PG S1 04 (AEC)

TWO YEAR MASTER'S DEGREE COURCE

(CBCS in Accordance with NEP 2020)

SEMESTER - I

RESEARCH METHODOLOGY IN ECONOMICS

Surya Kumar Bhuyan School of Social Science
KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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COURSE INTRODUCTION

This Course entitled Research Methodology in Economics is one of the compulsory courses in your fourth semester MA in Economics programme. You might be aware that research plays an important role in every walk of our life. Similarly, in the development of an organisation or a country, research plays an instrumental role. It is expected that this course will be a motivation to you to undertake research as a career in your succeeding phases of academic career. This course will also be helpful in clearing the Entrace Test that is often conducted for M.Phil and PhD programmes. This course contains a total of 14 units.

The first unit introduces you a few basic concepts in research. Here, the meaning and definition of research, its nature, types as well as the approach to the scientific method of research and research ethics have been discussed. In Unit 2, objectives and scope of research have been discussed, basically from the lens of soical sciences. Toward the end of the unit, the limitations of soical science have also been discussed. The third unit is on types of research. Here, the different types of research based on the broad classifications of purpose, process and outcome have been discussed. Other than that, the concepts of conceptual research and empirical research have also been taken up. The next unit has been entitled Research in Economics. Here, the nature of research in Economics, its importance and scope have been discussed. This unit shall offer you an overview on the various research dimensions in the discipline of Economics. The fifth Unit is on review of literature. Here, the concept of review of literature, the 5 Cs of literature review as well as it's need and various sources have been discused. The sixth unit deliberates on research problem. After going through this Unit, you will be able to identify the research problem and a few related concepts have been discussed. Unit 7 is on research design. Here the concept of research design, the features of a good research design, the different steps and the different types of research design have been discussed.

Units 8 to 10 are on sampling techniques. In these three units, we shall deliberate on the topics ranging from basics of sampling to different sampling methods. Further, discussion on variables has also been made. Concepts of population and sample have also been discussed. Unit 11 deliberates on data collection. Here, meaning, importance and the different types of data collection have been discussed. The last three units of the course is on interview. In Unit 12, basic concepts of interview, viz., its meaning, process of interview, its different types have been discussed. The next two units are on interview techniques. Here, the concepts like preparation of a questionnaire, features of a good questionnaire, its merits and demerits as well as the distincition between questionnaire and schedule have been discussed. The concluding unit of the course deals with different techniques of interviews. This includes two major techniques of interview, viz., the case study method and focus group discussion.

Overall, the course on Research Methodology in Economics will provide you an insight into the basic concepts of research methodology. This course will also be helpful if you want to undertake research career in the field of Economics.

While going through a unit, you will notice some along-sode boxes, which have been included to help you know some of the difficult, unseen terms. Some ‘ACTIVITY’ (s) has been included to help you apply your own thoughts. Again, we have included some relevant concepts in ‘LET US KNOW’ along with the text. At the end of sections, you will get ‘CHECK YOUR PROGRESS’ questions. These have been designed to self-check your progress of study. It will be better if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with ‘ANSWERS TO CHECK YOUR PROGRESS’ given at the end of each unit.

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UNIT 1: BASIC CONCEPTS OF RESEARCH

UNIT STRUCTURE

1.1 Learning Objectives
1.2 Introduction
1.3 Research: Meaning and Definition
1.4 Nature of Research
1.5 Types and Importance of Research
1.5.1 Types of Research
1.5.2 Importance of Research
1.6 Elements of Scientific Methods
1.7 Research Ethics
1.8 Let Us Sum Up
1.9 Further Reading
1.10 Answers to Check Your Progress
1.11 Model Questions

1.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- deduce the meaning of research and put forward a proper definition
- discuss the characteristics, objectives and motivation for research
- discuss the nature of research
- state the different types of research
- outline the importance of research
- discuss the elements of scientific methods
- deliberate on research ethics

1.2 INTRODUCTION

This is the first unit of the Course on *Research Methodology in Economics*. This is an introductory unit and it introduces you to the field of research. Here the basic concepts of research have been discussed, viz., its meaning and definition, characteristics, objectives, nature, types, importance etc. Further, the elements/steps of the scientific approach to research has also been examined. Finally, certain important topics on

research ethics have been discussed to enable you to study the rest of the units of this course without any difficulty.

It is expected that this course will be a motivation to you to undertake research as a career. Further, please note that once you step into the field of research, always try to maintain a high degree of ethical research credibility. It is expected that this unit shall be helpful towards that direction also.

1.3 RESEARCH: MEANING AND DEFINITION

Research is a systematic and scientific inquiry to find new knowledge and question the validity of the existing knowledge. It may also be described as an activity that leads us to finding new facts, information, assisting us in verifying the available knowledge and in making us question things that are difficult to understand as per existing data.

According to (Thyer, 2001), “the word research is composed of two syllables, re and search. re is a prefix meaning again, anew or over again search is a verb meaning to examine closely and carefully, to test and try, or to probe. Together they form a noun describing a careful, systematic, patient study and investigation in some field of knowledge, undertaken to establish facts or principles.”

According to Webster, ‘Research is a studious inquiry or examination-critical and exhaustive investigation or experimentation having for its aim the discovery of new facts and their correct interpretation’. From this definition it can be said that research is a careful critical inquiry or examination in seeking facts and principles; diligent investigation in order to ascertain something.

O. Slesinger and M. Stephension in ‘The Encyclopaedia, of social sciences define research as “the manipulation of things, concepts or symbols for the purpose of generalising to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practise of an art’.

According to American Sociologist Earl Robert Babbie, “Research is a systematic inquiry to describe, explain, predict, and control the observed

phenomenon. Research involves inductive and deductive methods."

Katzer, Cook & Crough have defined research as follows:

"We define research here as the systematic process of collecting and analyzing information (data) in order to increase our understanding of the phenomenon with which we are concerned or interested."

Characteristics of Research: Based on the above definitions, the following characteristics of Research can be outlined:

- Research is directed towards the solution of a problem.
- Research is based upon observable experience or empirical evidence.
- Research demands accurate observation and description.
- Research involves gathering new data from primary sources or using existing data for a new purpose.
- Research activities are characterized by carefully designed procedures.
- Research requires expertise i.e., skill necessary to carryout investigation, search the related literature and to understand and analyse the data gathered.
- Research is objective and logical – applying every possible test to validate the data collected and conclusions reached.
- Research is all about the search of answers to unresolved issues.
- Research requires courage on the part of researcher so as to move in the uncertain and unpredictable situation.
- Research is characterized by patient and unhurried activity.
- Research is carefully recorded and reported.
- A systematic approach must be followed for accurate data. Rules and procedures are an integral part of the process that set the objective. Researchers need to practice ethics and a code of conduct while making observations or drawing conclusions.
- Research is based on logical reasoning and involves both inductive and deductive methods.
- The data or knowledge that is derived in research is in real time from actual observations in natural settings.

- In research, there is an in-depth analysis of all data collected so that there are no anomalies associated with it.
- Research creates a path for generating new questions. Existing data helps create more opportunities for research.
- Research is analytical in nature. It makes use of all the available data so that there is no ambiguity in inference.
- Accuracy is one of the most important aspects of research. The information that a researcher obtains should be accurate and true to its nature. For example, laboratories provide controlled environment to collect data. Accuracy is measured in the instruments used, the calibrations of instruments or tools, and the final result of the experiment.

Objectives of Research: The objectives of research can be discussed under the following broad heads:

- To gain familiarity with a phenomenon or to achieve new insights to it.
- To portray accurately the characteristics of a particular individual situation or of a group.
- To determine the frequency with which something occurs or with which it is associated with something else.
- To test a hypothesis of a causal relationship between variables.

Motivations for Undertaking Research: What makes people to undertake research? Some of the answers are as follows:

- Desire to get a research degree along with its benefits.
- Desire to face the challenge in solving the unsolved problem and thereby contribute towards better social outcome.
- Desire to get intellectual joy of doing some creative and original work.
- Desire to offer service to society.
- Desire to get respectability.

1.4 NATURE OF RESEARCH

The nature of a research endeavour may be summarised as follows:

- **Systematic:** By definition, research is a systematic study. A researcher has to follow a defined systematic procedure to conduct

research.

- **Scientific:** Research follows a scientific procedure. It is worth mentioning here that the scientific procedure is being followed for ages. No one put forward it. It evolved through a process. We shall discuss the scientific approach to research in the subsequent section 1.6.
- **Objectivity:** Research is objective in nature. As an ethical practice, a researcher has to conduct his research objectively, without any personal bias.
- **Definiteness:** The outcome of research is definite. The researcher deduces certain clear outcomes at the end of his/her investigation.
- **Verifiability:** Research outcomes are verifiable in nature. What it means is that the results obtained by a researcher must be verifiable. In other words, if another researcher conducts the same study, in the same situations and with the same data set, he/she must come with similar results. This also signifies that the research activity is objective.
- **Generality:** Research also helps to arrive at certain general conclusions. Based on research findings, certain general conclusions can be derived.
- **Predictability:** Research activities are predictable in nature. In most of the cases, the researcher examines certain research hypothesis. These hypothesis signifies that the research activity are to a great extent predictable in nature. This is also valid on the ground that research is based on the previous research. And we often re-examine and re-validate the findings of the earlier researchers.
- **Modifiability:** Research findings are modifiable. What it means is that the research settings of the previous studies can be modified to arrive at more efficient, desired research outcomes.
- **Dynamicity:** Research is a dynamic process. Research is often conducted on both historical and current issues. Further, with the passage of times, newer tools and techniques are used. This significantly raises the efficiency of research.

1.5 TYPES AND IMPORTANCE OF RESEARCH

1.5.1 Types of Research

Research can be broadly classified based on its purpose, its process and its outcome.

Based on purpose, research can be classified as:

- Exploratory Research
- Descriptive Research
- Analytical Research
- Predictive Research

Based on process, research can be classified as:

- Quantitative Research.
- Qualitative Research.
- Mixed Method Research

Based on outcome, research can be classified as:

- Applied Research.
- Fundamental/ Basic/ Pure Research.
- Action Research.

We shall discuss these different types of research in some detail later in Unit 3.



CHECK YOUR PROGRESS

Q 1: Define research. Answer in about 60 words

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Q 2: What does objectivity of research imply? Answer in about 30 words.

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1.5.2 Importance of Research

The importance of research can be discussed under the following broad points:

- It's a tool for gaining knowledge and making learning more accessible.
- The importance of research can be visible if we see it as the only means of proving theories.
- Through research, we can gather updated information and to-the-point data.
- By differentiating between valuable and vague data, it creates credibility.
- It helps us succeed in every walk of life.
- It is a Means to Find, Gauge, and Seize Opportunities.

Let us discuss the above points in some detail.

- **Research is a tool to Acquire Knowledge Effectively:** All professions and non-professionals, including students and professors, must conduct research. It is also crucial for aspiring and experienced authors, both offline and online.

Non-professionals who value learning will benefit from performing research since it will provide them with the world of information and skills to help them survive and enhance their lives. Finding an intriguing topic to talk and/or write about among experts and scribes, should go beyond personal experience. The purpose of conducting research can include determining what the general public wants to know or what researchers want people to realize or consider. As a result, research is critical to knowledge generation and vice versa.

A factual proposition in a person's mind is frequently described as knowledge. It essentially refers to facts derived from objective observations and/or research findings that the human brain has processed. It can be obtained in various ways, including reading books and articles, listening to experts, watching documentaries or investigative shows, undertaking scientific experiments, and connecting with others. Facts gathered during research can be cross-referenced with other sources to guarantee their integrity and authenticity.

- **It's used to prove theories:** Just like our brain development needs research, theoretical proofs need research, too. To understand the importance of research, we should realise that our life revolves around theories, and if we remove research from the equation, we can see that our lives are nothing but a mess. Moreover, we may derive a different point of view which we do not have to keep things to ourselves, and instead, we do it to inform humankind about what change our theory might bring. The primary purpose of all the research has kept us connected.
- **Provides the latest information:** Knowledge is one of the core items human beings have desired since the start of the human race. Being more knowledgeable and powerful has made us addicted to the latter. And this is true as well. The countries with the most knowledge base are the ones that have shown development. However, there can be other reasons for doing research. It is a well-known fact that research and development (R&D) plays a crucial role in the advancement of a country and of any organisation.
- **Research builds credibility:** Research provides a strong basis for us to construct our thoughts and beliefs on. Through proper research, we can be confident about our statement/argument. When we do our proper research on any topic, we can effectively defend our stand/point of view on it. For this, we have to do our research using the most reliable sources. On the contrary, if our research is based on opinions from non-experts, it won't be much credible. When our research is good, people are more likely to pay attention to our views/arguments.
- **Helps us succeed in every walk of life:** We need to do lot of research for undertaking an informed and effective decision. For example, suppose you want to buy a smartphone. Before its purchase, you will definitely a great deal of research on it. The sources of such research may be a reliable website, or customer reviews, or your reliable friends who have already used such

mobiles. Similarly, while opting for any course, we always conduct research on the course structure, fee structure, prospects as well as the provider and the resource persons involved (i.e., the institution). Such a research helps us protecting ourselves from wastage of our money, time and effort. The word of caution here is that in conducting such research we must use the best and most reliable resources.

Looking into a larger perspective, the public authority also has to conduct a great deal of research while designing and implementing a public policy. Only proper research can help the public authority to come out with the best and effective public policy. For example, in the implementation of the recent New Education Policy, 2020, we saw that public opinions were sought on a draft policy before finalisation of the policy.

Similarly, investment in R&D help a business organisation to gain competitive advantage. Finding ways to make things run more smoothly and differentiate a company's products from those of its competitors can help to increase a company's market worth.

- **Means to Find Gauge and Seize Opportunities:** Research also helps people build their potential and attain objectives with different opportunities. These could include gaining jobs, scholarships, education, projects, etc. For example, research is vital for those who are seeking a job or brighter pastures. Here again, through proper research, the unemployed will boost their chances of discovering potential employers through employment posts or agencies, but they need to find out if employment opportunities are authentic. Unscrupulous recruitment agencies who may be engaging in criminal recruitment and/or trafficking might be the creepy but hopeful jobseeker or migrant worker if no inquiry is conducted. As a result, research is critical in identifying and seizing the correct opportunity in every aspect of our lives.

1.6 ELEMENTS OF SCIENTIFIC METHODS

The scientific method is a process for experimentation that is used to explore observations and answer questions. It follows therefore that do all scientists follow exactly this process? No. Some areas of science can be more easily tested than others. For example, scientists studying how stars change as they age or how dinosaurs digested their food cannot fast-forward a star's life by a million years or run medical exams on feeding dinosaurs to test their hypotheses. When direct experimentation is not possible, scientists modify the scientific method. In fact, there are probably as many versions of the scientific method as there are scientists! But even when modified, the goal remains the same: to discover cause and effect relationships by asking questions, carefully gathering and examining the evidence, and seeing if all the available information can be combined in to a logical answer.

Even though we show the scientific method as a series of steps, keep in mind that new information or thinking might cause a scientist to back up and repeat steps at any point during the process. A process like the scientific method that involves such backing up and repeating is called an iterative process.

Key Elements of Scientific Method: The scientific method describes the processes by which scientists gain knowledge about the world. It's characterized by seven key elements: questions, background research, hypotheses, experiments, observations, analyses, and conclusions.

This key elements of the scientific method can also be expressed as seven steps of research. This has been shown below.

Steps in Scientific Research: The seven steps of the scientific research method/process are:

- Ask a question.
- Perform research (background research).
- Establish your hypothesis.
- Test your hypothesis by conducting an experiment.

- Make an observation (Procedure check)
- Analyse the results and draw a conclusion.
- Present the findings.

These seven steps have been shown graphically in Figure 1.1.

Figure 1.1: Key Elements/Steps of Scientific Research



In Figure 1.1, please note that the fifth phase of making an observation (or procedure check) is very crucial in the sense that we may have to move to the previous step of testing with an experiment in case any procedural lapse is noticed. Similarly, if the results arrived (in the sixth phase) are not conforming to the hypothesis, we may also have to move back again to the construction of hypothesis, i.e., to construct new hypothesis or make new experiment etc. However, this depends to a large extent on the researcher.

Now, we shall discuss these steps in some detail.

(1) **Ask a Question:** The scientific method starts when a researcher raises a question about something that the she/he observes: How, What, When, Who, Which, Why, or Where?

(2) **Do Background Research:** Rather than starting from scratch in putting

together a plan for answering those questions, a researcher has to be a probing scientist using library, Internet research to find the best way to do things.

(3) **Construct a Hypothesis:** A hypothesis is an educated guess about how things work. It is an attempt to answer the research question with an explanation that can be tested. A good hypothesis allows the researcher make a prediction beforehand.

(4) **Test the Hypothesis by Doing an Experiment:** The researcher conducts experiment/tests to examine whether the prediction is accurate and thus the research hypothesis is supported or not. It is important for a researcher to conduct such experiment/test fair and free from any prejudices. The researcher can conduct a fair test by making sure that she/he change only one factor at a time while keeping all other conditions the same.

The researcher should also repeat the experiments several times to make sure that the first results weren't just an accident.

(5) **Procedural check:** As the testing of hypothesis conducted, the researcher also has to check that all the procedures were properly maintained. In case of any lapse in the procedure, the researcher has to repeat the experiment.

(6) **Analysis of Data and Draw a Conclusion**: Once the experiment is complete, the researcher has to collect the measurements and analyse them to see if they support the research hypothesis or not.

Scientists often find that their predictions were not accurate and their hypothesis was not supported, and in such cases they will communicate the results of their experiment and then go back and construct a new hypothesis and prediction based on the information they learned during their experiment. This starts much of the process of the scientific method over again. Even if they find that their hypothesis was supported, they may want to test it again in a new way.

(7) **Communicate the Results:** To complete the research activity, the researcher has to communicate the results to others in a final report and/or a display board. The professional scientists do almost exactly

the same thing by publishing their final report in a scientific journal or by presenting their results on a poster or during a talk at a scientific meeting. In a science fair, judges are interested in your findings regardless of whether or not they support your original hypothesis.



CHECK YOUR PROGRESS

Q 3: How does investment in R&D help an organisation? Answer in about 60 words.

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Q 4: Mention the different stages of scientific approach to research. Answer in about 30 words.

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1.7 RESEARCH ETHICS

Ethics generally implies those moral principles which govern an individual's behaviour and accordingly the activities performed by him or her. Webster's Dictionary defines ethical behaviour as, 'conforming to the standards of a conduct of a given profession or group'. But what is to be considered as right or wrong may vary from person to person and group to group. Ethics are important while conducting research also.

According to the Oxford Dictionary of Sociology, research ethics refers to, 'the application of moral rules and professional codes of conduct to the collection, analysis, reporting, and publication of information about research subjects, in particular active acceptance of subject's right to

privacy, confidentiality, and informed consent.'

On a broader perspective, research ethics provides guidelines for the responsible conduct of research. In addition, it educates and monitors scientists conducting research to ensure a high ethical standard. The following discussion offers a general summary of some ethical principles in research:

- **Honesty: A** researcher has to honestly report data, results, methods and procedures, and publication status. Do not fabricate, falsify, or misrepresent data.
- **Objectivity: A** researcher has to strive to avoid bias in experimental design, data analysis, data interpretation, peer review, personnel decisions, grant writing, expert testimony, and other aspects of research.
- **Integrity:** A researcher has to keep promises and agreements; act with sincerity; strive for consistency of thought and action.
- **Carefulness:** A researcher has to avoid careless errors and negligence; carefully and critically examine his/her own work and the work of the peers. A researcher also has to keep good records of research activities.
- **Openness:** A researcher should be open to share data, results, ideas, tools, resources. A researcher also should be open to receive criticisms and new ideas.
- **Respect for Intellectual Property:** A researcher has to honour patents, copyrights, and other forms of intellectual property. He/she should not use unpublished data, methods, or results without permission. A researcher also has to give credit where credit is due. Never plagiarise.
- **Confidentiality:** A researcher also has to protect confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records.
- **Responsible Publication:** A researcher has to publish in order to advance in research and scholarship, not to advance just in one's career. Wasteful and duplicative publication must be avoided.
- **Responsible Mentoring:** A researcher also has to educate, mentor, and advise students. The researcher must promote their welfare and allow them to make their own decisions.

- **Respect for Colleagues:** A researcher has to respect his/her own colleagues and treat them fairly.
- **Social Responsibility:** A researcher also has to strive to promote social good and prevent or mitigate social harms through research, public education, and advocacy.
- **Non-Discrimination:** A researcher must avoid discrimination against colleagues or students on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.
- **Competence:** A researcher has to maintain and improve own professional competence and expertise through lifelong education and learning. She/he should take steps to promote competence in science as a whole.
- **Legality:** A researcher also needs to know and obey relevant laws and institutional and governmental policies.
- **Animal Care:** A researcher has to show proper respect and care for animals when using them in research. Do not conduct unnecessary or poorly designed animal experiments.
- **Human Subjects Protection:** When conducting research on human subjects, a researcher has to minimize harms and risks and maximize benefits; respect human dignity, privacy, and autonomy.



1.8 LET US SUM UP

- Research is a systematic and scientific inquiry to find new knowledge and question the validity of the existing knowledge. It may also be described as an activity that leads us to finding new facts, information, assisting us in verifying the available knowledge and in making us question things that are difficult to understand as per existing data.
- Research can be broadly classified based on its purpose, its process and its outcome.
- The scientific method is a process for experimentation that is used to explore observations and answer questions

- Even though we show the scientific method as a series of steps, keep in mind that new information or thinking might cause a scientist to back up and repeat steps at any point during the process. A process like the scientific method that involves such backing up and repeating is called an iterative process.
- The scientific method describes the processes by which scientists gain knowledge about the world. It's characterized by seven key elements: questions, background research, hypotheses, experiments, observations, analyses, and conclusions.
- Ethics generally implies those moral principles which govern an individual's behaviour and accordingly the activities performed by him or her.
- On a broader perspective, research ethics provides guidelines for the responsible conduct of research. In addition, it educates and monitors scientists conducting research to ensure a high ethical standard.



1.9 FURTHER READING

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1.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Research may be defined as an activity that leads us to finding new facts, information, assisting us in verifying the available knowledge and in making us question things that are difficult to understand as per existing data.

Ans to Q No 2: Research is objective in nature. As an ethical practice, a researcher has to conduct his research objectively, without any personal bias.

Ans to Q No 3: Investment in R&D help a business organisation to gain competitive advantage. Finding ways to make things run more smoothly and differentiate a company's products from those of its competitors can help to increase a company's market worth.

Ans to Q No 4: The seven steps of the scientific research method/process are:

(a) Ask a question.

(b) Perform research (background research).

(c) Establish your hypothesis.

(d) Test your hypothesis by conducting an experiment.

(e) Make an observation (Procedure check)

(f) Analyse the results and draw a conclusion.

(g) Present the findings.



1.11 MODEL QUESTIONS

Answer the following questions in about 300-400 words.

Q 1: Discuss the characteristics, objectives and motivation for research.

Q 2: What do you understand by the nature of research

Q 3: Enumerate s the different types of research.

Q 4: Outline the importance of research.

Q 5: Analyse the different steps of scientific methods of research.

Q 6: Describe the important ethical issues associated the conduct of research.

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UNIT 2: OBJECTIVES AND SCOPE OF RESEARCH

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 Concept of Social Research

2.4 Objectives and Scope of Research in Social Science

2.5 Problems and Limitations of Social Science Research

2.6 Let Us Sum Up

2.7 Further Reading

2.8 Answers to Check Your Progress

2.9 Model Questions

2.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss the concept of social research
- describe the objectives of research in social science
- discuss the scope of research in social science
- enumerate the major problems and limitations of social science research.

2.2 INTRODUCTION

In the previous unit, we discussed a broad preliminary overview on the basics of research. In this unit, we shall basically focus on social research. Thus, this unit will be helpful for you in acquiring a fair idea about the concept of social research, its objectives, scope and also about the major problems and limitations it faces with. In a way, this Unit shall introduce you to the field of social science research. As a post-graduate learner in Economics, which is one of the major branches in social science, this Unit will work as a building block to help you gaining pratical knowledge of social science research.

