a non-directional hypothesis that proposes difference or relationship. The usual form of such hypothesis is: **“There is no significant difference between the performance of two groups of social workers, one having generic background and the second having some specific specialization.”** Since a null hypothesis can be statistically tested, it is also known as “statistical hypothesis” or “testing hypothesis”. The proponents of null hypothesis emphasise that the researcher must remain unbiased throughout his/her research efforts. This view is defended on the basis of the fact that in this case the researcher neither predicts a result nor indicates a preconceived attitude that may influence his/her behaviour during the conduct of the study. On the other hand, those who criticize the use of null hypothesis argue that the researcher should indicate the direction of the outcomes of the study, wherever possible. It is further argued that predicting the results of a study is less awkward in phrasing a relationship, than in using the ‘no difference’ phrase that is usual in the null form.

A null hypothesis challenges the assertion of a declarative hypothesis and also denies it altogether. It says even where it seems to hold good, it is so due to mere coincidence. It is for the researcher to reject the null hypothesis by showing that the outcome mentioned in the declarative hypothesis does occur and the quantum thereof is so significant that it cannot easily be said to have occurred by chance. The reasons for rejecting the null hypothesis may differ. Sometimes the null hypothesis is rejected only when the probability of its having occurred by a mere chance is: 1 out of 100 or .01. In such cases, we consider the probability of its having occurred by chance to be too little to be considered, and we reject the chance component of the null hypothesis and take the occurrence to be due to a genuine tendency.

Hypothesis in question form

In the question-form hypothesis, instead of stating what outcome is expected, a question is asked as to what the outcome will be. For example, if you are interested to find out whether instructions through video programmes have any positive effect on the pregnant women, the question form of the hypothesis will be: ‘Will instruction on health practices through video programmes affect the health of pregnant women?’ This statement shows that instructions through video programmes may or may not be related to health practices of pregnant women.

It is easier to state a hypothesis in question form because it appears to be quite useful to write down all the questions that one wants to answer in a particular research study. On the other hand, a researcher faces difficulties in predicting the outcome of the study and stating the hypothesis in declarative form. But it is worth noting that the question form is less powerful than the declarative or null form as a tool for obtaining valid information, and it is generally advisable to state a hypothesis in directional i.e., declarative form to arrive at valid conclusions and generalisations. However, this last statement should not be taken as if it were a law in the practice and theory of research.

Let us examine and compare the three forms of hypothesis in “Effect of video programmes on health practices of pregnant women”.

Declarative	Instruction through video programmes will improve the health status of pregnant women in comparison with those who do not have such provision.
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Null	There will be no difference in health status of the two groups of pregnant women, one following instructions through video programmes and the other having no such facility.
Question	Will instructions through video programmes affect the health status of pregnant women?

Testing of Hypothesis

Testing hypothesis is an important activity in the research process. As a researcher you should know the important steps in testing a hypothesis. The steps are:

- 1) State the research hypothesis (H_1)
- 2) Formulate the null hypothesis (H_0)
- 3) Choose a statistical test
- 4) Specify a significance level
- 5) Compute the statistical test
- 6) Reject/accept the H_0
- 7) Draw the inference i.e. accept/reject H_1

Step 1: State the Research Hypothesis

H_1 There is a significant difference between undergraduate and post-graduate students with regard to their reading habits.

Step 2: Formulate the Null Hypothesis (H_0)

H_0 There is no significant difference between undergraduate and post-graduate students with regard to their reading habits.

Step 3: Choose a statistical test

Let us suppose that we have decided to use Chi-Square statistic (X^2) to test the relationship between the variables considered in the research hypothesis.

Step 4: Specify a significance level

Further we suppose that we would like to test our hypothesis at .05 level of significance.

Step 5: Compute the statistical test

In this step the researcher has to cross-tabulate his/her data and compute Chi-square test (see Block 4, Unit 3) . On computation of the test, let us say that the test yielded a value of 6.78, $df = 1$.

Step 6: Reject/accept the H_0

Since the calculated value of Chi-square is more than the critical value we reject the null hypothesis.

Step 7: Draw the inference i.e. accept/reject H_1

We accept the research hypothesis because the null hypothesis has been rejected. Hence, we can infer that there is a significant difference between undergraduate and post-graduate students with regard to their reading habits.

Type I and Type II Errors

Unlike physical sciences, in social sciences we do not find propositions that indicate certainty. In real world, almost all the propositions, generally, indicate some sort of probabilities. Thus, instead of stating that if A is true, B must follow, we say only if A is true, B will probably also be true.

We thus admit the possibility that B may be false even if A is true. Thus, if we reject A whenever B is false, we also run the risk of making error that of rejecting a true research hypothesis (H_1). We refer to this kind of error as type I Error.

Otherwise, if we fail to reject (accept) A when B is true we again run the risk of making an error, since A may actually be false. Accepting a false research hypothesis (H_1) is referred to as type II error.

Example

- 1) Most members will conform to societal norm (A).
- 2) It is a norm of society not to steal.
- 3) B is a member of society.

Inferences

- i) B will probably not steal. Therefore, if A is true (1) B will probably also be true. But if B does steal we reject A with some risk of Type I error (since A may be true, B being one of the few dishonest members).
- ii) If we fail to reject A when B is true, we run a risk of making an error since A may actually be false, i.e. failing to reject a false H_1 , is referred to as a type II error or b error.

In social research inferences drawn from the sample are applied to the population from which the sample is drawn. The following statements help us to understand Type I and Type II Errors with reference to the sample and population.

Type I error: Populations differ when in fact they are alike.

Type II error: Two populations are alike when in fact they differ.

Type I and Type II Errors are shown diagrammatically as below:

Population Realities

	Difference	No Difference
Research Conclusions (Drawn on the basis of sample) Reject H_0 (There is no difference)	CORRECT DECISION	TYPE I ERROR
Accept H_0 (There is no difference)	TYPE II ERROR	CORRECT DECISION

While we test hypothesis we do not study the entire population; instead, we study a part of it. As such, we can never prove if the null hypothesis is true or false. What we try to prove is whether the sample results are sufficiently likely or unlikely to justify the decision to accept or to reject the null hypothesis.

The null hypothesis can be either true or false. A researcher has a choice of either rejecting or accepting the hypothesis. Hence, there are four possibilities as presented below:

- Case 1. The null hypothesis is true and it is rejected
- Case 2. The null hypothesis is true and it is accepted
- Case 3. The null hypothesis is false and is rejected
- Case 4. The null hypothesis is false and is accepted

In first case, a null hypothesis is rejected when it is true. This decision is an error. This error – the rejection of true hypothesis is termed as a type I error. In the second case there is no error because the researcher accepts a hypothesis which is true. The same is with the third case, there is no error in decision because a hypothesis is false and it is rejected. But the decision in the fourth case is an error. That is, a false hypothesis is accepted. Accepting false hypothesis is known as a type II error.

Check Your Progress 1

1) Explain with your own examples the three forms of hypothesis.

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Hypothesis in Various Types of Research

There is no rigid rule about the choice of the form of hypothesis. You can choose any form which your research problems warrant. However, there are various conventions followed in selecting the form of hypothesis in relation to various types of research such as experimental and descriptive research etc. In this section we shall discuss how hypotheses are usually formulated in experimental research and descriptive research.

Hypothesis in Experimental Research

In experimental research a hypothesis states that the antecedent condition or

phenomenon (independent variable) is related in cause and effect relationship to the occurrence of another condition, phenomenon, event or effect (dependent variable) in a particular setting. To test a hypothesis, the researcher 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.

In view of the intricacy of causal effect of the independent variable, it is advisable for the researcher to give sufficient attention to the formulation of hypothesis along with the experimental plans and statistical procedures. The experimental plans and statistical procedures merely help the researcher in testing the hypothesis and contribute little to the development of theories for the advancement of knowledge.

It may be mentioned here that the hypotheses derived or developed from existing theories contribute to the development of new theories and knowledge only through the method of experimentation.

Hypothesis in Descriptive Research

Different types of hypotheses have been in use in descriptive research. For example, to study the effectiveness of self-help groups it may be hypothesized that 'The sex discrimination among women at work has decreased over the period 1990-2000 with the increase in number of self-help groups'. Also public opinion surveys require hypotheses to study the opinion of people with regard to various women's issues. For example, to study the popularity of a scheme of income generation, it may be hypothesised that 'The scheme of income generation is preferred more by the urban women than the rural women'. Some studies require not only testing but also tracing relationship between serious facts to have a deeper insight into the phenomenon. For example, a researcher wants to study the relationship of socio-economic status and achievement-motivation with the enrolment of rural women in self-help groups. This requires the hypothesis: 'There is a significant relationship between socio-economic status and participation in self-help groups of women from rural area as compared to that of their urban counterparts'.