2.3 CONCEPT OF SOCIAL RESEARCH

Social sciences are not exact science like physical sciences. It deals with human beings. Human nature and the interaction between man and environment are so complex that it is more difficult to comprehend and predict human behaviour than the physical phenomena. Social science research is a systematic method of exploring, analysing and conceptualizing human life in order to extend, correct or verify knowledge of human behaviour and social life. Social research seeks to find explanations to unexplained phenomena, to clarify the doubtful and correct the misconceived fact of social life. It involves the application of scientific method for understanding and analysing of social life in order to correct and verify the existing knowledge as a system.

The main idea behind social research is to discover new inter-relations, new knowledge, new facts and also to verify old ones. Human behaviour may be governed by certain values and laws. The main purpose of social research is to discover those laws which can provide proper guidelines for studying human contact and behaviour. It is difficult to see the underlying uniformities in the diversity of complex human behaviour. In a broad perspective, social research can be defined as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalisation, principles or theories resulting in prediction and possibly ultimate control of events in society. It attempts to answer and solve social problems.

According to C. A. Moser, "Social research is a systematized investigation to gain new knowledge about social phenomenon and problems."

P. V. Young described social in the following broad and comprehensive way:

> "Social Research may be defined as a scientific undertaking which by means of logical and systematized techniques, aims to discover new factor verify a test old facts, analyse their sequence, interrelationship and causal explanation which were derived within an appropriate theoretical frame of

reference, develop new scientific tolls, concepts and theories which would facilities reliable and valid study of human behaviour. A researcher's primary goal distant and immediate is to explore and gain an understanding of human behaviour and social life and thereby gain a greater control over time".

2.4 OBJECTIVES AND SCOPE OF RESEARCH IN SOCIAL SCIENCE

The aim of social research, like research in natural sciences, is to discover new facts or verify and test old social facts. It tries to understand human behaviour and its interaction with the environment and social institutions. It also tries to find out the causal connection between human activities and natural laws governing them. Another aim of social research is to develop new scientific tools, concepts and theories, which would facilitate the reliable and valid study of human behaviour and social life.

Social research follows the norms and tools of natural science, which emphasises validity, reliability and verifiability of the phenomenon studied. The scientific rigour in social science research implies objectivity, neutrality and empirically produced evidence. Empiricism comprises of the observation, collection, analysis and interpretation of data.

Social research refers to research conducted by social scientists from various disciplines dealing with human life, human behaviour, social groups and social institutions. They consist of Anthropology, Behaviour Science, Commerce, Demography, Economics, Education, Geography, History, Law, Linguistics, Management, Political Science, Psychology, Public Administration, Sociology, and Social Work. These disciplines have their own values, terminology, methods and techniques to understand social phenomena. Every group of social phenomena, every phase of human life, and every stage of past and present development are fields of inquiry for social scientists.

BROAD OBJECTIVES OF SOCIAL RESEARCH: The broad objectives of social research are enumerated below.

- **Development of knowledge:** As we know 'science' is the systematic body of knowledge which is recorded and preserved. The main objective

of any research is to add to the existing knowledge. Similarly, social research is an organised and scientific effort to acquire further knowledge about the problem in question. It helps us to obtain and add to the knowledge of social phenomena. This is one of the most important objectives of social research.

- **Scientific study of social life:** Social research is an attempt to acquire knowledge about the social phenomena. Women and men, being a part of society, social research studies a human being as an individual, examines human behaviour and collects data about various aspects of a human's social life and formulates laws in this regard. Once the law is formulated, the scientific study tries to establish the interrelationship between these facts. Thus, the scientific study of social life is another major objective of social research.
- **Welfare of humanity:** The ultimate objective of a social science study is often and always to enhance the welfare of humanity.
- **Classification of facts:** Social research aims to clarify facts. The classification of facts plays an important role in any scientific research
- **Social control and prediction:** The ultimate objective of any research undertaking is to predict the behaviour of particular types of individuals under specified conditions. In social research we generally study the social phenomena and events, as well as the factors that govern and guide them.

In short, under social research we study social relation and their dynamics.



CHECK YOUR PROGRESS

Q 1: Define social research. Answer in about 60 words.

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Q 2: Mention any two important aims of social research. Answer in about 60 words.

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SCOPE OF SOCIAL RESEARCH: The scope of social research can be discussed under the following broad headings:

- **Demographic and Social Statistics, Methods and Computation:** Demography is the study of changes and population trends using resources such as birth data, death and disease and others. Social Statistics, Methods and Computational involve the collection and analysis of quantitative and qualitative data.
- **Developmental Study, Human Geography and Environmental Planning:** Developmental study is a multidisciplinary branch of social sciences that discusses about various social and economic issues related to the development and study of poor countries. Human geography studies people, society and culture, especially regarding the impact on the environmental changes. Environmental planning explores decision-making process in managing the system of human and nature relationship.
- **Economics, Management and Business Study:** Economics tries to understand how individuals interact in the social structure to answer key questions about the production and exchange of goods and services. Management and Business Study explore various aspects related to business management such as strategic and operational, organizational psychology, work relationship, marketing, accounting, finance and logistics.

- **Education, Social Anthropology and Linguistics:** Education is one of the most important social sciences that explores how people learn and develop. Social anthropology is the study of how society and human social structures are organized and understandable. Linguistics focuses on language and how people communicate through the spoken voice and words.
- **Legal, Economic and Social History:** Legal framework focuses on the rule made by the government and people to make sure the society becoming more orderly. Economic and Social History see the past events to learn from history and to understand more the process of contemporary society.
- **Politics and International Relations:** Politics focuses on democracy and the relationship between humans and policy at all levels from the individual to the national and international levels. International Relation is the study of relationship among countries, including the role of other organizations.
- **Psychology and Sociology:** Psychology studies the human mind and tries to understand how people and groups experience a variety of emotions, ideas, and awareness. Sociology involves a group of people, not individuals, and tries to understand how people relate to each other and function as a society or a social sub-group.
- **Technology Study:** Technology Study relates to the role of technology in society, the policy and debates that form modern technology.
- **Social Policy:** Social policy is interdisciplinary and attempts to cater to social needs with focus on the aspects of society, economy and the implementation of policies to improve social justice.

2.5 PROBLEMS AND LIMITATIONS OF SOCIAL SCIENCE RESEARCH

We know that social research deals with a social phenomenon which is quite different than the natural phenomena. Hence, there are fundamental difference between research in social sciences and that of physical or natural sciences. The major problems faced in social science research may be

discussed under the following major heads:

- **The social scientist a part of what is studied:** The fact that social scientist is part of the human society which he studies gives rise to certain limitations. Man has to be his own guinea pig. This has a number of methodological consequences. For example, it restricts the scope for controlled experiments. It limits the scope for objectivity in social science research.
- **Complexity of the subject matter:** The subject matter of research in social science, viz. human society and human behaviour is too complex varied and changing to yield to the scientific categorization, measurement, analysis and prediction. The multiplicity and complexity of causation make it difficult to apply the technique of experimentation. Human behaviour can be studied only by the other human beings, and this always distorts fundamentally the facts being studied so that there can be no objective procedure for achieving the truth.
- **Complexity of social data:** Similarly, the study of human behaviour also depends on several factors such as physical, social, temperamental, psychological, geographical, biological socio-cultural etc. Because of these factors a researcher is generally confused. It is therefore said that because of this complexity of social relations, human beings cannot be put to scientific test.
- **Personal values:** Subjects and clients, as well as investigators, have personal values, which are apt to become involved in the research process. One should not assume that these are freely exploitable. The investigator must have respect for the client's values.
- **Problems of concepts:** In social science research, one has to face number of problems among which of a) abstraction, and b) faulty reasoning, plays major role in formulating and defining the concepts and law. Abstraction is both the central strength and one of the weaknesses of economics, for example, full-employment, perfect competition and pure competition. Faulty reasoning leads to wrong conclusion. For example, classical theory of employment was based on a faulty reasoning that wage cut will increase employment

opportunities. However, later on J. M. Keynes proved the faulty reasoning of this classical theory and presented alternative theory.

- **Problems in interpreting relationship between cause and effect:** In social science research, we generally find interdependent relationship between cause and effect. In many times, the cause and effect are one and the same.
- **Dynamic nature of social phenomena:** Man is a social animal and the human societies undergo constant change. What is true today may be not useful tomorrow. The techniques used in past may prove useless for present and future studies. On account of this dynamic nature of social phenomena our task of analysing data becomes very much complicated and the inferences drawn may be misleading.
- **Problem of maintaining objectivity:** The problem of impartiality is in part a problem of objectivity. It is generally argued that the social scientists are less objective than natural scientist because their own interest affected by the findings of their studies, hence leading to prejudice and bias.
- **Unpredictability:** Predictability is one of the most important characteristics of science. In case of physical science, high degree of predictability is possible but it is not so in case of social data. But this statement is also partially true; the social scientist can roughly estimate the behaviour of the group.
- **Difficulty in the Verification of the Inferences:** In social science research, the events of social sciences are non-repetitive and the social scientists are ill-equipped with their tools to verify inferences.
- **Difficulty in the use of experimental method:** In case of social science research, its product being a human being cannot be put to laboratory test. Even if it is done, their responses wouldn't be natural but subject to the awareness of the artificial condition. Thus the social scientist has to watch them in real world.
- **Incapability of being dealt through empirical method:** An empirical method cannot be applied in case of social science research as repeated experiment is not possible, for example, the problem of unbiased sampling, selection of data etc.

- **Problems of inter-disciplinary research:** Social science being inter-disciplinary one discipline is related with the other. For example, among Economics, Political Science and Sociology, we cannot draw water-tight compartments. Same is the case with other social science disciplines.
- **Anthropomorphization:** Another hazard of social science research is the danger of the temptation to anthropomorphize about humans. This results in using observation obtained by sheer intuition or empathy conceptualizing in anthropomorphic manner.
- **Wrong decisions:** The quality of research findings depends upon the soundness of decisions made by the social scientist on such crucial stages of his research process as the definition of the unit of study operationalization of concepts, selection of sampling techniques and statistical techniques. Any mistake in any of these decisions will vitiate the validity of his findings.



CHECK YOUR PROGRESS

Q 3: What does psychology study? Answer in about 20 words.

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Q 4: Mention the issue related to causes and effect study in social research. Answer in about 60 words.

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2.6 LET US SUM UP

- Social sciences are not exact science like physical sciences. It deals

with human beings.

- Human nature and the interaction between man and environment are so complex that it is more difficult to comprehend and predict human behaviour than the physical phenomena.
- Social science research is a systematic method of exploring, analysing and conceptualizing human life in order to extend, correct or verify knowledge of human behaviour and social life.
- Social research seeks to find explanations to unexplained phenomena, to clarify the doubtful and correct the misconceived fact of social life.
- The main purpose of social research is to discover those laws which can serve as proper guidelines for studying human contact and behaviour.
- The aim of social research, like research in natural sciences, is to discover new facts or verify and test old social facts.
- It tries to understand human behaviour and its interaction with the environment and social institutions.
- The aim of social research is to develop new scientific tools, concepts and theories, which would facilitate the reliable and valid study of human behaviour and social life.
- Social research follows the norms and tools of natural science, which emphasises validity, reliability and verifiability of the phenomenon studied. The scientific rigour in social science research implies objectivity, neutrality and empirically produced evidence. Empiricism comprises of the observation, collection, analysis and interpretation of data.
- We know that social research deals with a social phenomenon which is quite different than the natural phenomena. Hence, there are fundamental difference between research in social sciences and that of physical or natural sciences.



2.7 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Kothari, C.R. (2011). Research Methodology, Methods and

Techniques. New Age International (P) Ltd.

(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



2.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: In a broad perspective, social research can be defined as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalisation, principles or theories resulting in prediction and possibly ultimate control of events in society. It attempts to answer and solve social problems.

Ans to Q No 2: The aim of social science research is to understand human behaviour and its interaction with the environment and social institutions. It also tries to find out the causal connection between human activities and natural laws governing them.

Ans to Q No 3: Psychology studies the human mind and tries to understand how people and groups experience a variety of emotions, ideas, and awareness.

Ans to Q No 4: In social science research, we generally find interdependent relationship between cause and effect. In many times, the cause and effect are one and the same.



2.9 MODEL QUESTIONS

Answer the following questions in about 300-400 words.

Q 1: Discuss the concept of social research.

Q 2: Describe the objectives of research in social science.

Q 3: Discuss the scope of research in social science

Q 4: Enumerate the major problems and limitations of social science research.

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UNIT 3: TYPES OF RESEARCH

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Broad Types of Research

3.4 Types of Research based on its Purpose

3.5 Types of Research based on the Process

3.6 Types of Research based on the Outcome

3.7 Conceptual and Empirical Research

3.8 Let Us Sum Up

3.9 Further Reading

3.10 Answers to Check Your Progress

3.11 Model Questions

3.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss the different types of research based on its purpose, process and outcome.
- discuss the concepts of exploratory research, descriptive research, analytical research and predictive research.
- discuss the concepts of qualitative and quantitative research and their advantages and disadvantages.
- discuss the concepts of applied research, fundamental research and action research.
- discuss the concepts of conceptual and empirical research and distinguish between them.

3.2 INTRODUCTION

In this unit, we have discussed the different types based on its purpose, process an outcome. Further, two approaches to conducting scientific research viz., conceptual research and empirical research has

also been discussed. This unit will be helpful in getting an insight into the major types of research as well as the process of research.

3.3 BROAD TYPES OF RESEARCH

Research can be broadly classified based on its purpose, its process and its outcome.

- Based on purpose, research can be classified as:
- Exploratory Research
- Descriptive Research
- Analytical Research
- Predictive Research
- Based on process, research can be classified as:
- Quantitative Research.
- Qualitative Research.
- Mixed Method Research

Based on outcome, research can be classified as:

- Applied Research.
- Fundamental/ Basic/ Pure Research.
- Action Research.

We shall discuss these different types of research in some detail. However, we shall primarily focus on the quantitative and qualitative research types, as these are frequently used in Economics.

3.4 TYPES OF RESEARCH BASED ON ITS PURPOSE

EXPLORATORY RESEARCH: The aim of exploratory research is to look for patterns, ideas or hypotheses rather than testing or confirming a hypothesis. In exploratory research the focus is on gaining insights and familiarity with the subject area for more rigorous investigation later. It is possible that you may carry out an initial survey to establish areas of concern (exploratory research) and then research these issues in more depth, perhaps through interviews, to provide a deeper understanding (explanatory research).

As the term itself suggests, exploratory research is often conducted because a problem has not been clearly defined as yet, or its real scope is as yet unclear. It allows the researcher to familiarize him/herself with the problem or concept to be studied, and perhaps generate hypotheses to be tested. It is the initial research, before more conclusive research undertaken. Exploratory research helps determine the best research design, data collection method and selection of subjects, and sometimes it even concludes that the problem does not exist!

Exploratory research can be quite informal, relying on secondary research such as reviewing available literature, or qualitative approaches such as informal conclusions with consumers, employees, management or competitors, and more formal approaches through indepth interviews, focus groups, projective methods, case studies and pilot studies.

The results of exploratory research are not usually useful for decision making by themselves, but they can provide significant insight into a given situation. Although the results of qualitative research can give some indication as to the "why", "how" and "when" something occurs, it cannot tell us "how often" or "how many". In other words, the results can neither be generalised.

DESCRIPTIVE RESEARCH: Descriptive research describes phenomena, as they exist. It is used to identify and obtain information on the characteristics of a particular issue. It may answer such questions as:

- What is the absentee rate amongst a particular group of workers?
- What are the feelings of workers faced with redundancy?

In descriptive research, the data collected are often quantitative, and statistical techniques are usually used to summarize the information. Descriptive research goes further than exploratory research in examining a problem since it is undertaken to ascertain and describe the characteristics of issue. The methods of research utilized in descriptive research are survey methods of all kinds, including comparative and co -relational methods.

Thus, descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. In social science and business research we quite often use the term 'Ex post facto research'

for descriptive research studies.

The main characteristic of this method is that the researcher has no control over the variables; she/he can only report what has happened or what is happening. Most ex post facto research projects are used for descriptive studies in which the researcher seeks to measure such items as, for example frequency of shopping, preferences of people, or similar data. Ex post facto studies also include attempts by researchers to discover causes even when they cannot control the variables.

One of the major limitations of descriptive research is that it cannot help determine what causes a specific behaviour, motivation or occurrence. In other words, it cannot establish a casual research relationship between variables.

ANALYTICAL RESEARCH: Analytical research or explanatory research is a continuation of descriptive research. The researcher goes beyond merely describing the characteristics, to analyse and explain why or how something is happening. Thus, analytical research aims to understand phenomena by discovering and measuring casual relations among them. It may answer questions such as:

- How can the number of complaints made by customers be reduced?
- How can the absentee rate among employees be reduced?
- Why is the introduction of empowerment seen as a threat by departmental managers?

In analytical research, the researcher has to use facts or information already available, and analyse these to make a critical evaluation of the material. This kind of research is conducted with the assumption that a critical examination of the facts and figures will reveal more than what they appear when observed casually. So a researcher tries to discover the connection between the collected facts and figures to draw generalisations from them.

Thus, this kind of research usually tries to establish cause and effect relationship. For example, if a researcher is trying to understand a particular social context he/ she will try to discover the causes which gives rise to the events (say suicide) and the effect of those events.

However, one needs to remember that even in descriptive research some preliminary analysis can be found and similarly in the analytical researches some kind of description can be found.

PREDICTIVE RESEARCH: Predictive research goes further by forecasting the likelihood of a similar situation occurring elsewhere. It aims to generalize from the analysis by predicting certain phenomena on the basis of hypothesized general relationships. It may attempt to answer questions such as:

- Will the introduction of an employee bonus scheme lead to higher levels of productivity?
- What type of packaging will improve our products?

Predictive research provides 'how', 'why', and 'where' answers to current events as well as to similar events in the future. It is also helpful in situations where 'what if?' questions are being asked.



CHECK YOUR PROGRESS

Q 1: State the broad types of research. (Answer in about 60 words)

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Q 2: What is meant by exploratory research? (Answer in about 40 words)

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3.5 TYPES OF RESEARCH BASED ON THE PROCESS

We have already mentioned that based on the research process, research can be categorised as qualitative research, quantitative research and mixed method research. Here we shall discuss basically on the first two. We shall discuss the mixed method research in some detail in the next Unit 4.

QUANTITATIVE RESEARCH: The quantitative approach usually starts with a theory of a general statement proposing a general relationship between variables. With this approach it is likely that the researchers will take an objective position and their approach will be to treat phenomena as hard and real. They will favour methods such as surveys and experiments, and will attempt to test hypotheses or statements with a view to generalizing from the particular. This approach typically concentrates on measuring or counting and involves collection and analysing numerical data and applying statistical tests.

It may be defined as a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. Quantitative research collects information from existing and potential customers using sampling methods and sending out online surveys, online polls, questionnaires, etc., the results of which can be depicted in the form of numerical. after careful understanding of these numbers to predict the future of a product or service and make changes accordingly.

An example of quantitative research is the survey conducted to understand the amount of time a doctor takes to attend to a patient when the patient walks into the hospital. A patient satisfaction survey template can be administered to ask questions like how much time did a doctor takes to see a patient, how often does a patient walks into a hospital, and other such questions.

Quantitative outcome research is mostly conducted in the social sciences using the statistical methods statedabove to collect quantitative data from the research study. In this research method, researchers and statisticians deploy mathematical frameworks and theories that pertain to the quantity under question.

Quantitative research templates are objective, elaborate, and many times, even investigational. The results achieved from this research method are logical, statistical, and unbiased. Data collection takes place using a structured method and conducted on larger samples that represent the entire population.

Characteristics of Quantitative Research: Some distinctive characteristics of quantitative research are:

- **Use of structured tools:** Structured tools such as surveys, polls, or questionnaires are used to gather quantitative data. Using such structure methods helps in collecting in-depth and actionable data from the survey respondents.
- **Sample size:** Quantitative research is conducted on a significant sample size that represents the target market. Appropriate sampling methods have to be used while deriving the sample to fortify the research objective
- **Close-ended questions:** Closed-ended questions are created as per the objective of the research. These questions help collect quantitative data and hence, are extensively used in quantitative research.
- **Prior studies:** Various factors related to the research topic are studied before collecting feedback from respondents.
- **Quantitative data:** Usually, quantitative data is represented by tables, charts, graphs, or any other non-numerical form. This makes it easy to understand the data that has been collected as well as prove the validity of the market research.
- **Generalization of results:** Results of this research method can be generalized to an entire population to take appropriate actions for improvement.
- **Advantages of Quantitative research:** There are many advantages of quantitative research. Some of the major advantages of why researchers use this method in market research are:
- **Collect reliable and accurate data:** As data is collected, analysed, and presented in numbers, the results obtained will be extremely

reliable. Numbers do not lie. They offer an honest picture of the conducted research without discrepancies and is also extremely accurate. In situations where a researcher predicts conflict, quantitative research is conducted.

- **Quick data collection:** A quantitative research is carried out with a group of respondents who represent a population. A survey or any other quantitative research method applied to these respondents and the involvement of statistics, conducting and analysing results is quite straightforward and less time-consuming.
- **Wider scope of data analysis:** Due to the statistics, this research method provides a wider scope of data collection.
- **Eliminate bias:** This research method offers no scope for personal comments or biasing of results. The results achieved are numerical and are thus, fair in most of the cases.

Thus, quantitative research seeks to quantify or reflect with numbers and observations about human behaviour. This kind of research attempts to describe relationships among the variables mathematically and to apply some form of numerical analysis to the relations being examined. The survey method, correlational method and experimental methods are examples of quantitative methods.

QUALITATIVE RESEARCH: Qualitative research is defined as a research method that focuses on obtaining data through open-ended and conversational communication. This method is not only about "what" people think but also "why" they think so. For example, consider a convenience store looking to improve its patronage. A systematic observation concludes that the number of men visiting this store are more. One good method to determine why women were not visiting the store is to conduct an in-depth interview of potential customers in the category.

For example, on successfully interviewing female customers, visiting the nearby stores and malls, and selecting them through random sampling, it was known that the store doesn't have enough items for women and so there were fewer women visiting the store, which was understood only by personally interacting with them and understanding why they didn't visit the

store, because there were more male products than female ones.

Thus, Qualitative research is based on the disciplines of social sciences like psychology, sociology, and anthropology. Therefore, the qualitative research methods allow for in-depth and further probing and questioning of respondents based on their responses, where the interviewer/ researcher also tries to understand their motivation and feelings. Understanding how your audience takes decisions can help derive conclusions in market research.

Qualitative research methods are designed in a manner that help reveal the behaviour and perception of a target audience with reference to a particular topic. There are different types of qualitative research methods like an in-depth interview, focus groups, ethnographic research, content analysis, case study research that are usually used.

The results of qualitative methods are more descriptive and the inferences can be drawn quite easily from the data that is obtained.

Qualitative research methods originated in the social and behavioural sciences. Today our world is more complicated and it is difficult to understand what people think and perceive. Online qualitative research methods make it easier to understand that as it is more communicative and descriptive.

Characteristics of Qualitative Research Methods: Important characteristics of qualitative research methods include:

- Qualitative research methods usually collect data at the sight, where the participants are experiencing issues or problems. These are real-time data and rarely bring the participants out of the geographic locations to collect information.
- Qualitative researchers typically gather multiple forms of data, such as interviews, observations, and documents, rather than rely on a single data source.
- This type of research method works towards solving complex issues by breaking down into meaningful inferences, that is easily readable and understood by all.
- Since it's a more communicative method, people can build their trust on the researcher and the information thus obtained is raw

and unadulterated.

Advantages of Qualitative Research: Major advantaged of qualitative research includes:

- It provides flexibility to a researcher to conduct an in depth study on a particular topic.
- The methods opted by qualitative research enables a researcher to encounter with the unknown domains of knowledge.
- Qualitative research is considered 'relatively' inexpensive.

Disadvantages of Qualitative Research: Major disadvantages of qualitative research includes:

- Qualitative research is often criticized on the ground that in such a research the researcher tends to get subjectively involved with the object of inquiry.
- Qualitative research is not replicable and therefore it is criticized on the ground that qualitative research is not often generalisable.
- Another limitation of qualitative research is that here the data collection process is more time consuming.



CHECK YOUR PROGRESS

Q 3: Define qualitative research. (Answer in about 40 words).