Similarly some researchers are concerned with developmental studies, especially in the identification of trends and predicting what is likely to happen in the near future. To illustrate, the researcher may be interested in the study of opening of non-formal education centers in a changing social order. He/She may hypothesise, 'The new colonies in the industrial townships require more non-formal education centres than the rural areas'.

3.5 LET US SUM UP

In this Chapter, we have discussed the issues related to the research process; selection, definition, statement and evaluation of research problems along with hypothesis-formulation in various types of research.

A hypothesis can be derived either inductively or deductively or through analogies, consultations, etc. A good hypothesis must be simple and clear; it must state the expected relationship between variables and thus make a prediction.

A hypothesis can be stated in a declarative form, null form or question form. Hypotheses are formulated and stated differently depending upon the requirements of various types of research such as experimental research and descriptive research.

3.6 CHECK YOUR PROGRESS: THE KEY

Check Your Progress 1

In a research project, the researcher engages himself/herself in various scientific activities. Although each research project is unique in some ways, all projects, regardless of the phenomenon being studied, involve in some common activities. The research process is the system of these interrelated common activities.

Check Your Progress 2

In the area of social work, the researchers' own professional experience may be a better source of identifying a research problem because it would provide him/ her with the necessary information regarding the relevance and the feasibility of the research contemplated.

We may illustrate this with a model-project, "The effectiveness of audio-video programmes on women's empowerment" could be a research problem. It is, _ significant because, the idea of multimedia approach to women's empowerment has to be tested empirically in a given situation. The impact of audio-visual programmes on women will decide whether to continue with multimedia approach or not. It is also feasible since it could be taken up by researchers in social work.

Check Your Progress 3

Declarative Hypothesis: "An urban woman is more empowered than her rural counterpart."

Null Hypothesis: "There is no difference between the level of empowerment of urban women and rural women."

Hypothesis in Question Form: "Is there any significant difference between the levels of empowerment of urban women and rural women?"

3.7 FURTHER READINGS AND REFERENCES

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UNIT 4 RESEARCH PROCESS II: PREPARING A RESEARCH PROPOSAL

Structure

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Preparing a Research Proposal
- 4.3 Let Us Sum Up
- 4.4 Check Your Progress: The Key
- 4.5 Further Readings and References

4.0 OBJECTIVES

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

- describe the importance of writing a research proposal;
- prepare a research proposal;
- prepare a sample design;
- prepare a plan of collection and analysis of data;
- prepare a scheme of research report; and
- prepare budget and time estimate.

4.1 INTRODUCTION

In the previous Chapter you have learnt about the process of research. You have also learnt about formulation of a problem and hypothesis in detail. In this Unit we will learn about how to prepare a research proposal. The research proposal consists of every detail of a research project. It helps a researcher in many ways. Firstly, it gives the researcher a complete picture of the whole research project. Secondly, a well-prepared research proposal helps to make time and budget estimate. Lastly, a research proposal enables a researcher to monitor his/her research project. Sometimes, the purpose of developing a research proposal is also to try to obtain a grant to cover the expenses of the research project.

The research proposal consists of details about various interrelated research activities, which overlap continuously rather than following a strictly prescribed sequence. At times, the first activity determines the nature of the last activity to be undertaken. If subsequent activities have not been taken into account in the early stages, serious difficulties may arise which may even prevent the completion of the study. One should remember that the various activities involved in a research project are not mutually exclusive, nor are they separate or distinct. They do not necessarily follow each other in any specific order and the researcher has to be constantly anticipating, at each step in the research project, the requirements of the subsequent steps.

However, the following order concerning various steps provides a useful procedural guideline regarding the research project:

- 1) Identification/Formulation of the Research Problem,
- 2) Review of Literature,
- 3) Identifications of Objectives of the Study,
- 4) Formulation of Hypothesis (if any),
- 5) Operationalisation of Concepts,
- 6) Preparation of Research Design,
- 7) Selection of Sample,
- 8) Selection of Method and Tools of Data Collection,
- 9) Collection of Data,
- 10) Processing and Analysis of Data,
- 11) Analysis and Interpretation of the Data,
- 12) Presentation of the Research Report,
- 13) Budget Estimate, and
- 14) Time Estimate.

Preparing Research Proposal

Identification and Formulation of a Research Problem

A thorough understanding of known facts and ideas in the broad area of research constitute the first and the most important step in identification and selection of a problem for your study. A thorough knowledge of the research studies conducted in the field provides you with details about the problems which have remained unresolved. A list of suggestions for further research given at the end of research reports and reviews of research would help you to get an idea about the gaps which exist in the knowledge pertaining to your field of research. Periodicals and bibliographies of research are helpful in keeping you informed about the research going on in the field in which you are interested and show competence. The various sources through which a researcher can identify a suitable and significant problem have been already discussed in chapter 3.

At the very outset of the research project, the researcher has to decide the broad area that he/she would like to inquire into. In Unit 1 you have read some of the broad areas of social work, such as: (i) Community Health, (ii) Community Mental Health, (iii) Child Welfare, (iv) Women Welfare, (v) Youth Welfare, (vi) Aged Welfare, (vii) Substance Abuse, (viii) Mental retardation, etc. In each broad area innumerable problems exist. As a researcher first you are required to single out the broad area you wish to study. Once you decide the broad area for your research study, you need to evaluate the proposed area in the light of your competence, possible difficulties, in terms of availability of literature, the financial and field constraints, limitations of time etc. After evaluating the broad area you have to choose a specific subject for the study. Let us assume that you have chosen the

broad area of aged welfare. The broad area of aged welfare consists of a number of subjects such as, aged care and services, life satisfaction of aged, elderly abuse etc. Within each of these broad areas of aged welfare, there is a range of issues that can be studied, for example, quality of aged care and services, determinants of life satisfaction, social support and aged care etc. People associated with non-governmental organisations, who are routinely involved with many of these areas/issues, can find opportunities for research that are directly related to their professional activities. To undertake a research study, now you have to think of a specific subject, say for example, you may wish to study a subject like ‘Determinants of Life Satisfaction among Elderly’.

Review of Literature

The beginning of this section has suggested that you to get literature relevant to the topic before you want to study it. Social research topics are usually embedded in so many different kinds of literature that the researcher must be careful in selecting the best literature to examine. While many researchers collect every material which has some linkages with the topic, you need to keep the central theme of your topic in mind to guide you through your search of the literature in the field. It is also important to examine different types of literature where relevant inferences are drawn from scientific data. It would be very useful if research findings from studies using various methods are critically examined.

While presenting review of literature, a researcher should touch upon the introduction justifying the research, methodological details and findings and their implications. But most researchers present only findings. Very few researchers look into findings as well as research methodology in their reviews. From the perspectives of findings, major objectives of a review are to: (a) find gaps in research, (b) identify the areas of overlap, and (c) identify contradictions.

For preparing a research proposal, you should refer to the gaps in research, the areas of overlap, contradictions and significant findings you have noted through review of literature. This will help you to raise questions which will guide you to decide the subsequent steps of the research process such as identification of objectives, formulation of hypothesis (if any), determination of research design and sample for your study. You must be able to draw out findings from the studies and summarize them in such a way that someone unfamiliar with study can easily grasp their meaning and importance. To help you to do this, you should look at the background literature and review sections which generally come at the beginning of published research articles. Most of these reviews are very condensed; they extract a few salient points from numerous studies, summarizing them in a way that is relevant to the study in question.

Check Your Progress 1

- 1) Discuss the importance of review of literature in a research project.

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Identification of Objectives of the Study

Once the problem, the theoretical background, and the concepts have been explained, it is time to address the aim and objectives of the study. At this stage you are required to present the aim and the objectives of the study in brief to justify your study in terms of both its rationale and the implications that it might raise.

It is important to examine whether the researcher has raised very clearly the questions to which he/she is looking for a solution. These questions should be explicit – the researcher should categorically put down the questions on paper. This set of questions can be converted into objectives. Objectives are the foundations of a research project. Eventually, the objectives guide the entire process of research. The major attributes of well-written objectives are:

Clarity of expression and direction

The objectives must have been stated clearly enough to indicate what the researcher is trying to investigate. It is equally important to avoid overlaps in stating objectives.

Measurability

The objectives must be stated in a manner that they are measurable. In case of qualitative research it should be possible to at least codify the data and information so that assessment can be made whether the objectives have been achieved or not.

Comprehensiveness

The objectives provide the guiding framework for a research project. Hence, the statement of objectives should be comprehensive enough to cover each and every aspect of the research study. As far as possible nothing should be left outside the purview of the stated objectives.

Judiciousness

Another important attribute is the judiciousness in and justifiability of choosing and stating objectives. For example, many young scholars, in their postgraduate dissertations and doctoral theses mention “recommending future research” as one of the objectives. In all fairness, this is not feasible. Similarly, in a short time-bound project, a research objective that actually calls for sustained and long-term study becomes less feasible.