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Q 4: Mention any two advantages of quantitative research. (Answer in about 60 words)

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3.6 TYPES OF RESEARCH BASED ON THE OUTCOME

We have already discussed that based on the outcome of research, it can be broadly categorised as (a) Applied, (b) Fundamental /Basic / Pure and (c) Action research. Let us briefly discuss these concepts.

APPLIED RESEARCH: Applied research is problem-oriented as the research is carried out to solve a specific problem that requires a decision, for example, the improvement of safety in the work place, or market research. Applied research is focused on answering real-world, practical questions in order to provide relatively immediate solutions. It is performed in relation to actual problems and under the conditions in which they are found in practice. Topics for applied research are often driven by current problems in education and by policymakers' concerns. Applied research is often conducted in more natural settings (i.e., more realistic or real-world settings) than basic research. Most of the educational researches are applied researches whose objectives are to develop generalizations about teaching learning processes, instructional materials, the behaviour of children, ways to modify it, and so on.

FUNDAMENTAL OR BASIC OR PURE RESEARCH: Fundamental/ basic/pure research is aimed at generating fundamental knowledge and theoretical understanding about basic human and other natural processes. The purpose of basic or fundamental research is generation of new knowledge for the sake of knowledge. It is not directed towards the solution of immediate practical problems. Basic research is usually conducted by using the most rigorous research methods (e.g., experimental) under tightly controlled laboratory conditions.

ACTION RESEARCH: Action research is focused on solving specific problems that local practitioners face in their schools and communities. It views a local classroom or other work environment as a place to conduct research. In action research, practitioners in the local settings, design and conduct the research study. It is focused more on local practice and local solutions; it is more participatory; and it is conducted

by teachers, administrators, counsellors, coaches, and other educational professionals trying to solve their very specific problems. According to Corey (1953), "Action research is the research undertaken by practitioner, so that they may improve their practices. It helps a practitioner to perceive, understand and assess the situation and it further facilitates a systematic analysis and working out plausible reasons, for the unsatisfactory condition. With action research, a practitioner can try out alternative strategies till the problem is solved satisfactorily."

3.7 CONCEPTUAL & EMPIRICAL RESEARCH

While discussing the concept of fundamental research, we mentioned that fundamental research uses very rigorous research methods like the empirical research. It should be noted here that the scientific research is often divided into two classes: conceptual research and empirical research. In this section, we shall briefly discuss the concepts of conceptual and empirical research.

CONCEPTUAL RESEARCH: Conceptual research focuses on the concept or theory that explains or describes the phenomenon being studied. For example:

- What causes disease?
- How can we describe the motions of the planets?
- What are the building blocks of matter?

The conceptual researcher sits at his/her desk with pen in hand and tries to solve these problems by thinking about them. She/he does no experiments but may make use of observations by others, since this is the mass of data that she/he is trying to make sense of.

Conceptual research typically involves observing and analysing information already present on a given topic. Philosophical research is a generally good example for conceptual research. It can be used to solve real-world problems. Conceptual frameworks, which are analytical tools researchers use in their studies, are based on conceptual research. Furthermore, these frameworks help to make conceptual distinctions and organize ideas the researchers need for research purposes.

In simple words, a conceptual framework is the researcher's synthesis of the literature (previous research studies) on how to explain a particular phenomenon. It explains the actions required in the course of the study based on the researcher's observations on the subject of research as well as the knowledge gathered from previous studies.

EMPIRICAL RESEARCH: Empirical research is basically a research technique that uses empirical evidence. Empirical evidence refers to evidence verifiable by observation or experience rather than theory or pure logic. Thus, empirical research is research studies with conclusions based on empirical evidence. Moreover, empirical research studies are observable and measurable.

Empirical evidence can be gathered through qualitative research studies or quantitative research studies. Qualitative research methods gather non-numerical or non-statistical data. Thus, these type of studies helps to understand the underlying reasons, opinions, and motivations behind something as well as to uncover trends in thought and opinions. Quantitative research studies, on the other hand, gather statistical data. These have the ability to quantify behaviours, opinions, or other defined variables. Moreover, a researcher can even use a combination of quantitative and qualitative methods to find answers to his research questions.

Distinctions between Conceptual and Empirical Research: The following broad distinctions between conceptual and empirical research can be noted.

- **Based on definition:** Conceptual research is a type of research that is generally related to abstract ideas or concepts whereas empirical research is any research study where conclusions of the study are drawn from evidence verifiable by observation or experience rather than theory or pure logic.
- **Based on nature:** Conceptual research involves abstract idea and concepts; however, it doesn't involve any practical experiments. Empirical research, on the other hand, involves phenomena that are observable and measurable.
- **Based on type of studies:** Philosophical research studies are

examples of conceptual research studies, whereas empirical research includes both quantitative and qualitative studies.

To sum up, we can say that the main difference between conceptual and empirical research is that conceptual research involves abstract ideas and concepts whereas empirical research involves research based on observation, experiments and verifiable evidence.



CHECK YOUR PROGRESS

Q 5: Define action research. (Answer in about 60 words)

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Q 6: Mention any two situations when applied research can be undertaken. (Answer in about 30 words)

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3.8 LET US SUM UP

- Research can be broadly classified based on its purpose, its process and its outcome.
- Based on purpose, research can be classified as: exploratory research, descriptive research, analytical research and predictive research.
- Based on process, research can be classified as quantitative, qualitative and mixed method research.
- Based on outcome, research can be classified as applied,

fundamental or basic or pure and action research.

- In exploratory research the focus is on gaining insights and familiarity with the subject area for more rigorous investigation later.
- Descriptive research describes phenomena, as they exist. It is used to identify and obtain information on the characteristics of a particular issue.
- Analytical research or explanatory research is a continuation of descriptive research. The researcher goes beyond merely describing the characteristics, to analyse and explain why or how something is happening. Thus, analytical research aims to understand phenomena by discovering and measuring casual relations among them.
- Predictive research goes further by forecasting the likelihood of a similar situation occurring elsewhere. It aims to generalize from the analysis by predicting certain phenomena on the basis of hypothesized, general relationships,
- The quantitative approach usually starts with a theory of a general statement proposing a general relationship between variables. With this approach, it is likely that the researchers will take an objective position and their approach will be to treat phenomena as hard and real.
- Qualitative research is defined as a research method that focuses on obtaining data through open-ended and conversational communication. This method is not only about "what" people think but also "why" they think so.
- Applied research is problem-oriented as the research is carried out to solve a specific problem that requires a decision, for example, the improvement of safety in the work place, or market research. Applied research is focused on answering real-world, practical questions in order to provide relatively immediate solutions.
- Fundamental/basic/pure research is aimed at generating fundamental knowledge and theoretical understanding about basic human and other natural processes. The purpose of basic or

fundamental research is generation of new knowledge for the sake of knowledge.

- Action research is focused on solving specific problems that local practitioners face in their schools and communities. It views a local classroom or other work environment as a place to conduct research.

  Conceptual research focuses on the concept or theory that explains or describes the phenomenon being studied.

- Empirical research is basically a research technique that uses empirical evidence. Empirical evidence refers to evidence verifiable by observation or experience rather than theory or pure logic.



3.9 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



3.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Research can be broadly classified based on its purpose, its process and its outcome. Based on purpose, research can be classified as: exploratory research, descriptive research, analytical research and predictive research. Based on process, research can be classified as quantitative, qualitative and mixed method research. And, based on outcome, research can be classified as applied, fundamental or basic or pure and action research.

Ans to Q No 2: Exploratory research may be defined as the research approach that looks for patterns, ideas or hypotheses rather than testing or confirming a hypothesis. In exploratory research the focus is on gaining insights and familiarity with the subject area for more

rigorous investigation later.

Ans to Q No 3: Qualitative research is defined as a research method that focuses on obtaining data through open-ended and conversational communication. This method is not only about "what" people think but also "why" they think so.

Ans to Q No 4: Two important advantages of quantitative research are:

- As data is collected, analysed, and presented in numbers, the results obtained will be extremely reliable. Data offer an honest picture of the conducted research without discrepancies and is also extremely accurate. In situations where a researcher predicts conflict, quantitative research is conducted.
- This research method offers no scope for personal comments or biasing of results. The results achieved are numerical and are thus, fair in most cases.

Ans to Q No 5: Action research is the research undertaken by practitioner, so that they may improve their practices. It helps a practitioner to perceive, understand and assess the situation and it further facilitates a systematic analysis and working out plausible reasons, for the unsatisfactory condition. With action research, a practitioner can try out alternative strategies till the problem is solved satisfactorily,

Ans to Q No 6: Most of the educational researches are applied researches whose objectives are to develop generalizations about teaching learning processes, instructional materials, the behaviour of children, ways to modify it, and so on.



3.11 MODEL QUESTIONS

Answer the following questions.

Q 1: Discuss the different types of research.

Q 2: Discuss the different types of research based on its purpose.

Q 3: Discuss the different types of research based on the process.

Q 4: Discuss the different types of research based on the outcome.

Q 5: Discuss the concepts of conceptual and empirical research.

Q 6: Discuss the relative merits of qualitative and quantitative research.

Q 7: Briefly discuss the concept of exploratory research.

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UNIT 4: RESEARCH IN ECONOMICS

UNIT STRUCTURE

4.1 Learning Objectives

4.2 Introduction

4.3 Nature of Research in Economics

4.4 Importance of Economic Research

4.5 Scope of Economic Research

4.6 Let Us Sum Up

4.7 Further Reading

4.8 Model Questions

4.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss the nature of research in economics
- outline importance of economic research
- explain the scope of research in economics

4.2 INTRODUCTION

The basic objective of this unit is enabling you to gain an understanding of core economic principles and how they apply to a wide range of real-world issues. Along with that it is also expected from you to have information about the theoretical and applied research methods/ designs necessary to critique and create economic research. Through this unit we also wish to inspire you to keep in touch with salient developments in the Indian as well as world economy, in both present-day and historical contexts.

So far, we have discussed a few fundamental concepts of research. In this unit, we shall discuss nature, importance and scope of economic research. Considered a social science, economics uses scientific methods to understand how scarce resources are exchanged within society. Economists study theories and techniques useful for developing policies in

government as they have a deep understanding of how to create efficiency in today's world. Dear learners, in order to behave like an economist, it is very essential to understand all the concepts relating to economic research. In this context, while discussing the nature of economic research, we have basically considered the techniques of research methodologies used in Economics. Similarly, in highlighting the importance of economic research we pinpointed that economists analyse data to improve our understanding of economic trends. Economic analysis, both theoretical and empirical, can generate important insights into individual and aggregate behaviour and relationships, and help in society's efforts to use scarce resources in a more efficient manner. In the discussion of its scope, we have highlighted the JEL codes that are frequently used in economic research.

4.3 NATURE OF RESEARCH IN ECONOMICS

The major objective of research is to find out the truth about the problems that is bothering, individual households, corporations, communities, policy makers in the local and national governments and the international community as a whole.

Economic research uses the economic data as its core input. Consequently, the availability and quality of economic data represent a key factor to the development of timely and accurate economic research, to the maximisation of benefiting from them, as well as to the minimisation of wrong decision-making and the costs it carries over. Undoubtedly, timely and accurate economic research is vital for undertaking more sound economic policies for boosting a stable and non-inflationary growth and for coping with various risks under a dynamic and rapid integration of our economies.

In Economics, some questions are quantitative by nature such as the distribution of income, employment level by sectors, prices and costs of commodities, demand and supply of various goods and services in the economy, international trade, growth rates of output and employment, capital stock, investment, rate of returns on financial assets, primary secondary

or the university level education. Similarly, many other problems in Economics are, in fact. qualitative. These range about the welfare and equal society, philosophical issues relating to the behavioural and psychological analysis of decision making process by individuals and firms or the policy makers that often involve abstract reasoning. If there is a solid proof of certain aspects of life found by quantitative method that should be validated also by qualitative method. This kind of cross check between research method is knows as triangulation. It is good research practice to triangulate findings. Analysis and conclusions established by quantitative methods should be cross checked by qualitative methods or otherwise. Real purpose of research is finding something new that helps in making good decisions.

Please note here that research methods used in Economics can broadly be of two types:

- Mono Methods and
- Mixed Methods.

A mono method study uses only one type of method, one quantitative or one qualitative. Within mono methods, it can be either quantitative or qualitative. In general, in a quantitative study, the data is in numerical form and this information is analyzed using quantitative data analysis techniques.

The combination of at least one qualitative and at least one quantitative component in a single research project is known as mixed methods research The mixed methods have gained popularity in carrying out research in social and behavioural sciences because combining them allows the researchers (i) to offset their (QN and QL methods) weaknesses, (ii) provide comprehensive account of the area of the enquiry, (iii) to answer different types of questions. [Here, QN = Quantitative, QL: Qualitative].

Thus, studies undertaken under mixed methods can be of four types:

- Preliminary quantitative methods input design and core qualitative methods as core design (QN-QL)
- supplementary quantitative methods design as follow up to core quantitative methods design (QL-QN)
- preliminary qualitative methods input design and core quantitative methods design (QL-QN)

- supplementary qualitative methods design as follow up to quantitative methods design (QN-QL)

In carrying out an applied and quantitative economic research, there are several necessary backgrounds. The researcher should first have solid training in economic theory, quantitative methods (statistics and econometrics), data analysis techniques, and adequate training in micro-computer technology, as well as some training in research methods. Unfortunately, undergraduate students beginning their research most often do not have these backgrounds. Therefore, they are going to be overwhelmed and intimidated by the lack of necessary skills. Many often give up in frustration, even if they are willing to persevere and to learn these skills. What is sorely need is a practical guide to initiate, conduct, and complete an applied and quantitative economic research.

By now you have understood the nature of economic research. Now let us move further to explore its importance.



LET US KNOW

Based on Creswell and Plano Clark's (2007) discussion of mixed methods designs, there are Four major types of mixed methods:

(i) The Triangulation Design,

(ii) The Embedded Design,

(iii) The Explanatory Design, and

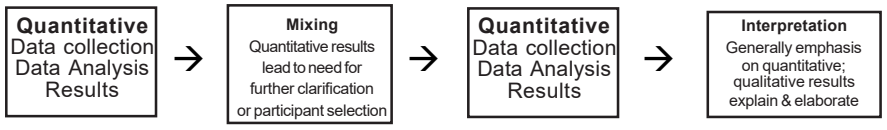
(iv) The Exploratory Design.

This has been explained in the following figure.

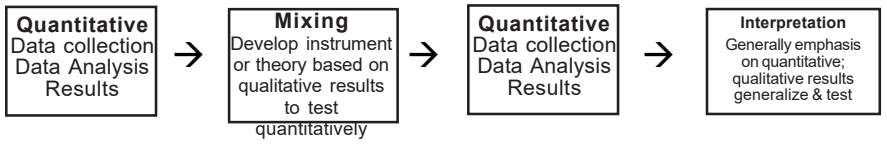
(a) Triangulation Design



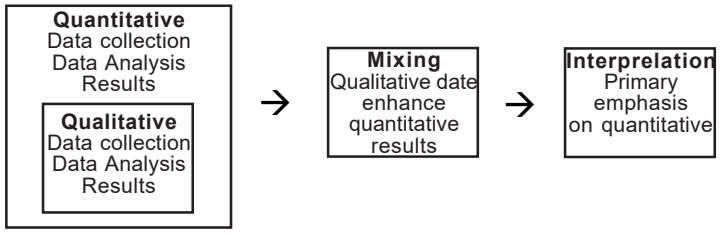
(b) Explanatory Design



(c) Explanatory Design



(d) Embedded Design



4.4 IMPORTANCE OF ECONOMIC RESEARCH

In Unit 1, we have already discussed the importance of research. Here we shall discuss the value of the research done in Economics from the society's larger perspectives. Research in the discipline of Economics have benefitted many other disciplines. Similarly, Economics is also a beneficiary of the results of research in other disciplines (mathematics, statistics, computers, sociology). Rigorous economic modelling has led to many institutional innovations and policy paradigms. Economics is a young discipline, only about 300 years old. The added rigor and recent

advancement in quantitative analysis expanded the capabilities of economic research and led to a multitude of policy paradigms and institutions. For example, over the last 40 years, formal economic analysis has advanced the notions of externalities, public good, market failure, incentive-compatible policies, trading in pollution permits, intellectual property rights, and so forth. The importance of economic research is described in the following points:

- **As a tool for advancement in knowledge:** As a tool for advancement in knowledge, the research undertaken in the field of Economics helps the society to get insights into its social problems. For example, research undertaken in the areas like poverty, growth, public health, education, equality and equity etc. can help the society to understand the deep-rooted problems. The research findings of such studies also help the government in adopting appropriate policy measures for improving those social conditions.
- **Economics helps in theory building:** Economics provides a wider scope for theory building. Economists see the world through a different lens than anthropologists, biologists, classicists, or practitioners of any other discipline. They analyse issues and problems with economic theories that are based on particular assumptions about human behaviour, that are different than the assumptions an anthropologist or psychologist might use. Here, in economics, we can define theory as a simplified representation of how two or more variables interact with each other. The purpose of a theory is to take a complex, real-world issue and simplify it down to its essentials. If done well, this enables the analyst to understand the issue and any problems around it. A good theory is simple enough to be understood, while complex enough to capture the key features of the object or situation being studied.

  Sometimes economists use the term model instead of theory. Strictly speaking, a theory is a more abstract representation, while a model is more applied or empirical representation. Models are used to test theories, but often these two terms are used interchangeably.

- **Helps to gather updated information and to-the-point data:** Most of the research in Economics are based on current data. Thus, they offer enormous help in building understanding about the current scenario. This also helps in undertaking proper policy measures to solve the current issues of the society.
- **A reliable tool for public policy making:** Research studies in economics serves as a reliable tool for public policy making. This is the reason why a number of research organisations, primarily aiming at undertaking research in various fields in economics are set up with the investment of public funds.
- **Helps in informed decision making:** Research studies in economics also helps in undertaking important and effective decisions across all sectors of the economy. Further, in many other fields like engineering, health, education, business management, etc.
- **Contributions of David Zilberman and Amir Heiman:** Apart from the above points, let us consider some of the important points raised by David Zilberman and Amir Heiman of International Food Policy Research Institute, Washington, D.C., in their paper entitled "The Value of Economic Research" (1999). In the paper, the authors have basically analysed the value of economic research in the field of agriculture.

The authors have analysed the value of economic research in agriculture in three main categories and nine classes.

The first class, economic information, includes prices and quantities, institutions and policies, and aggregate information.

The second class, contribution to technological change, includes three categories of outputs that contribute to technological change: innovations in production and management, product introduction and marketing methods, and management tools for research and development.

The third class, contribution to public policy, includes three categories that affect public policies: policy paradigms and institutional

innovations, policy analysis tools, and assessments of the impact of research on policy.

The analyses of the authors on the value of economic research in the field of agriculture has been summarily presented in Table 4.1.

Table 4.1: Outputs of Economic Research: Examples and Implications

Category	Prices and quantities	Institutions and policies	Aggregate information
Group 1: Economics information			
Examples	Commodity price predictions, output focus	Overview of international agricultural policies	Sectoral productivity estimates, sectoral accounts
Users	Traders, farmers, agribusiness	Agribusiness, investors, exporters, developers	Policymakers, voters
Benefits	Uncertainty reduction, increased efficiency, higher average output, lower prices	Increased trade and investment, reduced transaction costs, increased efficiency	Timely policy adjustments, informed political choices
Category	Production and management innovations	Product introduction and marketing methods	Research and development management tools
Group 2: Contributions to technological change			
Examples	Feed rationing formulas, resource allocation methods, conjunctive use of water, economic pest thresholds, location and transportation management tools	S-shaped diffusion curves, demand estimates, statistical tools to identify market slices	Competitive grants, research incentives, research assessment tools
Users	Resource managers, agribusiness, farmers	Agribusiness, investors, developers, farmers	Policymakers, rescarch managers
Benefits	Improved resource allocation, increased profitability	Increased trade and investment, reduced transactions costs, increased productivity	Improved research productivity, improved research accountability
Category	Policy paradigms and institutional innovations	Policy analysis tools	Policy impact assessment
Group 3: Contributions to public policy			
Examples	Market efficiency, gains from trade, externalities, public goods, transferable pollution permits, incentive compatible policies, privatization, intellectual property rights	Cost-benefit analysis, input-output models, CGE models, impact assessment models	Analysis of alternative farm programs, prediction of economic impact of food stamp programs
Users	Government, policymakers, citizens, public organization	Government agencies, policy analysis	Governments, policy analysts
Benefits	Improved resource allocation, equity, and quality of life	Improved policy efficiency	Screen out bad policies, improve policy designs, identify unexpected consequences

Based on the above analysis (Table 4.1), the authors have drawn a few important contribution of economic research:

Assessments of the impact of research are preventive and corrective. They are generally routine exercises, but they can require original research on methodology or empirical estimation. Such assessments can be especially valuable if they lead to the selection of superior outcomes. The most important contribution of this research may be preventive: it screens wasteful proposals.

In the above analysis made by David Zilberman and Amir Heiman, we have basically seen the use (or scope) of economic research in the field of agriculture only. But the scope of economic research is much wider. We shall discuss that in the next section 4.5.

Limitations of Economic Research: As an outcome of economic research some policy may be formulated by the policy makers in the interest of society. But you should note here that there is a difference between recommending a policy and implementing it. The benefits of economic research may not be fully realized because a policymaker either may act against the advice of economists or ignore it. Even if policymakers do not act in accord with the recommendations of economists, they may claim that they follow economists' advice or behave according to an economic principle out of a concern for public relations. In some political situations, the results of potentially valuable policy research may be wasted.

Last but not the least, economists make mistakes. Incorporating the recommendations of economic research into policy does not necessarily ensure that the policy will succeed or that human well-being will improve. Economists have a track record of giving wrong advice. For example, based on what at the time were considered sound economic principles, South American economists followed development strategies that emphasized import substitution and led them nowhere. In other cases, ignoring or even acting against the recommendations of economists have produced successful outcomes. These cases cannot be ignored in an assessment of the value of economic research. Economists must attempt to identify those situations where economic research has failed so that they can learn from these failures.

4.5 SCOPE OF ECONOMIC RESEARCH

Dear learners, many of you may choose to pursue a career as a professional economist after completing your Master's degree in Economics. As professional economists, you would be expected to analyse a wide range of economic issues and their implications for the economic policy framework. A few of you can also study for a doctorate in research. In order to carry out these tasks, you must be knowledgeable with the components of research areas where u can pursue your research work. The current section seeks to meet this need by making you understand the scope of economic research. Research in Economics is done in every micro field of Economics and also in innumerable inter-disciplinary areas.

As per the federal bank of New York, The scope of economic research can be broadly categorised in 15 subjects presented as under:

- **Agriculture, natural resources, and the environment:** The economics of farming, fishery, forests, and natural resources with a focus on prices, markets, and changing technologies. Topics include the study of markets for energy (oil, coal, and electricity) and mineral resources, and policies to promote clean air, water, and land.
- **Behavioural economics:** The study of the cognitive and emotional dimensions of economic decisions.
- **Business economics:** The study of how firms make decisions. How do firms maximize profit? What prices should they set and how much should they produce? What is the role of incentives within the firm for managers to make good decisions and take on and manage risks.
- **Economic history:** The study of how economies and economic outcomes have changed over history and how economic institutions have developed. Topics include the emergence of markets, the forces shaping the industrial revolution, the sources of improvements in agricultural productivity, and the influence of railroads and other new technologies.

- **Economic development:** The study of why some countries have developed while others have not, with special focus on the world's less developed countries. How might the industrialized countries improve prospects for development around the world? Who gains and who loses under policies to help economies develop?
- **Financial economics:** The study of how to value and determine the price of assets with uncertain returns their derivatives and the markets that trade them; the study of how firms finance their operations and the capital structure of firms.
- **Health and education economics:** The study of determinants of educational attainment and health outcomes, and the impact of government policies on these outcomes.
- **Industrial organization:** The study of individual markets and the nature of competition. Topics include anti-trust policy, the role of advertising, and how costs vary with the scale of operations. This field also studies particular industries such as software and technology firms, sports, and tourism.
- **International trade and finance:** The study of trade among nations and the flow of money and payments across international borders. Topics also include globalization and the balance of payments with other countries.
- **Labour economics:** The study of employers' decisions to hire workers and employees' decisions to work. This involves determinants of wages, the incentives workers face, and the role of minimum wage laws, unions, pensions, and training programs. Other topics of study include marriage and formation of families, determinants of birth rates, migration, population change, and aging.
- **Law and economics:** The study of individual economic decisions and institutions that are defined by the legal system, such as property rights and contract law.
- **Macroeconomics and monetary economics:** The study of the national economy and the determinants of national production, unemployment, and inflation. This field also examines the role of

the Federal Reserve System, interest rates, and monetary and financial stability policy.