Here it is important to note that rationale for doing the project will be accomplished only if the study is done well. Preparing a proposal of your study will show that you have devised a plan to study your problem that seems feasible, you reinforce that the aims and objectives of the study will be achieved. The value of the study lies not only in what it alone will produce, but also in how it may add to or challenge other research in the area.

Formulation of Hypothesis

A common strategy in scientific study is to move from a general theory to a specific researchable problem. A part of this exercise is to develop hypotheses, which are testable statements of presumed relationships between two or more phenomena. In other words, hypothesis is tentative assumption made in order to draw out and test its logical and/or empirical consequences. Hypothesis states what we expect to find rather than what has already been found to exist. After extensive survey of literature and statement of objectives, researcher should state the hypothesis in clear terms.

It may be noted here that we do not need to propose hypothesis in the case of exploratory or formulative researches.

Operationalization of Concepts

Once you are settled with the hypotheses for your study, you need to operationalise the concepts so that you can develop your measuring instruments such as questionnaire.

In a study, a set of concepts is used to explain the phenomenon. These concepts need clarifications with reference to the particular topic. Through the clarifications and discussion of the concepts a research model is developed at this stage. Precision in conceptualization is critical in the social sciences, and it is not easy to achieve. Concepts like 'exploitation', 'discrimination', and 'oppression' may all seem to be familiar terms. Yet they may prove extremely vague when one tries to measure them in relation therefore, the precise meanings you attach to these concepts must be defined and clarified, and then an appropriate way found to measure them.

In the research proposal, a clear definition of the main concept or concepts is most essential. It is also essential to discuss the process of measurement of the concepts. In the research proposal you should also touch upon the potential problems in measuring the concepts. These include two critical issues: *validity*, that is, whether the measurement of a concept in fact produces a result that truly represents what the concept is supposed to mean, and *reliability*, that is, whether the measurement would lead to same results, whenever it is repeated and that one could have some confidence in the results.

In a survey, the questionnaire is nothing but concepts in operational form. In an experiment, the operationalisation of the independent variable (concept) is the actual stimulus. In field studies, this process of operationalization occurs in a very different manner. It is often carried out after the field notes have been collected. After that the researcher may find evidence that suggests certain meanings, at which time the process of conceptualization is carried out. To test whether you are correct, you may go back to the field to see if another instance of this operationalised concept occurs. It is always advisable to use more than one indicator for better measurement of the concept. This will strengthen your study.

Check Your Progress 2

- 1) Define the term 'hypothesis'. discuss the importance of hypothesis in making a research proposal.

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Research Design

After the research problem and its aims and objectives are stated and hypotheses are formulated in clear cut terms, the researcher is required to prepare a research design, i.e., he/she will have to state the conceptual framework within which research would be conducted. The preparation of such a research design facilitates researcher to complete his/her research project as proposed. In other words, the function of research design is to provide for the completion of the research project with minimum effort, time and money. But how all these can be achieved depends mainly on the research purpose. Research purpose may be grouped into four categories, viz., (i) Exploration, (ii) Description, (iii) Diagnosis, and (iv) Experimentation. A flexible research design, which provides opportunity for considering many different aspects of a problem, is considered appropriate if the purpose of the research study is that of exploration. But when the purpose happens to be an accurate description of a situation or of an association between variables, the suitable design will be one that minimizes bias and maximizes the reliability of the data collected and analysed.

There are several research designs, out of which the researcher must select one for his/her own project. The preparation of the research design (you will know about research designs in detail in Block 2), appropriate for a particular research problem, depends usually on its objectives and hypotheses, the sample, the type of data to be collected, time available for research and the finance available for the purpose.

However, it is important that the chosen research design is competent to respond to the research objectives and questions laid down. For example, if the objective is to test the impact of a broad treatment to a group of clients, it has to follow an experimental design. Similarly, if the objective is to assess the status of certain psychosocial variables in a given sample of population, it would require survey designs. Within survey designs, if the purpose is simply to describe the status of the psychological variables and not to compare them with any standard norm or not even develop a norm, the design can be descriptive.

Hence, while preparing a research proposal it is necessary to check the choice of appropriate research design against the objectives. Another means of evaluating the applicability and appropriateness of the research design is to check it against the hypothesis. If the hypothesis to be tested is formulated in terms of relationships, the study has to adopt a survey design, by which relationships can be tested. Compared to it, if the hypothesis is to test the performance of two different groups against a particular type of treatment, the research design has to provide for that opportunity

by adopting an experimental design. Depending on the nature of the groups, the treatment, the size of the sample and also the nature of that experiment, one would adopt a pre-experimental, quasi-experimental or true experimental design.

Thus as a researcher you need to examine the appropriateness of the choice of research design vis-à-vis the research objectives. The details of the design, e.g. type of experimental design etc. too have to be evaluated. Equally important is the argument put forward by the researcher in deciding the research design.

Choice of Variables

Choice of variables is an important step in a research project. There can be at least three sets of variables, namely, independent, dependent and intervening variables. There are also other ways of classifying variables like socio-economic, demographic, psychological, organisational, etc. The later classification is relevant with regard to basic content of research whereas the former is directly linked to research data.

Here, we shall concentrate on the first set. The important point in selecting the variables is the formulation of the dependent variables. This is particularly important in experimental research where the impact of other variables on the dependent variable is assessed.

In order that the research makes a meaningful contribution, it is important to choose the independent variables as meticulously as possible. The choice of independent variables depends upon more than one consideration. Of the various considerations the important one is the existing knowledge on the basis of previous research which shows that certain types of variables are indeed related to and predict the variation of the criterion variable. The second important consideration is the assumption of the researcher – that there are particular sets of variables that are likely to be related to the dependent variables.

The third set of variables is the intervening variables. These are often ignored in research, although these actually intervene and influence the relationship between the independent and the dependent variables. On the basis of the research literature, the researcher is expected to identify such variables as are likely to influence the relationship under test.

Besides the identification and classification of the variables, it is important that variables are measurable. Further, all variables may not have standard definitions. In such a case, it is expected that the researcher shall provide operational definitions and also indications of their measurability.

Hence, an important consideration in proposing a research project is how meticulously the variables have been identified and classified under the three categories mentioned above. The second important consideration in this case is whether the researcher has provided operational definitions of at least such variables as do not have a standard meaning in the literature. The third important consideration is whether there are clear indications of the measurability of variables.

Check Your Progress 3

1) Explain the purpose of a research design in research project

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Selection of Sample

At this stage the researcher is required to decide the sample design of his/her study i.e. the way of selecting a sample. In other words, a sample design is a plan decided before any data are actually collected.

The selection of the sample for the study depends on many factors. Some of these factors affect the selection of the sample to a great extent. We will discuss a few of them. The homogeneity or heterogeneity of the universe is one such factor which affects the sample selection procedure to a great extent. For example, if you are interested in studying medical students, which is a very homogeneous group, even a very small sample will be representative of the universe whereas if you plan to study a college having arts, science and commerce faculties you may have to choose a very large sample and even then you may not have confidence to say that your sample is representative.

Other important issues with regard to selection of sample that need to be considered are: sample size, sampling technique and type of the sample. The size of the sample depends on the nature of objectives of a research project and the research design. For example, in case of rigorous experimentation, it is difficult to handle large samples; also, it is not necessary. Similarly, for surveys and such other status studies, samples have to be large. The main consideration here is that there has to be an optimum size of sample beyond which it is waste of research resources. What is to be considered is whether the sample size is large enough for the study and the sample size has been determined scientifically.

You may be interested in generalising your findings to others beyond those studied. When probability samples are used, it is possible to determine how representative your sample is of the population which might be the overall universe of your study. Sampling plans may be very simple or complex. When the rules of probability are not followed and you merely select a sample of subjects who seem to fulfill the needs of your study, you have a non-probability sample. For many studies, such a sample is sufficient; and for some, it is the best that can be achieved. Whatever the design of your sample, it needs to be explained in detail in your research proposal. It should be so precise that someone else could generate a similar sample by following your procedures. Remember that even if you select a representative sample you have to be very careful in making generalisations. (For details about the methods of sampling see chapter 9.

Selection of Method and Tools of Data Collection

There are three primary methods of data collection, namely, observation, interview and questionnaire. Under these three methods are included several research instruments such as, psychological test, achievement tests, interview schedules, etc. You will learn about these methods in chapters 10,11,12. In these chapters the methods are explained in details so that you can use them to design and carry out a study based on questionnaires or interviews, and in field studies using different types of observation techniques. It also describes different forms of what might be called data collection procedures for using secondary data.

It is important to note that the research instruments are for the measurement of variables. Every variable has certain attributes of its own, amenable to measurement by different types of scaling, namely, nominal, ordinal, ratio and interval. Similarly, these are variables which are amenable only to rigorous standardised tests, like those of intelligence, reasoning ability, etc. There are others which can be measured through inventories or questionnaires. Then there are variables which necessitate the use of interviews with probing questions to be able to go into the details of a process. The common mistake in this area is the use of incompatible instruments vis-à-vis the variables being measured; for example, researchers may use a questionnaire to measure attitude. Similarly, in the name of a questionnaire, researchers may actually frame an opinionnaire. Sometimes researchers use questionnaires for conducting interviews as if a questionnaire is no different from an interview schedule.