- **Mathematical and quantitative methods**: The focus on various mathematical methods including how best to mathematically model, measure, and estimate economic phenomena, and how to create and evaluate experiments that test economic theories and evaluate government policies. This has two major components:
  - *Econometrics:* Develops and uses statistical and mathematical tools to analyse economic issues and policy questions.
  - *Experimental economics:* Develops and uses experiments, typically with human subjects, to study economic issues and policy questions.
- **Public economics:** The study of the role of government in the economy including how to evaluate government programs, the design of tax systems, and how the political process makes decisions.
- **Urban, rural, and regional economics:** The study of the location decisions of households and firms with a special focus on housing, transportation, and local government.

The above categorization will help you to choose the topic in which you would like to do research. However, it is not quite easy to summarises each and every area of research in which the laws and principles of Economics are applied. Therefore, to discuss the scope of research in Economics, we can also refer to the JEL Classification codes, as discussed below.

- **JEL Classification Codes:** Articles in economics journals are usually classified according to JEL classification codes, which derive from the Journal of Economic Literature. The JEL is published quarterly by the American Economic Association (AEA) and contains survey articles and information on recently published books and dissertations. The AEA maintains EconLit, a searchable data base of citations for articles, books, reviews, dissertations, and working papers classified by JEL codes for the years from 1969.

In the JEL Codes, the research areas in Economics are arranged in 19 major classifications, number as A to R and then Z. These are mentioned below:

A: General Economics and Teaching

B: Methodology and History of Economic Thought

C: Mathematical and Quantitative Methods

D: Microeconomics

E: Macroeconomics and Monetary Economics

F: International Economics

G: Financial Economics

H: Public Economics

I: Health, Education, and Welfare

J: Labour and Demographic Economics

K: Law and Economics

L: Industrial Organization

M: Business Administration and Business Economics; Marketing; Accounting

N: Economic History

O: Economic Development, Technological Change, and Growth

P: Economic Systems

Q: Agricultural and Natural Resource Economics

R: Urban, Rural, and Regional Economics

Z: Other Special Topics

There are many micro areas under these broad 19 classifications (see Appendix).

Thus, from the above, we can view the overall scope of research areas in Economics. In the writing and publication of research papers in journals, the JEL codes are frequently used.



4.6 LET US SUM UP

- The major objective of research to find out the truth about the

problems that is bothering, individual households, corporations, communities, policy makers in the local and national governments or the international community as a whole.

- Research methods used in Economics can broadly be of two types: Mono Methods and Mixed Methods. Within mono methods, it can be either quantitative or qualitative. The combination of at least one qualitative and at least one quantitative component in a single research project is known as mixed methods research.
- Research in the discipline of Economics has benefitted many other disciplines. Similarly, Economics is also a beneficiary of the results of research in other disciplines (mathematics, statistics, computers, sociology etc,).
- The benefits of economic research may not be fully realized because a policymaker either may act against the advice of economists or ignore it.
- Research in Economics is done in every micro field of Economics and also in innumerable inter-disciplinary areas. As such, it is not quite easy to summarises each and every area of research in which the laws and principles of Economics are applied.



4.7 FURTHER READING

(1) Kumar, R. (2011). Research Methodology. New Delhi: Sage Publications.

(2) Nachmias, D. & Nachmias, C. (2014) Research Methods in Social Sciences. New York: St. Martin's Press.

(3) Guthrie , G. (2010). Basic Research Methods: An Entry to Social Science Research, New Delhi: Sage Publications.



4.8 MODEL QUESTIONS

Answer the following questions in about 300-500 words.

Q 1: Discuss the nature of research in economics.

Q 2: Discuss the importance of economic research.

Q 3: Discuss the scope of research in economics.

*** ***** ***

APPENDIX:
JEL CLASSIFICATION CODES

A: GENERAL ECONOMICS AND TEACHING

A00 - General

A1 - General Economics

A10 - General

A11 - Role of Economics; Role of Economists

A12 - Relation of Economics to Other Disciplines

A13 - Relation of Economics to Social Values

A14 - Sociology of Economics

A19 - Other

A2 - Teaching of Economics

A20 - General

A21 - Precollege

A22 - Undergraduate

A23 - Graduate

A29 - Other

B: METHODOLOGY AND HISTORY OF ECONOMIC THOUGHT

B00 - General

B1 - History of Economic Thought through 1925

B10 - General

B11 - Preclassical

B12 - Classical

B13 - Neoclassical through 1925

B14 - Socialist; Marxist

B15 - Historical; Institutional

B19 - Other

B2 - History of Economic Thought since 1925

B20 - General

B21 - Microeconomics

B22 - Macroeconomics

B23 - Econometrics; Quantitative Studies

B24 - Socialist; Marxist

B25 - Historical; Institutional; Evolutionary

B29 - Other

B3 - History of Thought: Individuals

B30 - General

B31 - Individuals

B4 - Economic Methodology

B40 - General

B41 - Economic Methodology

B49 - Other

C: MATHEMATICAL AND QUANTITATIVE METHODS

C00 - General

C1 - Econometric and Statistical Methods: General

C10 - General

C11 - Bayesian Analysis

C12 - Hypothesis Testing

C13 - Estimation

C14 - Semiparametric and Nonparametric Methods

C15 - Statistical Simulation Methods; Monte Carlo Methods

C19 - Other

C2 - Econometric Methods: Single Equation Models

C20 - General

C21 - Cross-Sectional Models

C22 - Time-Series Models

C23 - Models with Panel Data

C24 - Truncated and Censored Models

C25 - Discrete Regression and Qualitative Choice Models

C29 - Other

C3 - Econometric Methods: Multiple/Simultaneous Equation Models

C30 - General

C31 - Cross-Sectional Models

C32 - Time-Series Models

C33 - Models with Panel Data

C34 - Truncated and Censored Models

C35 - Discrete Regression and Qualitative Choice Models

C39 - Other

C4 - Econometric and Statistical Methods: Special Topics

C40 - General

C41 - Duration Analysis

C42 - Survey Methods

C43 - Index Numbers and Aggregation

C44 - Statistical Decision Theory; Operations Research

C45 - Neural Networks and Related Topics

C49 - Other

C5 - Econometric Modeling

C50 - General

C51 - Model Construction and Estimation

C52 - Model Evaluation and Testing

C53 - Forecasting and Other Model Applications

C59 - Other

C6 - Mathematical Methods and Programming

C60 - General

C61 - Optimization Techniques; Programming Models; Dynamic Analysis

C62 - Existence and Stability Conditions of Equilibrium

C63 - Computational Techniques

C67 - Input-Output Models

C68 - Computable General Equilibrium Models

C69 - Other

C7 - Game Theory and Bargaining Theory

C70 - General

C71 - Cooperative Games

C72 - Noncooperative Games

C73 - Stochastic and Dynamic Games

C78 - Bargaining Theory; Matching Theory

C79 - Other

C8 - Data Collection and Data Estimation Methodology; Computer Programs

C80 - General

C81 - Methodology for Collecting, Estimating, and Organizing Microeconomic Data

C82 - Methodology for Collecting, Estimating, and Organizing Macroeconomic Data

C87 - Econometric Software

C88 - Other Computer Software

C89 - Other

C9 - Design of Experiments

C90 - General

C91 - Labouratory, Individual Behavior

C92 - Labouratory, Group Behavior

C93 - Field Experiments

C99 - Other

D: MICROECONOMICS

D00 - General

D1 - Household Behavior

D10 - General

D11 - Consumer Economics: Theory

D12 - Consumer Economics: Empirical Analysis

D13 - Household Production

D18 - Consumer Protection

D19 - Other

D2 - Production and Organizations

D20 - General

D21 - Firm Behavior

D23 - Organizational Behavior; Transaction Costs; Property Rights

D24 - Production; Capital and Total Factor Productivity; Capacity

D29 - Other

D3 - Distribution

D30 - General

D31 - Personal Income and Wealth Distribution

D33 - Factor Income Distribution

D39 - Other

D4 - Market Structure and Pricing

D40 - General

D41 - Perfect Competition

D42 - Monopoly

D43 - Oligopoly and Other Forms of Market Imperfection

D44 - Auctions

D45 - Rationing; Licensing

D46 - Value Theory

D49 - Other

D5 - General Equilibrium and Disequilibrium

D50 - General

D51 - Exchange and Production Economies

D52 - Incomplete Markets

D57 - Input-Output Analysis

D58 - Computable and Other Applied General Equilibrium Models

D59 - Other

D6 - Economic Welfare

D60 - General

D61 - Allocative Efficiency; Cost-Benefit Analysis

D62 - Externalities

D63 - Equity, Justice, Inequality, and Other Normative Criteria and Measurement

D64 - Altruism

D69 - Other

D7 - Analysis of Collective Decision-Making

D70 - General

D71 - Social Choice; Clubs; Committees

D72 - Economic Models of Political Processes: Rent-Seeking,

Elections, Legislatures, and Voting Behavior

D73 - Bureaucracy; Administrative Processes in Public Organizations

D74 - Conflict; Conflict Resolution

D78 - Positive Analysis of Policy-Making and Implementation

D79 - Other

D8 - Information and Uncertainty

D80 - General

D81 - Criteria for Decision-Making under Risk and Uncertainty

D82 - Asymmetric and Private Information

D83 - Search, Learning, and Information

D84 - Expectations; Speculations

D89 - Other

D9 - Intertemporal Choice and Growth

D90 - General

D91 - Intertemporal Consumer Choice; Life Cycle Models and Saving

D92 - Intertemporal Firm Choice and Growth, Investment, or Financing

D99 - Other

E: MACROECONOMICS AND MONETARY ECONOMICS

E00 - General

E1 - General Aggregative Models

E10 - General

E11 - Marxian; Sraffian; Institutional; Evolutionary

E12 - Keynes; Keynesian; Post-Keynesian

E13 - Neoclassical

E17 - Forecasting and Simulation

E19 - Other

E2 - Consumption, Saving, Production, Employment, and Investment

E20 - General

E21 - Consumption; Saving

E22 - Capital; Investment (including Inventories); Capacity

E23 - Production

E24 - Employment; Unemployment; Wages

E25 - Aggregate Factor Income Distribution

E27 - Forecasting and Simulation

E29 - Other

E3 - Prices, Business Fluctuations, and Cycles

E30 - General

E31 - Price Level; Inflation; Deflation

E32 - Business Fluctuations; Cycles

E37 - Forecasting and Simulation

E39 - Other

E4 - Money and Interest Rates

E40 - General

E41 - Demand for Money

E42 - Monetary Standards and Regimes; Government and the Monetary System

E43 - Determination of Interest Rates; Term Structure of Interest Rates

E44 - Financial Markets and the Macroeconomy

E47 - Forecasting and Simulation

E49 - Other

E5 - Monetary Policy, Central Banking, and the Supply of Money and Credit

E50 - General

E51 - Money Supply; Credit; Money Multipliers

E52 - Monetary Policy (Targets, Instruments, and Effects)

E53 - Deposit Insurance

E58 - Central Banks and Their Policies

E59 - Other

E6 - Macroeconomic - Aspects of Public Finance, Macroeconomic Policy, and General Outlook

E60 - General

E61 - Policy Objectives; Policy Designs and Consistency; Policy Coordination

E62 - Fiscal Policy; Public Expenditures, Investment, and Finance; Taxation

E63 - Comparative or Joint Analysis of Fiscal and Monetary or Stabilization Policy

E64 - Incomes Policy; Price Policy

E65 - Studies of Particular Policy Episodes

E66 - General Outlook and Conditions

E69 - Other

F: INTERNATIONAL ECONOMICS

F00 - General

F01 - Global Outlook

F02 - International Economic Order; Economic Integration: General

F1 - Trade

F10 - General

F11 - Neoclassical Models of Trade

F12 - Models of Trade with Imperfect Competition and Scale Economies

F13 - Commercial Policy; Protection; Promotion; Trade Negotiations

F14 - Country and Industry Studies of Trade

F15 - Economic Integration

F17 - Trade Forecasting and Simulation

F19 - Other

F2 - International Factor Movements and International Business

F20 - General

F21 - International Investment; Long-Term Capital Movements

F22 - International Migration

F23 - Multinational Firms; International Business

F29 - Other

F3 - International Finance

F30 - General

F31 - Foreign Exchange

F32 - Current Account Adjustment; Short-Term Capital Movements

F33 - International Monetary Arrangements and Institutions

F34 - International Lending and Debt Problems

F35 - Foreign Aid

F36 - Financial Aspects of Economic Integration

F39 - Other

F4 - Macroeconomic Aspects of International Trade and Finance

F40 - General

F41 - Open Economy Macroeconomics

F42 - International Policy Coordination and Transmission

F43 - Economic Growth of Open Economies

F47 - Forecasting and Simulation

F49 - Other

G: FINANCIAL ECONOMICS

G00 - General

G1 - General Financial Markets

G10 - General

G11 - Portfolio Choice

G12 - Asset Pricing

G13 - Contingent Pricing; Futures Pricing

G14 - Information and Market Efficiency; Event Studies

G15 - International Financial Markets

G18 - Government Policy and Regulation

G19 - Other

G2 - Financial Institutions and Services

G20 - General

G21 - Banks; Other Depository Institutions; Mortgages

G22 - Insurance; Insurance Companies

G23 - Pension Funds; Other Private Financial Institutions

G24 - Investment Banking; Venture Capital; Brokerage

G28 - Government Policy and Regulation

G29 - Other

G3 - Corporate Finance and Governance

G30 - General

G31 - Capital Budgeting; Investment Policy

G32 - Financing Policy; Capital and Ownership Structure

G33 - Bankruptcy; Liquidation

G34 - Mergers; Acquisitions; Restructuring; Corporate Governance

G35 - Payout Policy

G38 - Government Policy and Regulation

G39 - Other

H: PUBLIC ECONOMICS

H00 - General

H1 - Structure and Scope of Government

H10 - General

H11 - Structure and Scope of Government

H19 - Other

H2 - Taxation, Subsidies, and Revenue

H20 - General

H21 - Efficiency; Optimal Taxation

H22 - Incidence

H23 - Externalities; Redistributive Effects

H24 - Personal Income and Other Nonbusiness Taxes

H25 - Business Taxes

H26 - Tax Evasion

H29 - Other

H3 - Fiscal Policies and Behavior of Economic Agents

H30 - General

H31 - Household

H32 - Firm

H39 - Other

H4 - Publicly Provided Goods

H40 - General

H41 - Public Goods

H42 - Publicly Provided Private Goods

H43 - Project Evaluation; Social Discount Rate

H49 - Other

H5 - National Government Expenditures and Related Policies

H50 - General

H51 - Government Expenditures and Health

H52 - Government Expenditures and Education

H53 - Government Expenditures and Welfare Programs

H54 - Infrastructures

H55 - Social Security and Public Pensions

H56 - National Security and War

H57 - Procurement

H59 - Other

H6 - National Budget, Deficit, and Debt

H60 - General

H61 - Budget; Budget Systems

H62 - Deficit

H63 - Debt; Debt Management

H69 - Other

H7 - State and Local Government; Intergovernmental Relations

H70 - General

H71 - State and Local Taxation, Subsidies, and Revenue

H72 - State and Local Budget and Expenditures

H73 - Interjurisdictional Differentials and Their Effects

H74 - State and Local Borrowing

H77 - Intergovernmental Relations

H79 - Other

H8 - Miscellaneous Issues

H80 - General

H81 - Governmental Loans and Credits

H82 - Governmental Property

H87 - International Fiscal Issues

H89 - Other

I: HEALTH, EDUCATION, AND WELFARE

I00 - General

I1 - Health

I10 - General

I11 - Analysis of Health Care Markets

I12 - Health Production: Nutrition, Mortality, Morbidity, Disability,and Economic Behavior

I18 - Government Policy; Regulation; Public Health

I19 - Other

I2 - Education

I20 - General

I21 - Analysis of Education

I22 - Educational Finance

I28 - Government Policy

I29 - Other

I3 - Welfare and Poverty

I30 - General

I31 - General Welfare; Basic Needs; Quality of Life

I32 - Measurement and Analysis of Poverty

I38 - Provision and Effects of Welfare Programs

I39 - Other

J: LABOUR AND DEMOGRAPHIC ECONOMICS

J00 - General

J1 - Demographic Economics

J10 - General

J11 - Demographic Trends and Forecasts

J12 - Marriage; Marital Dissolution; Family Structure

J13 - Fertility; Child Care; Children; Youth

J14 - Economics of the Elderly

J15 - Economics of Minorities

J16 - Economics of Gender

J17 - Value of Life; Foregone Income

J18 - Public Policy

J19 - Other

J2 - Time Allocation, Work Behavior, and Employment Determination

J20 - General

J21 - Labour Force and Employment, Size, and Structure

J22 - Time Allocation and Labour Supply

J23 - Employment Determination; Demand for Labour; Self-employment

J24 - Human Capital Formation; Occupational Choice; Labour Productivity

J26 - Retirement; Retirement Policies

J28 - Safety; Accidents; Industrial Health; Job Satisfaction; Related Public Policy

J29 - Other

J3 - Wages, Compensation, and Labour Costs

J30 - General

J31 - Wage Level and Structure; Wage Differentials by Skill, Training, Occupation, etc.

J32 - Nonwage Labour Costs and Benefits

J33 - Compensation Packages; Payment Methods

J38 - Public Policy

J39 - Other

J4 - Particular Labour Markets

J40 - General

J41 - Contracts: Specific Human Capital, Matching Models, Efficiency Wage Models, and Internal Labour Markets

J42 - Monopsony; Segmented Labour Markets

J43 - Agricultural Labour Markets

J44 - Professional Labour Markets and Occupations

J45 - Public Sector Labour Markets

J49 - Other

J5 - Labour-Management Relations, Trade Unions, and Collective Bargaining

J50 - General

J51 - Trade Unions: Objectives, Structure, and Effects

J52 - Dispute Resolution: Strikes; Arbitration; Mediation

J53 - Labour-Management Relations; Industrial Jurisprudence

J54 - Producer Cooperatives; Labour Managed Firms

J58 - Public Policy

J59 - Other

J6 - Mobility, Unemployment, and Vacancies

J60 - General

J61 - Geographic Labour Mobility; Immigrant Workers

J62 - Occupational and Intergenerational Mobility

J63 - Turnover; Vacancies; Layoffs

J64 - Unemployment: Models, Duration, Incidence, and Job Search

J65 - Unemployment Insurance; Severance Pay; Plant Closings

J68 - Public Policy

J69 - Other

J7 - Discrimination

J70 - General

J71 - Discrimination

J78 - Public Policy

J79 - Other

K: LAW AND ECONOMICS

K00 - General

K1 - Basic Areas of Law

K10 - General

K11 - Property Law

K12 - Contract Law

K13 - Tort Law and Product Liability

K14 - Criminal Law

K19 - Other

K2 - Regulation and Business Law

K20 - General

K21 - Antitrust Law

K22 - Corporation and Securities Law

K23 - Regulated Industries and Administrative Law

K29 - Other

K3 - Other Substantive Areas of Law

K30 - General

K31 - Labour Law

K32 - Environmental, Health, and Safety Law

K33 - International Law

K34 - Tax Law

K39 - Other

K4 - Legal Procedure, the Legal System, and Illegal Behavior

K40 - General

K41 - Litigation Process

K42 - Illegal Behavior and the Enforcement of Law

K49 - Other

L: INDUSTRIAL ORGANIZATION

L00 - General

L1 - Market Structure, Firm Strategy, and Market Performance

L10 - General

L11 - Production, Pricing, and Market Structure; Size Distribution of Firms

L12 - Monopoly; Monopolization Strategies

L13 - Oligopoly and Other Imperfect Markets

L14 - Transactional Relationships; Contracts and Reputation

L15 - Information and Product Quality

L16 - Industrial Organization and Macroeconomics; Macroeconomic Industrial Structure

L19 - Other

L2 - Firm Objectives, Organization, and Behavior

L20 - General

L21 - Business Objectives of the Firm

L22 - Firm Organization and Market Structure: Markets vs. Hierarchies; Vertical Integration

L23 - Organization of Production

L29 - Other

L3 - Nonprofit Organizations and Public Enterprise

L30 - General

L31 - Nonprofit Institutions

L32 - Public Enterprises

L33 - Boundaries of Public and Private Enterprise; Privatization; Contracting Out

L39 - Other

L4 - Antitrust Policy

L40 - General

L41 - Monopolization; Horizontal Anticompetitive Practices

L42 - Vertical Restraints; Resale Price Maintenance; Quantity Discounts

L43 - Legal Monopolies and Regulation or Deregulation

L44 - Antitrust Policy and Public Enterprise, Nonprofit Institutions, and Professional Organizations

L49 - Other

L5 - Regulation and Industrial Policy

L50 - General

L51 - Economics of Regulation

L52 - Industrial Policy; Sectoral Planning Methods

L59 - Other

L6 - Industry Studies: Manufacturing

L60 - General

L61 - Metals and Metal Products; Cement; Glass; Ceramics

L62 - Automobiles; Other Transportation Equipment

L63 - Microelectronics; Computers; Communications Equipment

L64 - Other Machinery; Business Equipment

L65 - Chemicals; Drugs

L66 - Food; Beverages; Cosmetics; Tobacco

L67 - Other Consumer Nondurables: Clothing, Textiles, Shoes, and Leather

L68 - Appliances; Other Consumer Durables

L69 - Other

L7 - Industry Studies: Primary Products and Construction

L70 - General

L71 - Mining, Extraction, and Refining: Hydrocarbon Fuels

L72 - Mining, Extraction, and Refining: Other Nonrenewable Resources

L73 - Forest Products: Lumber and Paper

L74 - Construction

L79 - Other

L8 - Industry Studies: Services

L80 - General

L81 - Retail and Wholesale Trade; Warehousing

L82 - Entertainment; Media (Performing Arts, Visual Arts, Broadcasting, Publishing, etc.)

L83 - Sports; Gambling; Recreation; Tourism

L84 - Personal and Professional Services

L85 - Real Estate Services

L86 - Information Services; Computer Software

L89 - Other

L9 - Industry Studies: Transportation and Utilities

L90 - General

L91 - Transportation: General

L92 - Railroads and Other Surface Transportation: Autos, Buses, Trucks, and Water Carriers

L93 - Air Transportation

L94 - Electric Utilities

L95 - Gas Utilities; Pipelines; Water Utilities

L96 - Telecommunications

L97 - Utilities: General

L98 - Government Policy

L99 - Other

M: BUSINESS ADMINISTRATION AND BUSINESS ECONOMICS; MARKETING; ACCOUNTING

M00 - General

M1 - Business Administration

M10 - General

M11 - Production Management

M12 - Personnel Management

M13 - Entrepreneurship

M14 - Corporate Culture; Social Responsibility

M19 - Other

M2 - Business Economics

M20 - General

M21 - Business Economics

M29 - Other

M3 - Marketing and Advertising

M30 - General

M31 - Marketing

M37 - Advertising

M39 - Other

M4 - Accounting

M40 - General

M41 - Accounting

M49 - Other

M5 - Personnel Economics

M50 - General

M51 - Firm Employment Decisions - Promotions (hiring, firing, turnover, part-time, seniority issues)

M52 - Compensation and Compensation Methods and Their Effects (stock options, fringe benefits, incentives, seniority issues)

M53 - Training

M54 - Labour Management (team formation, worker empowerment, job design, tasks and authority, job satisfaction)

M55 - Labour Contracting Devices: Outsourcing - Franchising - Other

M59 - Other

N: ECONOMIC HISTORY

N00 - General

N01 - Development of the Discipline: Historiographical; Sources and Methods

N1 - Macroeconomics and Monetary Economics; Growth and Fluctuations

N10 - General, International, or Comparative

N11 - U.S.; Canada: Pre-1913

N12 - U.S.; Canada: 1913-71

N13 - Europe: Pre-1913

N14 - Europe: 1913-71

N15 - Asia including Middle East

N16 - Latin America; Caribbean

N17 - Africa; Oceania

N2 - Financial Markets and Institutions

N20 - General, International, or Comparative

N21 - U.S.; Canada: Pre-1913

N22 - U.S.; Canada: 1913-71

N23 - Europe: Pre-1913

N24 - Europe: 1913-71

N25 - Asia including Middle East

N26 - Latin America; Caribbean

N27 - Africa; Oceania

N3 - Labour, Demography, Education, Income, and Wealth

N30 - General, International, or Comparative

N31 - U.S.; Canada: Pre-1913

N32 - U.S.; Canada: 1913-71

N33 - Europe: Pre-1913

N34 - Europe: 1913-71

N35 - Asia including Middle East

N36 - Latin America; Caribbean

N37 - Africa; Oceania

N4 - Government, War, Law, and Regulation

N40 - General, International, or Comparative

N41 - U.S.; Canada: Pre-1913

N42 - U.S.; Canada: 1913-71

N43 - Europe: Pre-1913

N44 - Europe: 1913-71

N45 - Asia including Middle East

N46 - Latin America; Caribbean

N47 - Africa; Oceania

N5 - Agriculture, Natural Resources, Environment, and Extractive Industries

N50 - General, International, or Comparative

N51 - U.S.; Canada: Pre-1913

N52 - U.S.; Canada: 1913-71

N53 - Europe: Pre-1913

N54 - Europe: 1913-71

N55 - Asia including Middle East

N56 - Latin America; Caribbean

N57 - Africa; Oceania

N6 - Manufacturing and Construction

N60 - General, International, or Comparative

N61 - U.S.; Canada: Pre-1913

N62 - U.S.; Canada: 1913-71

N63 - Europe: Pre-1913

N64 - Europe: 1913-71

N65 - Asia including Middle East

N66 - Latin America; Caribbean

N67 - Africa; Oceania

N7 - Transport, International and Domestic Trade, Energy, and Other Services

N70 - General, International, or Comparative

N71 - U.S.; Canada: Pre-1913

N72 - U.S.; Canada: 1913-71

N73 - Europe: Pre-1913

N74 - Europe: 1913-71

N75 - Asia including Middle East

N76 - Latin America; Caribbean

N77 - Africa; Oceania

N8 - Micro-Business History

N80 - General, International, or Comparative

N81 - U.S.; Canada: Pre-1913

N82 - U.S.; Canada: 1913-71

N83 - Europe: Pre-1913

N84 - Europe: 1913-71

N85 - Asia including Middle East

N86 - Latin America; Caribbean

N87 - Africa; Oceania

O: ECONOMIC DEVELOPMENT, TECHNOLOGICAL CHANGE, AND GROWTH

O00 - General

O1 - Economic Development

O10 - General

O11 - Macroeconomic Analyses of Economic Development

O12 - Microeconomic Analyses of Economic Development

O13 - Agriculture; Natural Resources; Environment; Other Primary Products

O14 - Industrialization; Choice of Technology

O15 - Human Resources; Income Distribution; Migration

O16 - Financial Markets; Saving and Capital Investment

O17 - Formal and Informal Sectors; Shadow Economy; Institutional Arrangements

O18 - Regional, Urban, and Rural Analyses

O19 - International Linkages to Development; Role of International Organizations

O2 - Development Planning and Policy

O20 - General

O21 - Planning Models; Planning Policy

O22 - Project Analysis

O23 - Fiscal and Monetary Policy in Development

O29 - Other

O3 - Technological Change

O30 - General

O31 - Innovation and Invention: Processes and Incentives

O32 - Management of Technological Innovation and R&D

O33 - Technological Change: Choices and Consequences

O34 - Intellectual Property Rights: National and International Issues

O38 - Government Policy

O39 - Other

O4 - Economic Growth and Aggregate Productivity

O40 - General

O41 - One, Two, and Multisector Growth Models

O42 - Monetary Growth Models

O47 - Measurement of Economic Growth; Aggregate Productivity

O49 - Other

O5 - Economywide Country Studies

O50 - General

O51 - U.S.; Canada

O52 - Europe

O53 - Asia including Middle East

O54 - Latin America; Caribbean

O55 - Africa

O56 - Oceania

O57 - Comparative Studies of Countries

P: ECONOMIC SYSTEMS

P00 - General

P1 - Capitalist Systems

P10 - General

P11 - Planning, Coordination, and Reform

P12 - Capitalist Enterprises

P13 - Cooperative Enterprises

P16 - Political Economy

P17 - Performance and Prospects

P19 - Other

P2 - Socialist Systems and Transitional Economies

P20 - General

P21 - Planning, Coordination, and Reform

P22 - Prices

P23 - Factor and Product Markets

P24 - National Income, Product, and Expenditure; Money; Inflation

P26 - Political Economy

P27 - Performance and Prospects

P29 - Other

P3 - Socialist Institutions and Their Transitions

P30 - General

P31 - Socialist Enterprises and Their Transitions

P32 - Collectives; Communes; Agricultural Institutions

P33 - International Linkages

P34 - Finance

P35 - Public Finance

P36 - Household Behavior

P39 - Other

P4 - Other Economic Systems

P40 - General

P41 - Planning, Coordination, and Reform

P42 - Productive Enterprises; Factor and Product Markets; Prices

P43 - Finance; Public Finance

P44 - National Income, Product, and Expenditure; Money; Inflation

P45 - International Linkages

P46 - Household Behavior

P47 - Performance and Prospects

P49 - Other

P5 - Comparative Economic Systems

P50 - General

P51 - Comparative Analysis of Economic Systems

P52 - Comparative Studies of Particular Economies

P59 - Other

Q: AGRICULTURAL AND NATURAL RESOURCE ECONOMICS

Q00 - General

Q1 - Agriculture

Q10 - General

Q11 - Aggregate Supply and Demand Analysis; Prices

Q12 - Micro Analysis of Farm Firms, Farm Households, and Farm Input Markets

Q13 - Agricultural Markets and Marketing; Cooperatives; Agribusiness

Q14 - Agricultural Finance

Q15 - Land Ownership and Tenure; Land Reform; Land Use; Irrigation

Q16 - R&D; Agricultural Technology; Agricultural Extension Services

Q17 - Agriculture in International Trade

Q18 - Agricultural Policy; Food Policy

Q19 - Other

Q2 - Renewable Resources and Conservation; Environmental Management

Q20 - General

Q21 - Demand and Supply

Q22 - Fishery

Q23 - Forestry

Q24 - Land

Q25 - Water; Air

Q26 - Recreational Aspects of Natural Resources; Contingent Valuation Methods

Q28 - Government Policy

Q29 - Other

Q3 - Nonrenewable Resources and Conservation

Q30 - General

Q31 - Demand and Supply

Q32 - Exhaustible Resources and Economic Development

Q33 - Resource Booms

Q38 - Government Policy

Q39 - Other

Q4 - Energy

Q40 - General

Q41 - Demand and Supply

Q42 - Alternative Energy Sources

Q43 - Energy and the Macroeconomy

Q48 - Government Policy

Q49 - Other

R: URBAN, RURAL, AND REGIONAL ECONOMICS

R00 - General

R1 - General Spatial Economics

R10 - General

R11 - Analysis of Growth, Development, and Changes

R12 - Size and Spatial Distributions of Regional Economic Activity

R13 - General Equilibrium and Welfare Economic Analysis of Regional Economies

R14 - Land Use Patterns

R15 - Econometric and Input-Output Models; Other Models

R19 - Other

R2 - Household Analysis

R20 - General

R21 - Housing Demand

R22 - Other Demand

R23 - Regional Migration; Regional Labour Markets; Population

R29 - Other

R3 - Production Analysis and Firm Location

R30 - General

R31 - Housing Supply and Markets

R32 - Other Production and Pricing Analysis

R33 - Nonagricultural and Nonresidential Real Estate Markets

R34 - Input Demand Analysis

R38 - Government Policies; Regulatory Policies

R39 - Other

R4 - Transportation Systems

R40 - General

R41 - Transportation: Demand, Supply, and Congestion

R42 - Government and Private Investment Analysis

R48 - Government Pricing; Regulatory Policies

R49 - Other

R5 - Regional Government Analysis

R50 - General

R51 - Finance in Urban and Rural Economies

R52 - Land Use and Other Regulations

R53 - Public Facility Location Analysis; Public Investment and Capital Stock

R58 - Regional Development Policy

R59 - Other

Z: OTHER SPECIAL TOPICS

Z00 - General

Z1 - Cultural Economics

Z10 - General

UNIT 5: REVIEW OF LITERATURE

UNIT STRUCTURE

5.1 Learning Objectives

5.2 Introduction

5.3 Review of Literature: Meaning and Concept

5.3.1 The 5 C's of a Literature Review

5.4 Need for Reviewing Literature

5.5 Sources of Literature

5.6 Let Us Sum Up

5.7 Further Reading

5.8 Answer to Check Your Progress

5.9 Model Questions

5.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss the concept and meaning of review of literature
- discuss the 5 Cs of literature review
- outline the need for reviewing literature
- describe the various sources of literature

5.2 INTRODUCTION

When we share knowledge it multiplies. In order to share the acquired, obtained or generated knowledge it is necessary that it must be transmitted, preserved and advanced. But advancement in knowledge takes place when there is suitable transmission and preservation. Practically knowledge can be preserved and transmitted through books, libraries and educational entities. For advancement of knowledge, it is necessary to review the existing knowledge and improve it on logical and justifiable premises. Logic and justification always stem from investigation. But before entering into any investigation an investigator must ensure that the enquiry is not from a vacuum; there should be considerable work to pave the way.

Appraising existing scholarly work is called review of literature. Sometimes, an examination into earlier scholarly work itself provides solution to the problem or answer to a question. In any discipline for the purpose of advancement and up-gradation, a researcher must be thoroughly familiar with both previous theory and hypothesis. In each of the behavioural sciences research, review of literature starts at the very initial stage of the whole research plan and continues till its completion.

In this unit, we shall discuss the concept and meaning of review of literature, its need and various sources.

5.3 REVIEW OF LITERATURE: MEANING AND CONCEPT

Dissection of the term "Review of literature" is self explanatory, it consists of two words i.e., review + literature. The dictionary meaning of review is "a look back at something in order to check, remember, or be clear about something" or "the examining or considering over again of something in order to decide if transformation is needed". Similarly, the dictionary meaning of literature is "pieces of writing that are valued as works of art, especially novels, plays and poems" or "pieces of writing or printed information on a particular subject".

The expression "review of literature" is basically an examination of printed information on a particular subject or a matter. Printed information can be sourced from books, research articles, scholarly work, policy papers, monographs, magazines, newspapers, scriptures, and Government reports, etc.

W.R. Borg has defined review of literature as:

[The literature in any field forms the foundation upon which all future work will be built. If we fail to build the foundation of knowledge provided by the review of literature our work is likely to be shallow and naive and will often duplicate work that has already been done better by some one else.]

Good, Barr and Scates have defined it as:

[The competent physician must keep abreast of the latest discoveries in the

field of medicine. Obviously the careful student of education, the research worker and investigator should become familiar with location and use of sources of educational information.]

Appraising literature is crucial for thesis and any research work. It takes place in two phases. The first phase is called identification phase and the second phase is called foundation stage. In the first phase of the literature-review a researcher identifies all the published material which is related to the research problem and reads those parts with which the researcher is not familiar. It is then that the foundation of the study or formulation of research work takes place. In the second phase, the related material is penned down by the researcher and organised in the relevant section in order to justify or support the thesis/ research work. This particular section in which the literature review is presented engages the attention of both reader as well as researcher. The researcher justifies the background of the study based upon it whereas the readers come to know about earlier researches in the area which develops the understanding for the study. In most of the behavioural sciences, review of theoretical and empirical studies are executed by the researchers. In this manner a complete theoretical foundation with proper justification is laid by the researcher. Hence, it can be said that review of existing literature is an inseparable part of an examination which is to be made or has been performed by the investigator (researcher).

Thus, we can say that literature review is a survey of scholarly sources (such as books, journal articles, and theses) related to a specific topic or research question. It is often written as part of a thesis, dissertation, or research paper, in order to situate the work of the researcher in relation to existing knowledge.

Different parts of literature reviews: Just like an academic paper, literature reviews also contain at least three basic elements: an introduction or background information section; the body of the review containing the discussion of sources; and, finally, a conclusion and/or recommendations section to conclude the discussion.

5.3.1 The 5 C's of a Literature Review

Many researchers have discussed 5 Cs of literature review. These 5 Cs help a researcher to undertake the review of literature systematically. These 5 Cs are: Concise, Clear, Critical, Convincing and Contributing. In the following paragraphs, we shall discuss each of these in some detail.

- **Concise:** The amount of literature available on any given topic can be vast. In today's IT age, the problem becomes even more severe. This is because today one finds thousands of articles and papers on a given topic whenerver an internet search isa made. However, the job of a researcher here is to consciously undertake the literature review based primarily on the research questions. It is at this early stage that the researcher will need to decipher where the gaps of knowledge are within the current research. It has to be narrowed down and presented in a crisp and concise manner.
- **Clear:** The literature pertaining to a research topic will also vary. Some material will be conceptual and other material will be empirical. Referring back to the research questions and asking how the literature pertains to the topic is essential. This can help the researcher to identify common themes, threads and patterns which will help bring about clarity about the topic under study.
- **Critical:** A literature review is more than a summary of materials. Each piece of literature should be critically analyzed for assumptions, beliefs, and values that essentially influence the authors' thought. As a researcher it is at this point that one needs to be critical of the works of others and evaluate the underlying assumptions that may have guided the available works.
- **Convincing:** Synthesis of the literature demands that the researcher gathers all the analyses and develops convincing arguments. The basic goal of the researcher here is to arrive at

a valid interpretation of literature resulting from a critical analysis combined with supporting data.

- **Contributing:** Inclusion of the most relevant information is essential to the literature review. The goal of a literature review is to support research where it is required. The review is intended to extend current knowledge, theory and be influential. The review is not a summary of previous work but a new branch created and supported by the researcher. Thus, it should always try to contribute newer insights into the current realm of research.

5.4 NEED FOR REVIEWING LITERATURE

The review of literature is essential because of the following reasons:

- **Planning and execution of the study:** The manner in which the research work will be executed can be decided by looking into the available past work. Up to date knowledge of the research findings makes it clear aboutb what has already been done and how it has been executed. Based upon earlier work, a plan can easily be chalked out for the problem in hand in a constructive manner.
- **Minimization of replication and repetition:** Awareness helps us to avoid repetition of the same work. Good research work is expected to contain an element of novelty. Hence, review of related literature nullifies replication of the same work.
- **Direction to the study:** Precedent research work by varicious scholars provides insight into the nature of the existing problem and outlines a direction for the study. Quantitative as well as qualitative analysis of the previous work of other scholars also suggests the methodology to attain the objectives of the study.
- **Formulation of Hypothesis:** Hypotheses are assumptions formulated by the researcher in context of a particular phenomenon. But hypotheses cannot be constructed merely on a whim or a gut feeling. Literature survey is an aid to develop a hypothesis. Prominent work in the area provides rationale for the supposition. Approval

and disapproval of suppositions made a researcher to discuss the results of a study at length duly supported by the test and data .

- **Selection of variable and functional form:** In behavioural sciences research, most of the variables are supported by earlier research works. It makes selection of variables less controversial and more authenticated. Functional relationship among the variables can easily be figured out with the help of through reading. Theoretical foundations always pave a way for the empirical testing. For example, the theory of demand holds that there is an inverse relationship between the price and quantity demanded. This functional relationship can be verified in context of various consumer and industrial goods.
- **Identification of research Gap:** Research gap is an issue, query, question or dimension which has not been raised, solved, answered or explored by any of the existing studies or investigations. How can one come to know that a particular dimension of a problem has not been explored till the time? It is only a literature survey that can make it clear. Before a researcher enters into formulation of research objective or hypothesis development of a literature survey is a valuable asset.



CHECK YOUR PROGRESS

Q 1: What is meant by literature review? Answer in about 50 words.

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Q 2: Why is review of literature important? Answer in about 30 words.

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5.5 SOURCES OF LITERATURE

The major sources of literature for review includes the following:

- **Reference Books and Text books:** A large number of books are published in English. The list of such books can be sourced from the publisher in the form of a catalogue or it can be fetched from the libraries. Besides, the website of publishers contains lists of books as well as table of contents of the books published by a particular publication house.
- **Periodicals:** These are printed material which are published regularly after a particular period of time. The time lag is defined, even and distributed over a period of a year. In other words it can be said that periodicals are expected to continue for infinite time but at a regular interval. For example, *Economic and Political Weekly* is a research periodical published in India. Periodicals include Yearbooks, Documents, Almanacs, The Cumulative Book Index, International Abstracts, Journals, Newspapers, Magazines, International Index to Periodicals etc.
- **Abstracts:** It presents the summary of the content. It presents a brief summary of the research work. It also presents the precise idea of the research work. A wide variety of indexes and general references can be found to cover almost any area in which the modern researcher might be interested. In addition to it, the electronic data base that contains the research papers provides free access to the abstracts of the scholarly work.
- **Encyclopaedias:** Encyclopaedias provide concise data on various subjects composed by trained professionals. For specialized field of knowledge there are specialized Encyclopaedias. These contain illustrations, examples and bibliographies.
- **Almanacs, Handbooks, Yearbooks and Guides:** Handbooks and Yearbooks contain information which is statistical in nature. For example SEBI handbook which contains all the quantitative data related to the stock market. Almanacs and guides are general

category of reference that includes publications that contain detailed up-to-date information on various subjects and are well thought out according to a particular theme.

'World Almanac' Book of Facts, New York: It is source of miscellaneous information of various subjects. 'Handbook of Research on Teaching' Chicago: It provides comprehensive research on teaching within depth and extensive bibliographies.

- **Specialized Dictionaries:** These dictionaries contain the meaning of subject specific terminology, expression and jargon. For example Oxford dictionary of English Language, Oxford Dictionary of Finance, Macmillan Dictionary of Economics, Routledge Dictionary of Economics etc.
- **ERIC (Educational Research Information Centre):** The current knowledge explosion makes selective data retrieval the key to the research enterprise as well as to effective educational practice. Major developments in this regard as they relate to the educational literature are ERIC (Educational Research Information Centre) and SRIS (School Research Information Service). ERIC is an attempt to facilitate information exchange and to increase the value of research to the educational community by simply making its results readily available in usable form. In our country NCERT has established a separate ERIC cell to facilitate educational research community
- **Microfiche:** "A microfiche is a sheet of film containing micro-images of printed material. A copy of film 4" × 6" card contains the material of one hundred printed pages of 9" × 11" size. There are many document reproduction services that supply microfiche to libraries upon special order. Super-and Ultra Microfiche is a recent development in the field of micro-printing. It has transformed the process of storage of published material in libraries of the future. A super microfiche has been developed that contains up to two pages of printed material on a single 4" × 6" transparent card, the equivalent of two or more books. An even more spectacular development is

the ultra- microfiche that contains up to 3200 micro-dots on a single card of 4" × 6". When projected each dot contains the equivalent of several pages. Thus, seven to ten volumes can be included on a single 4" × 6" transparent card. Reader printers make hard copy prints of any page in few seconds".

- **Dissertations and Theses:** Theses and dissertations which embody the bulk of educational research are usually housed by institutions and universities that award authors their advanced degrees. Sometimes these studies are published in whole or in part in educational journals. The related dissertations and theses are the main sources of review of literature. The entry 'dissertations and theses' issue of the bibliographic index is the most comprehensive listing of sources of these research in progress.
- **Other Sources:** Besides all these sources following are also important sources of available literature:
  - Newspaper
  - Conference papers
  - Electronic Data-base for example emerald, proquest, J-stor etc.
  - Government reports



CHECK YOUR PROGRESS

Q 3: Mention the major sources for literature review. Answer in about 30 words.

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Q 4: What is ERIC? Answer in about 30 words.

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5.6 LET US SUM UP

- In order to share the acquired, obtained or generated knowledge it is necessary that it must be transmitted, preserved and advanced.
- Advancement in knowledge takes place when there is suitable transmission and preservation. Knowledge can be preserved and transmitted through books, libraries and educational entities.
- For advancement of knowledge, it is necessary to review the existing knowledge and improve it on logical and justifiable premises.
- Before entering into any investigation an investigator must ensure that the enquiry is not in a vacuum; there should be considerable work to pave the way.
- Appraising existing scholarly work is called review of literature.
- On several occassions an examination into earlier scholarly work itself provides solution to the problem or answer to a question.
- In any discipline for the purpose of advancement and up-gradation, a researcher must be thoroughly familiar with both previous theory and hypothesis.
- Many researchers have discussed 5 Cs of literature review. These 5 Cs help researchers to undertake the review of literature very systematically. These 5 Cs are: Concise, Clear, Critical, Convincing and Contributing.
- Appraising literature is crucial for thesis and any research work. It takes place in two phases.
- The first phase is called identification phase and the second phase is called foundation stage. In the first phase of the literature-review a researcher identifies all published material which is related to the problem and reas related materials with which the researcher is not familiar and the foundation of the study or formulation of research work begins.
- In the second phase the related material is organised by the researcher and placed in the relevant section in order to justify or

support the thesis/ research work.

- This particular section in which the literature is presented fetches the attention of both reader as well as researcher. The researcher justifies the background of the study based upon it whereas the readers come to know about the abstract and earlier research which develop the understanding for the study.
- Review of literature is essential for planning and execution of the study, minimization of replication and repetition, giving direction to the study, formulation of hypothesis, selection of variables and functional form etc.
- The major sources of literature for review include books and text books, periodicals, abstracts, encyclopaedias, almanacs, handbooks, yearbooks and guides, specialized dictionaries, ERIC, microfiche etc.
- Apart from those, other important sources include: newspapers, conference paper, electronic data-base for example emerald, pro-quest, J-stor, government reports etc.



5.7 FURTHER READING

(1) Cooper D. and Schindler P. Business Research Methods, Tata McGraw Hill.

(2) Goode and Heart, Research Method

(3) Jerry W. Willis, Foundations of Qualitative research: Interpretative and Critical Approaches. Sage.

(4) Kothari R.C. Research Methodology, Methods and Techniques, New Age International Publishers, 2nd revised edition, Reprint 2008.



5.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Literature review is a survey of scholarly sources (such as books, journal articles, and theses) related to a specific topic or research question. It is often written as part of a thesis, dissertation, or research paper, in order to situate the work of the researcher in relation to existing knowledge.

Ans to Q No 2: Review of literature is needed for planning and execution of the study, minimization of replication and repetition, direction to the study, formulation of hypothesis. selection of variables and functional form etc.

Ans to Q No 3: Major sources of literature for review include books and text books, periodicals, abstracts, encyclopaedias, almanacs, handbooks, yearbooks and guides, specialized dictionaries, ERIC, microfiche etc.

Ans to Q No 4: ERIC is an attempt to facilitate information exchange and to increase the value of research to the educational community by simply making its results readily available in usable form.



5.9 MODEL QUESTIONS

Answer the following questions in about 300 words.

Q 1: Discuss the concept and meaning of review of literature.

Q 2: Discuss the need for reviewing the existing literature.

Q 3: Discuss the various sources of literature review.

Q 4: Discuss the 5 C's of literature review.

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UNIT 6: RESEARCH PROBLEM

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Identification of the Research Problem

6.4 Selection of Research Problem: Contributing Factors

6.5 Technique Involved in Defining a Problem

6.6 Let Us Sum Up

6.7 Further Reading

6.8 Answer to Check Your Progress

6.9 Model Questions

6.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- identify a research problem
- discuss the factors involved in the selection of a research problem
- describe the technique involved in the selection of a research problem

6.2 INTRODUCTION

This unit deals with the discussion on research problem. In the process of research, proper definition and identification of the research problem is of utmost importance. The entire outcome of research depends on the identification of the research problem. How we identify the research problem and how best we describe it, is very crucial for all other research activities, viz., formulation of research hypothesis, application of research tools etc. This unit will be helpful in proper identification of the research problem as well as in selection of research problem and utilization of proper technique in that process.