The points to be borne in mind while preparing a research proposal are the following:

- 1) Whether the researcher has chosen a tool of data collection that can actually measure the variables.
- 2) Whether the tool of data collection has been picked up from an existing stock or has been constructed by the researcher. In case of the former, whether the researcher has checked its validity, and reliability. In case the researcher has used the tool of data collection on his/her own, has care been taken to check the attributes of the tool, a dependable tool of data collection, be it a questionnaire, inventory or an interview schedule.
- 3) Whether the researcher has tested the feasibility of the use of the tool of data collection.

While preparing the research proposal you are also required to describe how you will collect primary data. In case you are planning to use secondary data you must mention which sources of available data you will actually use. You may also very briefly discuss about issues of access to the data. It is important for a researcher to see that, he/she must be able to get the data he/she proposes. If you anticipate problems in securing the proposed data, these problems should be discussed and possible alternate sources of data might be suggested. Most researchers propose to use one source of data yet you may propose few more sources through which you may also collect data from other sources to widen their scope.

Collection of Data

There are different methods of data collection. Each method of data collection has its special concerns which need to be considered fully before doing the study. This is why pre-testing is so valuable, because it helps you to find and address potential problems before they enter your study and cause bigger problems.

The plans for collecting data should be described carefully. In a field study, it is always more difficult to be precise, and you may need to make changes once you enter the field. Nevertheless, it is better to have a clear plan that can be changed as you move forward. For an experiment data collection procedures can usually be described very precisely. This is also true of a survey. Surveys using mailed questionnaire tend to have multiple stages in the data collection procedure to increase the *response rate*. If you are using secondary data, you need to describe at this stage how you will collect the data.

The quality of the outcome of research also depends on the quality of data itself. In turn, the quality of data is determined by the procedure of data collection. The indication of the quality of data lies in the dependability of the information collected from the sample.

Processing of the Data

Once the data are collected, they must be processed. If the responses are in quantitative terms you have to prepare a code book where you have to give numbers for the quantitative responses. This is very much essential if you wish to process your data through computer. If they are field notes, they must be organised and categorised.

In the research proposal, a concise statement may be included to address this subject. It may describe what type of computer facilities is available, what possible sources of assistance are available, and what efforts are being made to increase accuracy in the handling of the data. There are now some technological advances in data gathering which speed the process from data gathering to data entry. An example is the SPSS (Statistical Package for Social Sciences) now becoming quite common for social research.

Analysis and Interpretation of Data

You need to plan how you will analyze the data. It is advisable to prepare a plan of analysis of data spelling out the various applications of statistical tests carefully while the study is being designed. It is better to have a planned strategy that can be adapted than to end up with piles of data for which you have no organised plan.

You are also required to explain how you are planning to compare or contrast different variables, for example, men with women, one rehabilitation program with another, length of time spent in an organisation by the attitude of employees towards the new incentive introduced recently?

In addition, you need to consider which statistical tests you plan to apply to evaluate the association/differences between the variables. For example, if you propose to measure correlation between the variables to test whether there are significant correlations between them, you have to select an appropriate test of correlation that could get the result you need.

Check Your Progress 4

1) Why it is necessary to prepare a plan of analysis of data?

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Presentation of the Report

Every research is conducted by presenting its results in the form of a report. The reporting of results of a research study depends on purpose, with which it was undertaken. A study might have been conducted for various reasons, such as a personal research conducted for award of a degree; an institutional project or a project funded by an outside agency, etc.

At the end of the study, you have to present the results of the study in the form of a report. Research studies follow scientific process. As such, when it is reported it follows certain conventions and formats for maintaining parity in reporting and for easy grasps by readers.

While preparing a research report you have to follow a number of stylistic conventions. These conventions are commonly known as research formats. These conventions/research formats allow the researcher to present his/her findings within a framework, a framework which is both logical and sequential. By following conventions/research formats the researcher not only systematises and structures his/her research findings in terms of the research problem and its objectives but also facilitate the reading and comprehension of the report by others. In a very broad sense, the format of a research report consists of three parts: the preliminaries, the text and the reference materials. The length of any of these three parts is conditional on the extent of the study. Each of these parts may consist of several sub-sections.