6.3 IDENTIFICATION OF THE RESEARCH PROBLEM

In research process, the first and foremost step happens to be that of identifying and properly defining a research problem. Identification of research problem is a brainstorming process and it involves thinking in a logical manner. Normally, thinking may be classified into four categories: convergent, divergent, reflective and scientific thinking. Convergent thinking basically focuses on coming up with the single, well-established answer to a problem. It is oriented toward deriving the single best, or most often the correct answer to a question. Convergent thinking is used as a tool in creative problem solving. On the other hand, divergent thinking is described as the thought process or method used to generate creative ideas by exploring many possible solutions. It typically occurs in a spontaneous, free-flowing, "non-linear" manner, such that many ideas are generated in an emergent cognitive fashion. Similarly, in reflective thinking individual conceived for a new solution for an old problem, but scientific thinking is in terms of carefully organized reflection. Identification of a research problem is exploratory in nature and it is sought to understand the pattern of relationship between/among different variables. A researcher must find the problem and formulate it so that it becomes susceptible to research. To identify a problem correctly, a researcher must know: what is a problem? The research problem can be identified either in qualitative or quantitative terms. In a simple terms identification of pattern of occurrence or what, why and how, of a happening is called identification of research problem whose solution or answer is sought by the researcher. Following are the crucial elements of a research question or a research problem:

There should be an entity or entities which needs an investigation or enquiry. sThere should be some research goals to be achieved. If one does not have a research goals, one will not know what research problem to pursue. One should have access to resources and methods to attain the research goals.. If there will not be alternative methods to attain the defined research goals, the researcher will not have any problem to be identified.

There should be some sort of rationality with respect to selection of

methods and means. It will make a researcher to justify the relevance of a particular method and means.

There should be some background to which the trouble/ problem/ ambiguity relates. It could be an event or a socio-economic and psychological phenomenon.

For example, if an economist has to explore the reasons of fall in the gross domestic product, it is a problem related to individual inquisitiveness. What the economist will attain by figuring out the reasons of low gross domestic product? - It is related to the objective of the economist. Through which particular methods the economist will be evidencing his findings? It is related to selection of available method and means.

Thus, a research problem is one which requires a researcher to find out the best solution for the given problem, i.e., to find out by which course of action the objective can be attained optimally in the context of a given environment.

6.4 SELECTION OF RESEARCH PROBLEM: CONTRIBUTING FACTORS

Several factors can complicate identification of a research problem, such as, large number of -interconnected events or socio-economic phenomena, personal bias, lack of resources, delayed response, dynamic environment, technology transformation, and response of the groups or individuals. All or some of these factors may be crucial to identify a research problem. Nevertheless, following factors might be involved in the selection of problem.

- **Individual preference and interest:** Selection of a research problem can be made by a corporate or a non-corporate entity. A corporate entity looks for solution of the problem that can bring in revenue whereas, a non-corporate entity always picks up the issues related to the society, people and environment. In addition to it a person tries to address the research problem according to inclination

and personal interest. Chief motivation in selection of a research problem is the personal inclination of the researcher. For example, the person who has interest in agriculture economics will abstain from the issues of business economics.

- **Time-lines and urgency:** Time- line is the duration in which solution to a particular problem/ situation or answer to a specific question is expected. The nature of the problem and urgency are the deciding factors in selection of a problem. For example, the time period required to diagnose the reason of hair fall is less in contrast to the time period required to develop a new medicine for it. In the similar manner, vaccine for COVID developed in a very short duration in comparison to the time period required to develop a vaccine in the normal situation due to the urgency factor. In some cases, there may be certain issues that are exceptionally captivating, promising, and have importance, yet the researcher cannot examine them in the given time.
- **Resources accessibility:** In order to address a particular research issue availability of resources is significant. In behavioral sciences books, magazine, library facilities etc. are significant in selection of a research topic. For example, it will be difficult to take up the issue of national interest as a research project for a person who is there in a college in some remote area due to limited availability of resources like library, database, software for data analysis etc. Whereas if a person is in some university, the resources are easily available, and consequently selection of a research problem or research topic vary in quality and nature.

  In core sciences or engineering in addition to library resources the availability of laboratory, equipment and materials are crucial for selection of a research topic.
- **Importance and significance:** In behavioral sciences the issues which are significant in practical life is additionally answerable by the choice of a research topic. The general surrounding also

contributes in selection of a research problem. Everybody appreciates pursuing a research objective that has a great deal of pragmatic ramifications. The importance of a particular issue to the society and availability of resources leads to the selection of the research problem. In addition, selection of the topic should be such that it promises a solution.

- **Researcher Knowledge:** Understanding of the problem becomes better when it is backed by the knowledge component. Skills and competencies of a researcher can aid the knowledge of the researcher.

  Researcher's subject specific knowledge and depth of information should can assist the researcher in effectively choosing a research problem that requires investigation.



CHECK YOUR PROGRESS

Q 1: Define a research problem. Answer in about 50 words

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6.5 TECHNIQUE INVOLVED IN DEFINING A PROBLEM

Let us start with the question: What does one mean when he/she wants to define a research problem? The answer may be that one wants to state the problem along with the bounds within which it is to be studied. In other words, defining a problem involves the task of laying down boundaries within which a researcher shall study the problem keeping in view a pre-determined objective.

Defining a research problem is undoubtedly a herculean task. However, it must be tackled intelligently to avoid the ambiguity encountered in a research operation. The usual approach is that the researcher should

himself/herself pose a question (or in case someone else wants the researcher to carry on research, the concerned individual, organisation or an authority should provide a problem/question to the researcher) and set-up techniques and procedures for throwing light on the question concerned for formulating or defining the research problem. But such a casual approach generally does not produce definitive results because the question framed in such a fashion may be very broad general terms and as such may not be in a form suitable for testing.

Defining a research problem properly and clearly is a crucial part of a research study and must in no case be accomplished hurriedly. However, in practice this is frequently overlooked which may land a researcher into problems later on. Hence, the research problem should be defined in a systematic manner, giving due weightage to all related points. The technique for the purpose involves undertaking the following steps: (i) statement of the problem in a general way; (ii) understanding the nature of the problem; (iii) surveying the available literature (iv) developing the ideas through discussions; and (v) rephrasing the research problem into a working proposition.

A brief description of all these points will be helpful.

- **Statement of the problem in a general way:** First of all, the problem should be stated in a general way, keeping in view either some practical concern or some scientific or intellectual interest. For this purpose, the researcher must immerse himself/herself thoroughly in the subject matter concerning which he/she wishes to pose a problem. In social research, it is advisable to do some field observation and as such the researcher may undertake some sort of preliminary survey or what is often called pilot survey. Then the researcher can himself/herself state the problem or he/she can seek the guidance of the guide or the subject expert in accomplishing this task. Often, the guide puts forth the research problem in general terms, and it is then up to the researcher to narrow it down and phrase the problem in operational terms. In case there is some directive from an organisational authority, the problem then can be

stated accordingly. The problem stated in a general way may contain various ambiguities which must be resolved by systematically thinking and rethinking over the problem. At the same time the feasibility of a particular solution has to be considered and the same should be kept in view while stating the problem.

- **Understanding the nature of the problem:** The next step in defining the problem is to understand its origin and nature clearly. The best way of understanding the problem is to discuss it with those who first raised it in order to find out how the problem originally came about and with what objectives in view. If the researcher has stated the problem himself/herself, he/she should consider once again all those points that induced him/her to make a general statement concerning the problem. For a better understanding of the nature of the problem involved, he/she can enter into discussion with those who have a good knowledge of the problem concerned or similar other problems. The researcher should also keep in view the environment within which the problem is to be studied and understood.
- **Review of literature:** All available literature concerning the problem at hand must necessarily be reviewed and examined before a definition of the research problem is given. This means that the researcher must be well-conversant with relevant theories in the field, reports and records, as also all other relevant literature. He/she must devote sufficient time in reviewing of research already undertaken on related problems. This is done to find out what data and other materials, if any, are available for operational purposes. Proper knowledge about the data available often serves to narrow the problem itself as well as the technique that might be used. This would also help a researcher to know if there are certain gaps in the theories, or whether the existing theories applicable to the problem under study are inconsistent with each other, or whether the findings of the different studies do not follow a pattern consistent with the

theoretical expectations and so on. All this will enable a researcher to take new strides in the field for furtherance of knowledge i.e., he can move up starting from the existing premise. Studies on related problems are useful for indicating the type of difficulties that may be encountered in the present study as also the possible analytical shortcomings. At times such studies may also suggest useful and even new lines of approach to the present problem.

- **Developing the ideas through discussions:** Discussion concerning a problem often produces useful information. Various new ideas can be developed through such an exercise. Hence, a researcher must discuss his/her research problem with his/her colleagues and others who have enough experience in the same area or is working on similar problems. This is quite often known as an experience survey. People with rich experience are in a position to enlighten the researcher on different aspects of his/her proposed study and their advice and comments are usually invaluable to the researcher. They help him/her sharpen his focus of attention on specific aspects within the field. Discussions with such persons should not only be confined to the formulation of the specific problem at hand, but should also be concerned with the general approach to the given problem, techniques that might be used, possible solutions, etc.
- **Rephrasing the research problem:** Finally, the researcher must sit to rephrase the research problem into a working proposition. Once the nature of the problem has been clearly understood, the environment (within which the problem has got to be studied) has been defined, discussions over the problem have taken place and the available literature has been surveyed and examined, rephrasing the problem into analytical or operational terms is not a difficult task. Through rephrasing, the researcher puts the research problem in as specific terms as possible so that it may become operationally viable and may help in the development of working hypotheses.

In addition to what has been stated above, the following points must also be observed while defining a research problem:

- Technical terms and words or phrases, with special meanings used in the statement of the problem, should be clearly defined.
- Basic assumptions or postulates (if any) relating to the research problem should be clearly stated.
- A straight forward statement of the value of the investigation (i.e., the criteria for the selection of the problem) should be provided.
- The suitability of the time-period and the sources of data available must also be considered by the researcher in defining the problem.
- The scope of the investigation or the limits within which the problem is to be studied must be mentioned explicitly in defining a research problem.



CHECK YOUR PROGRESS

Q 2: Mention the four major steps in defining a research problem. Answer in about 50 words.

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Q 3: How does review of literature help in the research process. Answer in about 60 words.

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6.6 LET US SUM UP

- The task of defining a research problem, very often, follows a sequential pattern-the problem is stated in a general way, the ambiguities are resolved, thinking and rethinking process results in a more specific formulation of the problem so that it may be a realistic one in terms of the available data and resources and is also analytically meaningful.
- All this results in a well-defined research problem that is not only meaningful from an operational point of view, but is equally capable of paving the way for the development of working hypotheses and for means of solving the problem itself.
- Defining a research problem properly and clearly is a crucial part of a research study and must in no case be accomplished hurriedly. However, in practice this is frequently overlooked causing problems later in research.
- The research problem should be defined in a systematic manner, giving due weightage to all related points.
- The technique for the purpose involves the undertaking of four major steps: (i) statement of the problem in a general way; (ii) understanding the nature of the problem; (iii) surveying the available literature (iv) developing the ideas through discussions; and (v) rephrasing the research problem into a working proposition.



6.7 FURTHER READING

(1) Guthrie, G. (2010) Basic Research Methods: An Entry to Social Science Research, Sage Publications, New Delhi, India

(2) Kumar, R. (2011) Research Methodology, Sage Publications, New Delhi, India

(3) Nachmias, D., and Nachmias C. (2014) Research Methods in Social Sciences, St. Martin's Press, New York



6.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: A research problem is one which requires a researcher to find out the best solution for the given problem, i.e., to find out by which course of action the objective can be attained optimally in the context of a given environment.

Ans to Q No 2: The four major steps in defining a research problem are: (i) statement of the problem in a general way; (ii) understanding the nature of the problem; (iii) surveying the available literature (iv) developing the ideas through discussions; and (v) rephrasing the research problem into a working proposition.

Ans to Q No 3: Review of literature helps a researcher to take new strides in the field for furtherance of knowledge i.e., s/he can move up starting from the existing premise. Studies on related problems are useful for indicating the type of difficulties that may be encountered in the present study as also the possible analytical shortcomings. At times such studies may also suggest useful and even new lines of approach to the present problem.



6.9 MODEL QUESTIONS

Answer the following questions in about 300-500 words.

Q 1: Discuss the process of identification of the research problem.

Q 2: Discuss the different factors that affect the selection of a research problem.

Q 3: Discuss the different techniques Involved in defining a research problem.

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UNIT 7: RESEARCH DESIGN

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Introduction

7.3 Concept of Research Design

7.4 Features of Good Research Design

7.5 Steps in Research Design

7.6 Types of Research Design

7.7 Let Us Sum Up

7.8 Further Reading

7.9 Answer to Check Your Progress

7.10 Model Questions

7.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- discuss the concept, need and importance of research design
- discuss the features of good research design
- describe the steps in research design
- analyse the different types of research design.

7.2 INTRODUCTION

In the previous unit, the concept of research methods, types of research in economics and how to frame a good review of literature have been discussed. In this unit, we shall discuss the concept of research design. The concept of research design is very important in research methods. It is a plan of action, a plan of collecting and analysing data in economics in an efficient and relevant manner.

7.3 CONCEPT OF RESEARCH DESIGN

While undertaking research, defining the research problem is central to the entire process of research. To define the research problem precisely,

the researcher has to prepare the research design. Claire Selltiz and others have defined it in these words: "A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure." Thus, the research design provides the researcher with a conceptual framework within which the research is conducted. Essentially, it may be called a blueprint for the collection, measurement and analysis of data.

In a nutshell, the overall strategy that a researcher chooses to integrate different components of research in a most logical way is known as Research Design. In other words, through the research design, the researcher tries to get the answer of the following questions:

- What is the study about?
- Why is the study being made?
- What type of data is required?
- Where can the required data be collected?
- What periods of time will the study include?
- What will be the sample design?
- What techniques of data collection will be used?
- How will the data be analysed?
- In what style will the report be presented?

So, in simple words, the research design is a procedural planning of the whole research.

7.4 FEATURES OF GOOD RESEARCH DESIGN

For smooth functioning of the research operations, the proper planning of research design is necessary. An efficient and appropriate design must be prepared before conducting a research. It reduces the inefficiencies, flaws and gives us an idea for organizing our research. It is needed for providing the comprehensive review on the particular topic. A good research design must be flexible, appropriate, efficient, as well as economical in conducting the research. The design that includes maximum information and provides an opportunity to study the problem in most appropriate and efficient manner is considered as good research design.

Features of Good Research Design: The important features of the research design are as follows:

- The objectives of the study are well organized.
- The source and methods of data should be well defined.
- The research methods should be well linked with the theoretical background of the study.
- Study of sample and sample techniques should be well defined.
- The tools of data analysis should be clearly defined.
- Place and time framework should be well defined.
- The research design should minimise the subjectivity and maximise the reliability of data.
- Steps to be taken to get the plan executed should be defined.



CHECK YOUR PROGRESS

Q 1: State whether the following statements are True (T) or False (F)

(i) The objective of the research should not be clearly defined. (T/F)

(ii) The research design tells us what the study is about. (T/F)

Q 2: What is meant by Research Design? Answer in about 60 words.

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Q 3: Mention some of the important features of a good research design. Answer in about 60 words.

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7.5 STEPS IN RESEARCH DESIGN

The components of the research design include the following steps:

- **Selection and definition of a problem:** The problem selected for study should be clearly defined so that the researcher knows that what facts s/he is looking for and what is the relevant of the study. The problem selected should be practical in costs of time and money.
- **Source of data:** Once the problem is selected the researcher has to state the source of information or in other words the means of data collection such as book, journal, field work etc.
- **Nature of study:** The research design should be expressed in relation to the nature of the study to be undertaken. The researcher must choose the appropriate research design so that the following steps in planning may have relevance in the proposed study.
- **Objective of the study:** The objective of the study must be clearly defined. It is required for the timely responses from the respondents also.
- **Social-Cultural context:** A research design is always set in the context which has social and cultural bearing on the individuals.
- **Temporal Context:** The geographical unit of design should also be referred to at this stage that the research related to hypothesis is applicable to particular social groups only.
- **Dimension:** It is impossible to collect data from the large universe. Hence, the selection of adequate and representative sample is necessary for any research. Depending upon the dimensions of the proposed study, it can be selected.
- **Basis of Selection:** In this step the adequate and representative sample should be selected. The method of collecting sample should be carefully chosen by the researcher which will be scientifically valid and unbiased.

Techniques of data collection: Considering the study design, a suitable technique shall be adopted for the collection of data required. Once the

collection of data is complete, analysis, coding and presentation of the report must be follower



7.6 TYPES OF RESEARCH DESIGN

The different types of research designs help the researcher to select the model for the study. While arriving at a particular research design, we must consider that there are three major approaches to research, viz., quantitative, qualitative and mix-method research designs. Now, these three different approaches follow different research designs. Based on the book *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (Sage, 2018), written by John W. Creswell and J. David Cresswell the different research designs under the above three approaches have been adapted as under:

Table 7.1: Various Research Designs

Quantitative	Qualitative	Mixed Methods
● Experimental designs. ● Non-experimental designs, such as surveys. ● Longitudinal designs.	● Narrative research. ● Phenomenology. ● Grounded theory. ● Ethnographies. ● Case Study	● Convergent-parallel. ● Explanatory sequential. ● Exploratory sequential. ● Complex designs with embedded core designs.

Now, we shall discuss these different types of research design in brief.

- **Experimental research design:** It establishes the relationship

between the cause and effect of a situation. It was stated that experimental studies are the ones that are concerned with the testing of the casual hypothesis. Such studies require procedures that will not only reduce bias and increase reliability, but will permit drawing inferences about causality. Usually experiments meet this requirement. Hence, when we talk of research design in such studies, we often mean the design of experiments. It is a design in which some of the variables being studied are manipulated or which seek to control conditions within which persons are observed. In this, control means holding one factor constant while others are free to vary in the experiment. One variable (independent) is manipulated and its effects upon another variable (dependent) is measured, while other variables which may confound such a relationship are eliminated or controlled. The designed in the experimental research thus consists of two types of groups: (i) control group, which is not exposed to experimental variable, (ii) experimental group, which is exposed to experimental variable.

- **Non-experimental research design:** Non-experimental research design lacks the manipulation of an independent variable. Rather than manipulating an independent variable, researchers conducting non-experimental research simply measure variables as they naturally occur (in the lab or real world). It is to be noted here that while experimental research can provide strong evidence that changes in an independent variable cause differences in a dependent variable, non-experimental research generally cannot. However, this inability to make causal conclusions does not mean that non-experimental research is less important than experimental research.

  Use non-experimental research design: There are many times in which non-experimental research is preferred. Some of them include:

  - In situations when the research question or hypothesis relates to a single variable rather than a statistical relationship between

two variables (e.g., How accurate are people's first impressions?).

- In situations when the research question pertains to a non-causal statistical relationship between variables (e.g., is there a correlation between verbal intelligence and mathematical intelligence?).
- When the research question is about a causal relationship but the independent variable cannot be manipulated or participants cannot be randomly assigned to conditions or orders of conditions for practical or ethical reasons (e.g., does damage to a person's hippocampus impair the formation of long-term memory traces?).
- Similarly, when the research question is broad and exploratory, or is about what it is like to have a particular experience (e.g., what is it like to be a working mother diagnosed with depression?).

It is to be noted here that the choice between the experimental and non-experimental approaches is generally dictated by the nature of the research question. When the goal is to explain and the research question pertains to causal relationships, then the experimental approach is typically preferred. But when the goal is to describe or to predict, a non-experimental approach will suffice. But the two approaches can also be used to address the same research question in complementary ways.

- **Longitudinal research design:** Longitudinal research is occasionally used to study unique individual cases. Longitudinal case studies are studies that gather copious amounts of data on a single person or small groups of people. For example, a five-year study of children learning to read would be a cohort longitudinal study.

  Thus, a longitudinal study, like a cross-sectional one, is observational. In this case the researchers do not interfere with their subjects. However, in a longitudinal study, researchers conduct several observations of the same subjects over a period of time,

sometimes lasting many years.

It is to be noted here that there are a range of different types of longitudinal studies: cohort studies, panel studies, record linkage studies etc. These studies may be either prospective or retrospective in nature.

- **Narrative Research:** This is a literary form of qualitative research. Narrative research is all about collecting and telling a story or stories (in detail). Researchers write narratives about experiences of individuals, describe a life experience, and discuss the meaning of the experience with the individual.

  Narrative research aims to explore and conceptualise human experience as it is represented in textual form. Aiming for an in-depth exploration of the meanings people assign to their experiences, narrative researchers work with small samples of participants to obtain rich and free-ranging discourse. The primary emphasis remains here on storied experience. Generally, this takes the form of interviewing people around the topic of interest, but it might also involve the analysis of written documents. Narrative research as a mode of inquiry is used by researchers from a wide variety of disciplines, which include anthropology, communication studies, cultural studies, economics, education, history, linguistics, medicine, nursing, psychology, social work, and sociology. It encompasses a range of research approaches including ethnography, phenomenology, grounded theory, narratology, action research, and literary analysis.

- **Phenomenology:** Phenomenology is an approach to qualitative research that focuses on the commonality of a lived experience within a particular group. Typically, interviews are conducted with a group of individuals who have first-hand knowledge of an event, situation or experience.

  The main purposes of phenomenological research are to seek reality from individuals' narratives of their experiences and feelings, and to produce in-depth descriptions of the phenomenon.

- **Grounded theory:** Grounded theory involves the collection and analysis of data. The theory is "grounded" in actual data, which means the analysis and development of theories happens after the researcher collects the data. It was introduced by Glaser & Strauss in 1967 to legitimize qualitative research. However, it's use isn't limited to qualitative studies; it is a general method that can be applied to many areas of research.

  The methodological strategies of grounded theory are aimed to construct middle-level theories directly from data analysis. The inductive theoretical thrust of these methods is central to their logic. The resulting analyses build their power on strong empirical foundations. These analyses provide focused, abstract, conceptual theories that explain the studied empirical phenomena.

- **Ethnographies:** Ethnographic research is a qualitative method where researchers observe and/or interact with a study's participants in their real-life environment. Initially, ethnography research method was popularised by anthropology, but is used across a wide range of social sciences.

  The objective of this type of research is to gain insights into how users interact with things in their natural environment. This research provides an in-depth insight into the user's views and actions along with the sights and sounds they encounter during their day. It provides the researcher with an understanding of how those users see the world and how they interact with everything around them.

  Ethnography research methods include direct observation, diary studies, video recordings, photography and artefact analysis such as devices that a person uses throughout the day. Observations can be made anywhere from the user's workplace, their home or while they are out with family and friends. The length of the studies can vary depending on the research that is being conducted. They can range from a couple of hours of observation to studies that last several months.

- **Case study:** A case study is a research technique that is used to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context. It is an established research design that is used extensively in a wide variety of disciplines, particularly in the social sciences, psychology, anthropology, ecology and also in professional field like management.

  This method of study is especially useful for trying to test theoretical models by using them in real world situations. For example, if an anthropologist were to live amongst a remote tribe, whilst their observations might produce no quantitative data, they are still useful to science.

  Some argue that because a case study is such a narrow field, its results cannot be extrapolated to fit an entire question and that they show only one narrow example. On the other hand, it is argued that a case study provides more realistic responses than a purely statistical survey.

  The argument between case study and statistical method also appears to be one of scale. While many 'physical' scientists avoid case studies, for Psychology, Anthropology and Ecology they are an essential tool. It is important to note that a case study cannot be generalized to fit a whole population or ecosystem. Yet, they offer greater insights into certain specific cases.

- **Convergent-parallel approach:** The convergent-parallel approach is concurrent approach and involves the simultaneous collection of qualitative and quantitative data, followed by the combination and comparisons of these multiple data sources (i.e., the two methods are ultimately merged). This approach involves the collection of different but complementary data on the same phenomena. Thus, it is used for the converging and subsequent interpretation of quantitative and qualitative data. This approach is often referred to as the concurrent triangulation design (single-phase) because the data is collected and analysed individually but at the same time.

  A basic rationale for this design is that one data collection

form supplies strengths to offset the weaknesses of the other form, and that a more complete understanding of a research problem results from collecting both quantitative and qualitative data. For example, quantitative scores on an instrument from many individuals provide strengths to offset the weaknesses of qualitative documents from a few people. Alternatively, qualitative, in-depth observation of a few people offers strength to quantitative data that does not adequately provide detailed information about the context in which individuals provide information (e.g., the setting).