Time Estimate

Time estimate is another important step in preparing a research proposal. The various activities discussed above are completed in a sequence. A researcher is required to estimate time for each activity so that he/she will be able to know the total time required in executing the project. Time-estimate not only sets the time-frame for the execution of the project but it also helps the researcher to prepare budget estimate for the research project.

The preparation of the time-estimate for a particular research project depends primarily on the size of the sample for the study and the method and tools of data collection to be used for the study in time available for research and the finance available for the purpose.

For preparing a time-estimate for your research proposal, you are advised to discuss with your research supervisor or research experts. This will help you to decide optimum time for various research activities to be undertaken in the research study. A model of time estimate is given below:

S. No.	Research Activity	Time Required
1	Identification of Problem	2 Weeks
2	Review of Literature	1 Month
3	Identification of Objectives	1 Week
4	Formulation of Hypothesis	2 Weeks
5	Selection of Research Design	2 Weeks
6	Selection of Sample	1 Week
7	Selection/Construction of Tools of Data Collection	1 Month
8	Pre-testing of Tools of Data Collection	2 Weeks 3 Months
9	Editing of Data	2 Weeks
10	Preparation of Code Book	1 Week
11	Preparation of Master Chart	2 Weeks
12	Processing of Data	1 Week
13	Statistical Analysis of Data	1 Week
14	Writing of Report	2 months
15	Presentation of Report (Typing, Binding etc.)	1 Month
	Total Time (Approx)	12 Months

Budget Estimate

In case you are contemplating to apply for a research grant to cover the expenses of the research project, you will be required to prepare a budget estimate along with your research proposal. The preparation of the budget estimate for a particular research project depends primarily on the area of study and size of the sample for the study and the method and tools of data collection to be used for the study. Common heads/items of expenditure for a research project are shown in the following table.

S.No.	Item/Research Activities	No. of Personnel required	Duration	Cost (Rs)
1.	Research Assistant @ Rs 6000.00 per	1	6 Months	36000.00
2.	Research Investigators@ Rs 3000.00 per month	2	3 Months	18000.00
3.	T.A./D.A for Research Assistant & Research Investigators (approximate estimate)			10000.00
4.	Typing & Binding of Report			5000.00
5.	Overhead Expenditure			5000.00
6.	Contingencies Expenses (10 % of the expenditure on items 1 to 5)			7400.00
			Total	81400.00

4.3 LET US SUM UP

The research process consists of six major stages, namely, selection and formulation of a problem formulation of hypothesis, selection of research design, data collection, data analysis and interpretation and generalisation. In each stage there are a number of research activities which need to be taken up step by step. These activities are spelled out in a research proposal.

You should keep in mind that various steps involved in a research project are not mutually exclusive, nor are they separate or distinct. They do not necessarily follow each other in any specific order and the researcher has to be constantly anticipating at each step in the research project the requirements of the subsequent steps. However, the following order concerning various steps provides a useful procedural guideline regarding the research proposal: Identification/Formulation of the Research Problem, Review of Literature, Identifications of Objectives of the Study, Formulation of Hypothesis (if any), Operationalisation of Concepts, Preparation of Research Design, Selection of Sample, Selection of Method and Tools of Data Collection, Collection of Data, Processing and Analysis of Data, Analysis and Interpretation of the Data, Presentation of the Research Report, Budget Estimate, and Time Estimate.

4.4 CHECK YOUR PROGRESS: THE KEY

Check Your Progress 1

Review of literature has a significant role in preparation of a research proposal. Review of literature refers to gathering the significant findings of studies already undertaken in the area of the research. It helps the researcher to raise research questions and guide him/her to decide the subsequent steps of the research process such as identification of objectives, formulation of hypothesis (if any), determination of research design and sample for the study.

Check Your Progress 2

Hypothesis is a tentative assumption to be tested during the study. It is made in order to draw out answers for the research questions and test its logical or empirical consequences. As such, the manner in which research hypotheses are formulated is particularly important since they provide the focal point for research. They also affect the manner in which tests must be conducted, in the analysis of data and indirectly the quality of data which is required for the analysis.

Check Your Progress 3

The researcher is required to prepare a research design to state the conceptual framework within which research would be conducted. The preparation of such a research design facilitates researcher to complete his/her research project as proposed.

Check Your Progress 4

A plan of analysis of data is prepared to spell out the various ways of analysis of data and applications of statistical tests while the research proposal is prepared. Because it is better to have a planned strategy that can be adapted than to end up with piles of data for which you have no organized plan.

4.5 FURTHER READINGS AND REFERENCES

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