- **Explanatory sequential approach:** The explanatory-sequential approach is a sequential approach and is used when the researcher is interested in following up the quantitative results with qualitative data. Thus, the qualitative data is used in the subsequent interpretation and clarification of the results from the quantitative data analysis. In many instances, because the quantitative research design is the emphasis, a generic qualitative research design is used in explanatory approaches. The rational for this approach is that the quantitative data and results provide a general picture of the research problem; more analysis, specifically through qualitative data collection is needed to refine, extend or explain the general picture. However, either the qualitative or quantitative data (or both equally) may be the primary focus of the study.
- **Exploratory sequential approach:** This approach may be seen as reverse to the explanatory sequential mixed method research approach. In the exploratory sequential mixed method, the qualitative and quantitative data collection and analysis is in a sequence of phases. Here, in the first phase, researchers collect qualitative data and then analyze the data, the results of which direct the next, quantitative phase, which could be a survey or some other form of quantitative data collection. Thus, the qualitative analysis provides critical fodder for developing specific research questions for the quantitative phase which involve a questionnaire, survey, or other form of quantitative data collection. The rationale for this approach

lies in first exploring a topic before deciding what variables need to be measured.

- **Complex designs with embedded core designs:** The embedded approach is a nested approach and is used when one type of data (qualitative and quantitative) is most critical to the researcher. This approach is used when different questions require different types of data (qualitative and quantitative). The embedded approach is appropriate when one type of data clearly plays a secondary role and would not be meaningful if not embedded within the primary data set. The embedded approach is also useful when the researcher logistically cannot place equal priority on both types of data or simply has little experience with one of the forms of data. Many variants of the embedded approach have been proposed, such as the embedded narrative and ethnographic designs.



CHECK YOUR PROGRESS

Q 4: State whether the following statements are True (T) or False (F)

(i) The research design starts with the selection of problem. (T/F)

(ii) The Descriptive research design is not based upon the theory. (T/F)

Q 5: What is meant by Experimental Research Design? Answer in about 50 words.

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Q 6: Mention the steps in research design. Answer in about 40 words.

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7.7 LET US SUM UP

- While undertaking research, defining the research problem is central to entire process of research. To define the research problem precisely, the researcher has to prepare the research design
- In a nutshell, the overall strategy that a researcher chooses to integrate different components of research in a most logical way is known as Research Design.
- An efficient and appropriate design must be prepared before conducting a research. It reduces the inefficiencies, flaws and gives us an idea for organizing our research. It is needed for providing the comprehensive review on the particular topic.
- A good research design must be flexible, appropriate, efficient, as well as economical in conducting the research.
- The different types of research designs help the researcher to select the model for the study.
- While arriving at a particular research design, we must consider that there are three major approaches to research, viz., quantitative, qualitative and mix-method research designs.



7.8 FURTHER READING

(1) Kothari, C.R. (2008). Research Methodology, Methods and Techniques. New Delhi: New Age International Publishers

(2) Cooper, D. & Schindler P. (2015). Business Research Methods, Tata McGraw Hill.

(3) Goode and Hatt (1952). Methods im Social Research. New Delhi: Surjeet Publications.

(4) Willis, J. W. (2007). Foundations of Qualitative research: Interpretative and Critical Approaches. Sage.

7.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: (i) False (ii) True

Ans to Q No 2: A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Thus, the research design provides the researcher a conceptual framework within which the research is conducted. Thus, it may be called a blueprint for the collection, measurement and analysis of data.

Ans to Q No 3: Some of the important features of research design include:

- It should minimize bias and maximise the reliability of data.
- The source and methods of data should be well defined.
- The research should be well linked with the theoretical background.
- Study of sample and sample techniques should be well defined.
- The tools of data analysis should be clearly defined.
- Steps to be taken to get the plan executed should be defined.

Ans to Q No 4: (i) True (ii) False

Ans to Q No 5: An experimental research design establishes the relationship between the cause and effect of a situation. It was stated that experimental studies are ones that are concerned with the testing the casual hypothesis. Such studies require procedures that will not only reduce bias and increase reliability, but will permit drawing inferences about causality.

Ans to Q No 6: The steps of the research design include the Selection and definition of a problem, Source of data, Nature of study, Object of study, Social-Cultural context, Temporal Context, Dimension, Basis of Selection and Techniques of data collection.



7.10 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: Write a short note on the concept of Research Design.

Q 2: Discuss the features of Good Research Design.

Q 3: Describe Descriptive research design.

Essay-type Questions (Answer each question in about 300-500 words)

Q 1: Explain the steps in Research Design.

Q 2: Write an essay on various type of Research Design.

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UNIT 8: SAMPLING TECHNIQUES - I

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Meaning of Sampling

8.4 Types of Sampling Methods

- 8.4.1 Random Sampling
- 8.4.2 Stratified Random Sampling
- 8.4.3 Systematic Sampling
- 8.4.4 Cluster Sampling

8.5 Let Us Sum Up

8.6 Further Reading

8.7 Answer to Check Your Progress

8.8 Model Questions

8.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- put forward the meaning of sampling
- differentiate between population and sample
- discuss the advantages and disadvantages of sampling
- describe the different types of sampling techniques with appropriate examples

8.2 INTRODUCTION

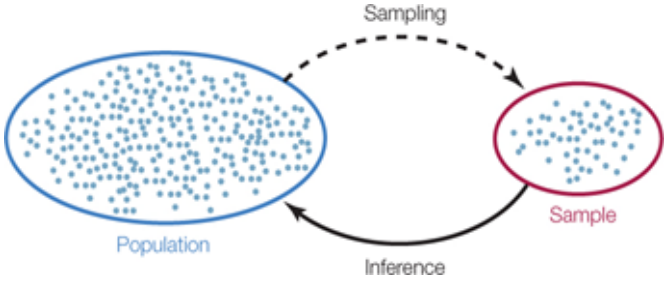
In any field of inquiry, we have a 'universe' or a 'population' which consists of all the items or individuals related to particular study. While initiating a survey or research the very first thing that would come to our mind is whether to consider the entire set of population or only a limited portion of it for the study. A population can be an entire class of student, the total number of people residing in a district, the available commercial products in the market, all patients in a hospital, total number of households in a village, all the workers of a factory, and so on.

Suppose we want to conduct a study to check the academic progress of the students of a school having 1000 students. In this case, if we take into consideration the records of all the 1000 students of the school without leaving anyone's data, then we are taking the entire "population" for the study. The field of inquiry in this case would be much larger. It will be extremely time consuming to check the records of all the 1000 students of the school to come to a conclusion. On the contrary, the same study can be done in a short span of time with the help of a relatively smaller set of data. For instance, instead of collecting data from the 1000 students, we can rather collect the data from 20 students from each class which might bring the total set of data to 200 assuming 10 classes in the school. This would reduce the amount of data to be collected to make conclusions about the students of the school making the study more convenient and less time consuming. This method of considering a part of the population is called 'sampling method', and the smaller group of the population considered for the study is called the 'sample'.

8.3 MEANING OF SAMPLING

Sampling is the process of selecting a few (a sample) from the bigger group (the population) for obtaining, estimating and/or predicting various attributes or characteristics of the bigger group. A sample is a subgroup of the population a researcher is interested in. Thus, from Figure 8.1, it can be seen that the larger sphere consists of the total units of data or population and the smaller sphere has a sample drawn from the population. Now, a researcher can make inferences or conclusions about the population based of the sample data.

Figure 8.1: Population and Sample



Supose we want to find out the average income of families living in a city. Let us consider the amount of effort and resources required to go to every family in the city to find out their income. Instead, a researcher can select a few families as sample and then, on the basis of findings of the sample an estimate of the income of families in the city can be obtained. Thus, a sample is a subgroup of the population we are interested in which facilitates inferences about the population.

The main principle behind sampling is that we get to know about the total units by observing a few units and extend our inference about the sample to the entire population. For example, to check if a bag of rice is of good quality or not we generally take a handful of rice from the bag and accordingly see if the quality of the bag of rice is good or bad. This is a very general example of sampling we use in our day to day life. There are certain basic principles of sampling as mentioned below:

- Sample units must be selected in a systematic and objective manner.
- Sample units must be clearly defined and easily identifiable.
- Sample units must be distinct from each other.
- Same units of sample should be used throughout the study.

Advantages and Disadvantages of Sampling: Let us consider the advantages of the sampling method. Sampling is useful when the population is very large and scattered such that a complete coverage may not be possible. It has higher degree of accuracy since it is based on a smaller group of units. It is economical in nature both in terms of cost and time. It results in higher rate of response and greater cooperation from the respondents.

However, the major disadvantage of sampling is that one does not find out the population characteristics directly; instead one can only estimate or predict them. Hence, the possibility of an error in estimation always exists, which is referred to as "sampling error". Sampling error is an integral part of sampling and hence, can't be eliminated.

Sampling, therefore, is a trade-off between certain benefits and disadvantages. While on the one hand it saves time and resources, on the other hand it may lead to a compromise in the level of accuracy in the

findings. Through sampling we only make an estimate about the actual situation about the total population from which the sample is drawn. If done properly, the estimates derived from the sample are expected to be similar to the actual results of the population when obtained directly. However, it is also important to note that there remains the possibility of sampling error which can be minimised but not eliminated completely. Hence, tolerance of this possibility of error is an important consideration in research.

While collecting a sample, a researcher must keep in mind the following points:

- **Nature of population:** Sampling depends on the nature of the population. Population can be either a finite or infinite one. For example, households of a village, number of workers in an office are examples of finite population whereas output from a machine is an example of infinite population. Considerations for sampling, in both these case, would be different.
- **Sampling unit:** Each individual element of the population is called a sampling unit. It can be a district, village, an individual, etc. A researcher has to decide such sampling units appropriate for his study.
- **Sampling frame:** It is the operational definition of the population that provides the basis for sampling. It is also known as the source list.
- **Size of sample:** It is the number of items or sampling units to be selected from the population for the sample. The sample size should not be either too large or too small rather it should be optimum. There are definite ways of determining the optimum sample size for a study. Parameters of interest: Specific attributes of the population are called parameters. Likewise, the similar attributes of the sample are termed as the "statistic". The researcher should consider the question of the specific population parameters which are of interest. The purpose of sampling is to derive the population parameters based on the findings about the sample statistic. This process is known as generalisation.
- **Budgetary constraints:** Cost considerations are to be kept in mind and accordingly the size of sample should be considered.
- **Sampling procedure:** The researcher must decide the specific ways

in which the sampling units are to be selected and the sample is to be drawn. This is termed as the sampling procedure. Appropriate sampling procedure ensures that it produces relatively small errors and minimises the systematic biases.

- **Sampling errors:** If sample size selected for study is very small or due to non-representative nature of the sample, the estimated results may differ from the actual population results. The difference thus obtained between the sample results and the actual population values are referred to as the sampling error. Sampling errors can be reduced by increasing the sample size.
- **Characteristics of a good sample design:** Following are considered as some of the indications of a good sample design:
  - It must result in a truly representative sample.
  - It should result in small sampling error.
  - It should be feasible in terms of funds and other resources available for the research study.
  - It should be such that systematic bias can be controlled in a better way.
  - It should be such that the results from the sample study can be applied to the universe with reasonable level of confidence.



CHECK YOUR PROGRESS

Q 1: What is meant by sampling? Answer in about 50 words.

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Q 2: Distinguish between population and a sample? Answer in about 50 words.

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Q 3: Mention one advantage and disadvantage of sampling. Answer in about 50 words.

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8.4 TYPES OF SAMPLING METHODS

Basically, there are two types of sampling methods, viz., probability sampling and non-probability sampling. In this unit, we shall discuss probability sampling and its different types.

In the probability sampling, selection of the each and every unit of the population into sample is determined only by the probability or chance, and does not depend on any other considerations. In non-probability sampling selection of units of sample does not depend on probability or change but on other important considerations such as specific purpose and requirement of the study, judgement of the researchers, convenience of selecting the sample etc. The most importantly, probability sampling allows reasonable generalisations about the population parameters. Contrarily, generalisations are not carried out on the basis of non-probability samples.

8.4.1 Simple Random Sampling

Among the probability sampling methods, Simple Random Sampling (SRS) is the most popular and common one. In Simple Random Sampling every sampling unit of the population has an equal chance of being selected to the sample. Equal probability here implies that the each element in the population has got the same chance of being selected to the sample. The Simple Random Sampling preferably requires the following for effective implementation:

- Complete list of units to be studied should be available;

- Size of the universe should be known;
- Sample size should be adequately specified;
- Each unit should be ensured equal chance of being selected to the sample.

Let us now discuss how to draw a simple random sample along with its different types. Simple Random Sample is drawn by the following methods:

- **Lottery method:** Here, firstly the researcher needs to prepare the complete list of all the units of the population. Secondly, all the units are to be written down in small pieces of paper. Next, all the pieces of paper to be put in a jar and mix well. Finally, the researcher has to select papers from jar the one by one and continue till the desired numbers of samples are not fulfilled. For example, suppose, a researcher wants to study the relationship between income and expenditure of the people in a certain village consisting of 300 households, with house numbers allotted from 1 to 300. The researcher then first has to write the house numbers on pieces of papers, then put them into a jar and accordingly select the slips with house numbers written on it. If the researcher wants to have a sample size of 100 households, he or she needs to pick 100 slips of papers and the numbers written on it will be the respective units to be selected.
- **Tippet table or table of random numbers:** The statisticians have prepared a set of tables called Tippet Table or Tables of Random numbers. A sample is framed with reference to these tables. Of these tables, Tippet's Table is most widely used. Using 41,600 figures, Tippet has involved 10,400 numbers comprising of four units each. In using this method, all items of the universe are first arranged in an order and then by using Tippet's Table the required numbers of items are selected as per the requirement of the sample size.

Sampling with or without replacement:

Random sampling can be selected using two different systems: sampling without replacement and sampling with replacement. Suppose we want to select a sample of 20 students out of a total of 80. The first student is selected out of the total class, and so the probability of selection for the first student is 1/80. When you select the second student there are only 79 left in the class and the probability of selection for the second student is not 1/80 but 1/79. The probability of selecting the next student is 1/78. By the time you select the 20th student, the probability of his/her selection is 1/61. This type of sampling is called sampling without replacement. But this is contrary to our basic definition of randomisation; that is, each element has an equal and independent chance of selection. In the second system, called sampling with replacement, the selected element is replaced in the sampling population and if it is selected again, it is discarded and the next one is selected. If the sampling population is fairly large, the probability of selecting the same element twice is fairly remote. In most of the cases the second one i.e. sampling with replacement is adopted.

Advantages of Simple Random Sampling: The advantages of simple random sampling include the following:

- All elements of the population have equal chance of being selected in the sample;
- This method is free from personal bias of the investigator;
- It is the simplest of all the sampling methods and easier to conduct;
- This method can be used in conjunction with other methods in probability sampling;
- Degree of sampling error is low;
- The universe gets fairly represented by the sample drawn using this method.

Disadvantages of Simple Random Sampling: However, there are some disadvantages of simple random sampling like:

- It does not make use of the knowledge of population which the researcher may have;
- Sometimes, operationalisation of simple random sampling method, especially when an exhaustive list of the population units is absent, becomes very difficult.
- It cannot be used if the researcher wants to break the respondents into subgroups for comparison purposes.

8.4.2 Stratified Sampling

This method of sampling is generally used when the population does not constitute a homogeneous group. According to this method of sampling, the population is divided into several sub-population or sub-groups called 'strata' having common characteristics. From each stratum, items are selected to make the sample. Since each stratum is more homogeneous than the total population, we are able to get more precise estimates for each stratum and by estimating more accurately each of the component parts; we get a better estimate of the whole. In brief, stratified produces better representations on several occasions. It is also important for the characteristic that becomes the basis of stratification to be related to the main variable that you are exploring. Suppose we want to conduct a research upon the income expenditure behaviour among the employees of an office. Here, we must look for these three relevant questions in the context of stratified sampling:

- How to form the strata?
- How should the items be selected from each stratum?
- How many items are to be selected from each stratum or how to allocate the sample size of each stratum?

Let us now briefly discuss these questions.

- *How to form the strata?* To resolve this question, the researcher can form the strata on the basis of the common characteristics. For this, the entire population should be divided into sub groups with homogeneous nature. For the example cited above, the

employees have different income groups based on certain condition. So, we can arrange the employees according to their income ranges say between Rs.10,000-20,000, 20,000-30,000, 30,000-50,000, etc. In this manner, we will divide the entire population of employees of the office into the smaller groups with a common characteristic being their monthly income.

- *How should the items be selected from each stratum?* For the second question, the most usually used method of selecting units from the stratum for the sample is simple random sampling. There are two types of stratified sampling: proportionate stratified sampling and disproportionate stratified sampling. With proportionate stratified sampling, the number of elements from each stratum is selected as per the proportions to the total population, whereas in disproportionate stratified sampling, consideration is not given to the size of the stratum.
- *How many items are to be selected from each stratum?* Regarding the third question cited above, generally proportionate allocation is followed. If Pi represents the proportion of population included in stratum i, and n represents the total sample size, the number of elements selected from stratum i is n.Pi. Suppose we want a sample of size n=20 to be drawn from a population of size N=100 which is divided into three strata with 30, 50 and 20 elements in each. Using the proportionate method, number of units to be selected from the three strata would be 6, 10 and 4 units respectively.

Advantages of Stratified Sampling:

- The sample chosen can represent various groups and patters of characteristics in the desired proportions.
- It can be used for comparing sub-categories.
- It provides reliable and meaningful results.

Disadvantages of Stratified Sampling:

- It requires more time and efforts than simple random sampling.
- It is a comparatively complex method of selecting sample.

- This method is suitable only when complete knowledge about the diverse characteristics of the population is available. Hence, it has a limited scope.
- There is possibility of biasness while classifying the population into different strata.
- If size of population is already small, it may be difficult to further divide it into smaller groups or strata.

8.4.3 Systematic or Interval Sampling

According to this method, units of the population are numerically, geographically or alphabetically arranged and then every nth item of the population is selected for the sample. In simple terms, it is randomly selecting the first respondent and then every nth person after that; where 'n' is called the sampling interval.

For instance, if we want to collect a sample of 10 individuals out of 100, then first we would systematically arrange the people. Secondly, any one individual from the first 10 individual would be randomly selected. After that every tenth person would be selected for the sample. Like, if we first select the 5th person, then the sample would include the 5th, 15th, 25th, 35th, 45th, 55th, 65th, 75th, 85th, 95th individual. Thus, in systematic sampling only the first unit is selected randomly and the remaining units of the sample are selected at fixed intervals. The sampling interval is taken as N/n, where N is the population size from which 'n' number of units are to be selected as sample. Systematic sampling differs from simple random sampling as in the latter selection of sample units are independent of each other, whereas in the former the selection of sample units depend upon the selection of a previous unit.

Advantages of Systematic Sampling:

- It is considered as an improvement from a simple random sample as a systematic sample is spread more evenly over the entire population.
- It is an easier and less costly method of sampling.

- It can also be used when size of population is large. There is hardly any possibility of personal bias in this method.
- It is a rapid method and eliminates several steps otherwise taken in the other methods.

Disadvantages of Systematic Sampling:

- Every item in the population does not get the equal chance of being selected because only the first item is selected randomly.
- It ignores the units of population between two nth numbers. This may result in possibility of over representation or under representation of several groups.
- If there is some hidden periodicity in the population, systematic sampling will prove to be inefficient method of sampling. In practise, systematic sampling is efficient when list of population is available and they are of considerable length.



CHECK YOUR PROGRESS

Q 4: Define sampling error. Answer in about 50 words.

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Q 5: Mention the other name of probability sampling. Answer in about 10 words.

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Q 6: What is meant by stratified sampling? Answer in about 40 words.

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Q 7: What is meant by systematic sampling? Answer in about 40 words.

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8.4.4 Cluster Sampling

Simple random and stratified sampling techniques are based on a researcher's ability to identify each element in a population. It is easy to do this if the total sampling population is small, but if the population is large, as in the case of a city, state or country, it becomes difficult and expensive to identify each sampling unit. In such cases the use of cluster sampling is more appropriate.

Cluster sampling is based on the ability of the researcher to divide the sampling population into groups (based upon visible or easily identifiable characteristics), called clusters, and then to select elements within each cluster, using the simple random sampling technique. Clusters can be formed on the basis of geographical proximity (called area sampling) or a common characteristic that has a correlation with the main variable of the study (as in stratified sampling). Depending on the level of clustering, sometimes sampling may be done at different levels. These levels constitute the different stages (single, double or multiple) of clustering.

Suppose, a researcher wants to study the problems faced by the undergraduate students in India in the context of pursuing their higher education. UG students are to be found in ample all over the country. Moreover, there are numerous institutions both colleges and universities that offer UG courses. In every institute there are various disciplines that provide UG courses that generally cover a period of three to four years. Thus, the magnitude of the

task on the part of the researcher can be well understood. In such situations, cluster sampling is extremely useful in selecting a random sample.

The first level of cluster sampling could be at the state or territory level. Clusters could be grouped according to similar characteristics that ensure their comparability in terms of student population. If this is not easy, you may decide to select all the states and territories and then select a sample at the institutional level. For example, with a simple random technique, one institution from each category within each state could be selected (one university and one college). This is based upon the assumption that institutions within a category are fairly similar with regards to student profile. Then, within an institution on a random basis, one or more academic programmes could be selected, depending on resources. Within each study programme selected, students studying in a particular year could then be selected. Further, selection of a proportion of students studying in a particular year could then be made using the simple random technique. The process of selecting a sample in this manner is called multi-stage cluster sampling.

Advantages of Cluster Sampling:

- It is convenient to use cluster sampling when population is large or a large geographical area is taken for the study.
- The cost involved in this method is relatively less than the other methods of sampling.
- Respondents can be readily substituted for other respondents.
- It ensures flexibility in sampling.
- Characteristics of clusters can be estimated.
- It can be used when it is inconvenient to randomly select respondents.

Disadvantages of Cluster Sampling:

- Each cluster is not of equal size. For example while having clusters of towns and villages, each town or each village in the country is not of equal size.

- Comparison would not be on equal basis.
- Sampling error would be greater.
- In some situations, one individual might belong to two clusters and studied twice.
- It lacks representation.
- There could be homogeneity in one cluster but heterogeneity in the other.

Difference between Cluster Sampling and Stratified Sampling: The difference between cluster sampling and stratified sampling is that in the former homogeneous group (say a geographical region) is classified into heterogeneous units (towns, cities, villages, etc.) whereas in the latter a heterogeneous group is classified into homogeneous sub groups called strata.

Area Sampling: When clusters happen to be based on some geographical subdivision, it is called area sampling. For example, suppose you want to study the impact of government schemes on the entrepreneurs of Kamrup district. For this you have to divide the entire district into sub groups like blocks and then from each block select random samples depending upon the sample size.

Multi-stage Sampling: Multi-stage sampling is a further development of the principle of cluster sampling. In this method, sampling is selected in various stages but only the last sample of subjects is studied. For example, if we want to study the status of self-help-groups in India, first we will divide the entire country into four zones East, west, north and south. Then from each zone, we will select two states randomly; say from east we have Assam and Kolkata, from West we have Gujarat and Maharashtra, from north we have Punjab and Himachal Pradesh and from the south we have Kerala and Tamil Nadu. Next from each of these 8 states we will randomly select two towns and two villages randomly. Out of these 16 selected towns and villages we will randomly select a sample of say 1000 SHGs. Now, these 1000 respondents would be the representative of the entire country and with their data we will conduct the study

about the status of SHGs in the nation.

Thus, multi-stage sampling is generally applied in big enquiries extending to a considerably large geographical area, say the entire country. Since sampling frame under multi-stage sampling is developed in partial units and a large number of units can be sampled for a given cost, this method of sampling is considered to be advantageous than the other ways of sampling.



CHECK YOUR PROGRESS

Q 8: What is meant by cluster sampling. Answer in about 50 words.

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8.5 LET US SUM UP

- In any field of inquiry, we have a 'universe' or a 'population' which consists of all the items or individuals related to a certain area of study. A population can be an entire class of student, the total number of people residing in a district, the available commercial products in the market, all patients in a hospital, total number of households in a village, all the workers of a factory, and so on.
- Sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group. A sample is a subgroup of the population you are interested in.
- The main principle behind sampling is that we get to know about the total units by observing a few units and extend our inference about the sample to the entire population.

- Sampling is useful when the population is very large and scattered such that a complete coverage may not be possible. It has higher degree of accuracy since it is based on a smaller group of units. It is economical in nature both in terms of cost and time. It results in higher rate of response and greater cooperation from the respondents. However, the disadvantage of sampling is that you do not find out the information about the population's characteristics of interest to you but only estimate or predict them. Hence, the possibility of an error in your estimation exists.
- Basically, there are two types of sampling methods- probability sampling and non-probability sampling. In this unit, you will learn about the former and its types. In probability sampling every unit of the population has an equal and independent chance of being selected for the sample. Whereas, in non-probability sampling every unit does not have the equal chance of getting selected in the sample, rather the selection of units for the sample depends upon the researcher.
- If sample size selected for study is very small or due to non-representative nature of the sample, the estimated results may differ from the actual results. The error thus emerging is called sampling error. Sampling errors can be reduced by increasing the sample size.

  Simple random sampling, stratified sampling, systematic sampling and cluster sampling are the types of probability sampling.
- The stratified method of sampling is generally used when the population does not constitute a homogeneous group. According to this method of sampling, the population is divided into several sub-population or sub-groups called 'strata' having common characteristics. From each stratum, items are selected to make the sample for the study.
- According to the Systematic or interval sampling method, units of the population are numerically, geographically or alphabetically arranged and then every nth item of the population is selected for

the sample. In simple terms, it is randomly selecting the first respondent and then every nth person after that; 'n' is a number termed as sampling interval.

If the population is large, as in the case of a city, state or country, it becomes difficult and expensive to identify each sampling unit. In such cases the use of cluster sampling is more appropriate. Cluster sampling is based on the ability of the researcher to divide the sampling population into groups called clusters, and then to select elements within each cluster, using the simple random sampling technique. Clusters can be formed on the basis of geographical proximity (called area sampling) or a common characteristic that has a correlation with the main variable of the study (as in stratified sampling. Depending on the level of clustering, sometimes sampling may be done at different levels.

- Multi-stage sampling is a further development of the principle of cluster sampling. In this method, sampling is selected in various stages but only the last sample of subjects is studied.



8.6 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



8.7 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: A 'population' consists of all the items or individuals related to a certain area of study. A population can be an entire class of student, the total number of people residing in a district, the available commercial products in the market, all patients in a hospital, total number of households in a village, all the workers of a factory, and

so on. Whereas, a sample is a subgroup of the population we are interested in.

Ans to Q No 2: Sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group.

Ans to Q No 3: The advantage of Sampling is that it is useful when the population is very large and scattered such that a complete coverage may not be possible. It is economical in nature both in terms of cost and time. The disadvantage of sampling is that we do not find out the information about the population's characteristics but only estimate or predict them. Hence, the possibility of an error in our estimation exists.

Ans to Q No 4: If sample size selected for study is very small or due to non-representative nature of the sample, the estimated results may differ from the actual results. These are called sampling errors. Sampling errors can be reduced by increasing the sample size.

In probability sampling every unit of the population has an equal and independent chance of being selected for the sample. Whereas, in non-probability sampling every unit does not have the equal chance of getting selected in the sample, rather the selection of units for the sample depends upon the researcher.

Ans to Q No 5: Probability sampling is also known as 'random sampling' or 'chance sampling'.

Ans to Q No 6: The stratified method of sampling is generally used when the population does not constitute a homogeneous group. According to this method of sampling, the population is divided into several sub-population or sub-groups called 'strata' having common characteristics. From each stratum, items are selected to make the sample for the study.

Ans to Q No 7: According to the Systematic or interval sampling method, units of the population are numerically, geographically or alphabetically arranged and then every nth item of the population is

selected for the sample. In simple terms, it is randomly selecting the first respondent and then every nth person after that; 'n' is a number termed as sampling interval.

Ans to Q No 8: When population is large, it becomes difficult to collect data from each unit of the population. In this case, cluster sampling is used. Cluster sampling is based on the ability of the researcher to divide the sampling population into groups called clusters, and then to select elements within each cluster, using the simple random sampling technique.



8.8 MODEL QUESTIONS

Q 1: Define sampling. State the advantages and disadvantages of sampling.

Q 2: Explain the characteristics of a good sample design.

Q 3: Differentiate between probability and non-probability sampling with examples.

Q 4: What is simple random sampling? Explain with examples.

Q 5: State the advantages and disadvantages of simple random sampling.

Q 6: What are strata? Give examples.

Q 7: Explain stratified sampling and state the advantages and disadvantages.

Q 8: Explain systematic sampling with a suitable example.

Q 9: What is cluster sampling? Explain in details with examples.

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UNIT 9: SAMPLING TECHNIQUES - II

UNIT STRUCTURE

9.1 Learning Objectives

9.2 Introduction

9.3 Non-Random Sampling Methods

- 9.3.1 Convenience Sampling
- 9.3.2 Purposive Sampling
- 9.3.3 Quota Sampling
- 9.3.4 Snowball Sampling
- 9.3.5 Volunteer Sampling

9.4 Let Us Sum Up

9.5 Further Reading

9.6 Answer to Check Your Progress

9.7 Model Questions

9.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- differentiate between probability and non-probability sampling
- discuss the different types of non-probability sampling techniques
- discuss the advantages and disadvantages of non-probability sampling techniques.

9.2 INTRODUCTION

In our previous unit, firstly, we learnt about the concepts of sample and population and the differences between them. Secondly, types of sampling (probability and non-probability sampling techniques), particularly probability sampling techniques, were discussed in detail. In this unit, we will be learning about the non-probability sampling methods.

Non-probability sampling is a sampling procedure that does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and

judgment sampling. In this type of sampling, items for the sample are selected deliberately by the researcher; their choice concerning the items remains supreme. In other words, under non-probability sampling, the organizers of the inquiry purposively choose particular units of the universe for constituting a sample on the basis that the small mass that they so select out of a huge one will be typical or representative of the whole. For instance, if a researcher wants to study the economic conditions of people living in a state, a few towns and villages may be purposively selected for intensive study on the principle that they can represent the entire state. The judgment of the organizers of the study plays an important part in this sampling design.

The prime difference between probability and non-probability sampling is that in the former type, each of the units of a population has the equal opportunity to get selected in a sample, whereas in the latter type, the sample is drawn based on some condition or willingness of the researcher. Hence all the units of the population do not have an equal chance of being included in the sample drawn.

9.3 TYPES OF NON-RANDOM SAMPLING METHOD

There are five types of non-random sampling or non-probability sampling methods-

9.3.1 Convenience Sampling

It is also known as 'accidental' sampling. It depends upon the convenience of the researcher in finding the sample. As such, the researcher considers the people readily found in that instant for his/her sample. For example- if someone wants to study the use of library among college students, he/she would consider the number of readers in the library; based on the attendance he/she would draw the conclusion. This method of sampling is common among market research and newspaper reporters. Especially during elections, the media personnel take the opinions of the general public present in and around them. Again, approaching people

standing in banks, grocery shops, malls, etc. and asking questions would also be an example of convenience sampling.

Advantages of convenience sampling include the easy access to sample population and it is economic in terms of money and time. Disadvantages of convenience sampling include the biasness of the researcher, since only a certain units of the population are taken into consideration for the study.

9.3.2 Purposive Sampling

It is also known as 'judgemental sampling'. Here, the researcher makes a judgement as to who would be the best one to include in the sample in order to get the desired responses. As such, he approaches only those people who can provide him with the information he/she is searching for. For example, the TV reporters stopping certain individuals on the street in order to ask their opinions about certain political changes constitutes the most popular example of this sampling method. However, it is important to specify that the TV reporter has to apply certain judgment when deciding who to stop on the street to ask questions; otherwise it would be the case of random sampling technique.

Let us consider another example. Suppose, a group of researchers wants to study the factors which lead a person to select ethical hacking as a profession. We know that ethical hacking is a skill which has been recently attracting youth. More and more people are selecting it as a profession. The researchers who understand what ethical hacking is will be able to decide who should form the sample to learn about it as a profession. That is when judgmental sampling is implemented. Researchers can easily filter out those participants who can be eligible to be a part of the research sample.

Economy in terms of money and time, avoidance of irrelevant units in the sample, better results when investigator is unbiased are some of the advantages of purposive sampling. On the other hand, personal biasness and unequal chance of getting selected in the

sample are some of the limitations of purposive sampling. Since selection of the sample is governed by some pre-determined purpose, hence sample selection at times is considered to be partial.



CHECK YOUR PROGRESS

Q 1: What is meant by non-probability sampling? Answer in about 50 words.

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Q 2: Differentiate between probability and non-probability sampling. Answer in about 60 words.

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Q 3: Mention the types of non-probability sampling. Answer in about 30 words.

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Q 4: Cite an example of convenience sampling. Answer in about 30 words.

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9.3.3 Quota Sampling

It is similar to stratified sampling with the only difference

that in stratified sampling, population is divided into strata and units from each stratum are drawn randomly for the sample. Whereas, in quota sampling, there are certain fixed quotas based on which the sample is selected. The choice of the respondents is completely left to the interviewer. Let us consider the following example.

Suppose, a researcher wants to study certain behaviour of the college students of a local college. Because the researcher can access this data, s/he knows that in this given population, 43% of the students are male and 57% are female. For a sample size of 1,000, the researcher knows that 430 males and 570 females will need to be interviewed from that population.

Using the Quota Sampling Method: To more realistically represent a given population, it would be necessary to control more than one category. For example, the researcher could select gender and age, or gender and income, or level of education and income, depending on the purpose of the study. Using our example, the researcher could add age (less than 21 years and 21 years and over) as a control category, specifying that half of the sample for each gender be from each age category. Now we are searching for 215 males under 21 years and 215 males 21 years and over, along with 285 females under 21 years and 285 females 21 years and over. What has happened here is that with every added category, it may take longer to locate these individuals, thus adding cost and time to the process. However, the target population could be better represented if additional categories are considered.

Why use multiple quotas? The intent of specifying multiple control categories or quotas is to improve the representation of particular groups within the population and ensure that groups are not over-represented. In our example, males and females would be interviewed until each category has reached its quota. Once 215 males under 21 years of age have been interviewed, no further male responses from that age category will be considered. Individuals

for the remaining categories will continue to be interviewed until each quota is satisfied. This ensures that no more than 215 males and 285 females from each age category will be represented. In this way, no one category is over-represented according to the target population.

Advantages of quota sampling: Advantages of quota sampling are-(i) It is relatively less expensive (ii) Convenient (iii) Requires less time (iv) does not require sampling frames.

Disadvantages of quota sampling: Disadvantages of quota sampling are- (i) sample is not a true representative of the population (ii) presence of biasness of the interviewer (iii)amending results through a formal statistical way is not possible (iv) is not always fruitful in case of field works.



CHECK YOUR PROGRESS

Q 5: What is meant by quota sampling? Answer in about 40 words.

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9.3.4 Snowball Sampling

Snowball sampling is the process of selecting a sample using networks. It is also referred to as 'chain-referral' sampling. The researcher would first approach the respondents he/she knows and is available to him. As such, a few individuals in a group or organization are selected and the required information is collected from them. Then, these people provide references about other individuals they know who fall under the criteria of the researcher. Thus, they are asked to identify other people in the group or organization, and the people selected by them become a part of the sample. Information is collected from them, and then these people are asked to identify other members of the group and, in

turn, those identified become the basis of further data collection. This process is continued until the required numbers of respondents have been interviewed or no other respondents are discovered. In other words, till the saturation point has been reached, in terms of data collection, the process of snowball sampling continues.

For example, suppose we want to study about the work culture in foreign institutions. For this, firstly we would approach the ones who we know in and around us working in foreign land, they will then provide us the information about people they know who are associated with foreign institutions, from them again we are going to have further links to approach employees in foreign institutions. In this way, the process will continue till we find an adequate number of respondents. Again, if a researcher wants to study about the incidence of some rare disease, firstly he will collect information from the people he knows suffering from such disease and then from his/her link would be finding other such patients suffering from the disease.

Advantages of snowball sampling: This sampling technique is useful if we know little about the group or organization we wish to study, as we need only to make contact with a few individuals, who can then direct us to the other members of the group. This method of selecting a sample is useful for studying communication patterns, decision making or diffusion of knowledge within a group. Researchers can collect data from people who would have been otherwise difficult to approach. It is also economic in terms of cost and time, since it does not need to hire any extra research team for the purpose.

Disadvantages of snowball sampling: Firstly, the choice of the entire sample rests upon the choice of individuals at the first stage. If they belong to a particular faction or have strong biases, the study may be biased. Secondly, it is difficult to use this technique when the sample becomes fairly large. Thirdly, in this method it is difficult

to determine sampling error. Fourthly, here we are not really sure about the size of the population and hence fixing a sample size becomes difficult. Moreover, the sample chosen might not always be the true representative of the population.

9.3.5 Volunteer Sampling

In this method, the respondents himself/herself volunteers to give information he has. This implies respondents self-select to become a part of the sample. For example- if a researcher wants to study about the number of beneficiaries of a government policy and publishes it in newspapers with a contact number to send details, and people who have been benefited reply to it on their own, it would be an instance of volunteer sampling.

Advantages of volunteer sampling: Although this method is very rarely used, it has many advantages over the other methods. It is considered to be more ethical because respondents approach the researcher and provide information willingly. While doing so, generally they are not bias and speak the truth. Moreover, it is convenient and easy for the researcher since it involves no cost in approaching respondents for data collection.

Disadvantages of volunteer sampling: Sometimes, the sample chosen may not be representative of the population. As a result, there may be biasedness since the researcher makes little effort to control the sample composition, it includes only those respondents who voluntarily come forward. In this process most of the genuine respondents might be left from the sample.



CHECK YOUR PROGRESS

Q 8: How is the sample selected in purposive sampling? Answer in about 60 words.

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Q 7: Define Snowball sampling. Answer in about 50 words.

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Q 8: When does the process of sample selection end in case of Snowball sampling? Answer in about 50 words.

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9.4 LET US SUM UP

- Non-probability sampling is that sampling procedure which does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and judgment sampling.
- The prime difference between probability and non-probability sampling is that in the former type each of the units of a population has the equal opportunity to get selected in a sample, whereas in the latter type sample is drawn based on some condition or willingness of the researcher, hence all the units of the population do not have a equal chance of being included in the sample drawn.
- There are five types of non-random sampling or non-probability sampling methods- convenience sampling, purposive sampling, quota sampling, snowball sampling and volunteer sampling.
- Convenience sampling is also known as 'accidental' sampling. It

depends upon the convenience of the researcher in finding the sample. As such, the researcher considers the people readily found in that instant for his/her sample.

- Purposive sampling is also known as 'judgemental sampling'. Here, the researcher makes a judgement as to who would be the best one to include in the sample in order to get the desired responses. As such, he approaches only those people who can provide him with the information he is searching for.
- Quota sampling is similar to stratified sampling with the only difference that in stratified sampling, population is divided into strata and units from each stratum are drawn randomly for the sample. Whereas, in quota sampling, there are certain fixed quotas based on which the sample is selected. The choice of the respondents is completely left to the interviewer.
- Snowball sampling is the process of selecting a sample using networks. It is also referred to as 'chain-referral' sampling. The researcher would first approach the respondents he/she knows and is available to him, from this initial group of respondents the researcher would be getting information about other respondents that matches with his criterion. This process of adding units to sample continues till an adequate number of units in the sample is found.
- In volunteer sampling, the respondents himself/herself volunteers to give information he has. This implies respondents self-select to become a part of the sample.



9.5 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



9.6 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Non-probability sampling is that sampling procedure which does not afford any basis for estimating the probability that each item in the population has of being included in the sample. Non-probability sampling is also known by different names such as deliberate sampling, purposive sampling and judgment sampling.

Ans to Q No 2: In probability sampling, each of the units of a population has the equal opportunity to get selected in a sample, whereas in non-probability sampling, the sample is drawn based on some condition or willingness of the researcher, hence all the units of the population do not have an equal chance of being included in the sample drawn.

Ans to Q No 3: There are five types of non-random sampling or non-probability sampling methods- convenience sampling, purposive sampling, quota sampling, snowball sampling and volunteer sampling.

Ans to Q No 4: If someone wants to study the use of library among college students, he/she would consider the number of readers in the library and based on the attendance he/she would draw the conclusion. Here the researcher approaches the readers available in the library as per his convenience and accordingly considers them into the sample.

Ans to Q No 5: Quota sampling is similar to stratified sampling with the only difference that in stratified sampling, population is divided into strata and units from each stratum are drawn randomly for the sample. Whereas, in quota sampling, there are certain fixed quotas based on which the sample is selected.

Ans to Q No 6: In purposive sampling, the researcher makes a judgement as to who would be the best one to include in the sample in order to get the desired responses. As such, he approaches only those people who can provide him with the information he is searching

for.

Ans to Q No 7: Snowball sampling is the process of selecting a sample using networks. It is also referred to as 'chain-referral' sampling. The researcher would first approach the respondents he/she knows and is available to him, from this initial group of respondents the researcher would be getting information about other respondents that matches with his criterion.

Ans to Q No 8: The process is continued until the required numbers of respondents have been interviewed or no other respondents are discovered. In other words, till the saturation point has been reached, in terms of data collection, the process of snowball sampling continues.

Ans to Q No 9: It is considered to be more ethical because respondents approach the researcher and provide information willingly. While doing so, generally they are not bias and speak the truth. Moreover, it is convenient and easy for the researcher since it involves no cost in approaching respondents for data collection.



9.7 MODEL QUESTIONS

Long Questions. (Answer each question in around 300-500 words)

Q 1: Highlight the prime differences between probability and non-probability sampling techniques.

Q 2: Explain the types of non-probability sampling with appropriate examples.

Q 3: Explain the advantages and disadvantages of non-probability sampling techniques.

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UNIT 10: SAMPLING TECHNIQUES - III

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

10.3 Meaning and Definition of Variables in Research

10.4 Various Types of Variables

- 10.4.1 Quantitative Variables
- 10.4.2 Qualitative Variables
- 10.4.3 Independent and Dependent Variables
- 10.4.4 Extraneous Variables
- 10.4.5 Background Variables
- 10.4.6 Intervening Variables
- 10.4.7 Suppressor Variables
- 10.4.8 Moderating Variables

10.5 Population or Universe of a Study

- 10.5.1 Finite and Infinite Population
- 10.5.2 Homogeneous and Heterogeneous Population
- 10.5.3 Existent and Hypothetical Population
- 10.5.4 Known and Unknown Population

10.6 Sample as a Concept

- 10.6.1 Characteristics of an Ideal / Good Sample
- 10.6.2 Population and Sampling Methods
- 10.6.3 Difference between Census and Sampling Methods

10.7 Let Us Sum Up

10.8 Further Reading

10.9 Answer to Check Your Progress

10.10 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- put forward the meaning of variables in research
- discuss different types of variables

- distinguish between the major types of variables
- discuss the concept of population of a study
- discuss the concept of sample.

10.2 INTRODUCTION

We all know that variables form an important part in our studies. Just in case of demand and supply, we have been explaining that they depend on a set of variables like quantity and price and many other related variables. In research, we shall have to deal with different types of variables. These variables may be broadly categories as dependent and independent, qualitative and quantitative variables, extraneous variables, background variable etc. This unit basically deals with variables. Here, the concept of variable has been discussed. Again, the concept of universe or population and sample have also been discussed.

10.3 MEANING AND DEFINITION OF VARIABLES IN RESEARCH

In order to comprehend research, variables are important. The researcher can get a sense of the important variables related to that particular study by reviewing the literature, and data can be acquired from primary or secondary sources. In the framework of a research study, the study's factors played a crucial role. These factors we can call as variables. A variable is something that has a value that changes over time. Some of the common examples of variables include age, religion, gender, level of education, income, consumption, expenditure, family size, country of birth, capital expenditure, height, blood pressure readings etc. The value of each of these variables differ from one individual to other. Thus, any attribute, characteristic, number, or quantity that changes over time or can take on different values in different conditions is referred to as a variable in research. Such examples are as follows: The type of product is the variable in this case if an investigator wants to compare the efficacy of four different items, A, B, C, and D. A market survey based on customer preferences can be

beneficial to a company researcher. The variable here is the consumer's preference. A social scientist could investigate the role of education in minimizing child marriages. The child marriage is the variable here. Similarly, we can add other factors to these examples, such as efficacy, effectiveness, education, gender, customer attitude, and so on. It depends on the study's goal and what a researcher is attempting to focus on.

10.4 VARIOUS TYPES OF VARIABLES

We can separate the variables in many ways based on various background characteristics:

- **Quantitative Variables:** are those variables which can be measured in numbers: These are of two types viz. (a) Continuous Variable and (b) Discrete Variable.
- **Qualitative Variables:** are those variables which can't be measured in numbers
- **Independent Variables and Dependent Variables:** Independent variables shows the impact on dependent variable.
- **Extraneous Variables:** These are not independent variable but may affect the results of estimation.
- **Background Variables:** These variables basically cover the demographic and socio-economic factors which tells us about the background characteristics of the study.
- **Intervening Variables:** These are the variables which help in understanding the relationship between other two variables.
- **Suppressor Variables:** These are the variables which don't have any relation or impact on the dependent variable but still help in predictive validity. This concept was first introduced by Horst in 1941.
- **Moderating Variables:** These are those variable which actually strengthen the association between variables.

Let's take a look at these variables in more detail:

10.4.1 Quantitative Variables

Quantitative variables, often known as numerical variables,

are variables that may be measured numerically. We can use a variety of quantitative and statistical methods to measure these characteristics. The value of total production in each state would be a quantitative variable if a researcher wanted to measure the productivity levels of different states in India. Age, height, family size, income, consumption, and expenditure are examples of quantitative variables. That is, each of the aforementioned characteristics or features varies or differs from person to person. We call these variables quantitative or numeric variables since they are expressed in numbers. There are two types of quantitative variables: continuous and discrete variables. These variables are unpredictably distributed. Any variable with an undetermined value is known as a random variable. The following are the specifics of discrete and continuous variables:

- Continuous Variable: A continuous variable is one whose value may be determined through measurement. For example: height and weight of students in a class, time and distance etc.
- Discrete Variable: A discrete variable is one whose value may be calculated by counting. For example: number of students in a class, number of participants in a competitive exam, number of events in a program etc.

10.4.2 Qualitative Variables

Qualitative variables are those that can't be assessed directly, and there are various ways for measuring qualitative variables in research. The proxy variable can be used to describe the qualitative variable and this will give a way to measure the qualitative variable indirectly. If a researcher tries to give numerical ordering to a qualitative variable then that wouldn't be possible as it doesn't follow any logical ordering. The value of the variable 'gender' viz. male, female and transgender varies qualitatively; there is no ranking for any of these. A different terminology is also given to these kind of variables viz. categorical variables. As gender

variable is expressed in categories, then this variable is considered as categorical variable. Similarly, place of residence is a categorical variable that can be defined as either rural or urban. Nominal and ordinal variables can be used to define categorical variables. The following is a description of ordinal and nominal variables:

- Ordinal variables, such as exam grades (O, A+, A, B+, and so on), can be logically ordered or rated higher or lower than another
- Nominal variables, for example, cannot be ranked or logically ordered. A qualitative variable is a characteristic that cannot be measured but can be classified as having or not having certain features. The example for this is type of gender, religion etc.

10.4.3 Independent and Dependent Variables

Many research efforts attempt to identify and understand the sources of the occurrences or problems, in order to create a causal relationship. Look at these statements to understand the relationships between variables and how we may determine which variables are dependent or independent:

- Inappropriate dietary choices causes malnutrition among children
- Alcohol enhances the risk of lung cancer.
- The drug causes the improvement of a health problem.

We have two variables in each of the above statements: one independent and one dependent. In the first instance, it is claimed that 'inappropriate dietary choices' created the 'malnutrition condition.' Therefore, it is considered as independent variable. Malnutrition is the dependent variable, because we assume that this malnutrition was caused inappropriate dietary choices. Similarly, smoking and drug are the independent variables, and lung cancer, improvement in health are dependent variables. In general, an independent variable helps in measuring its effects on the dependent variable. The classification of both the variables is as follows:

A dependent variable is one that is utilised to characterise or evaluate the problem or outcome being studied. In a causal relationship, the cause is the independent variable, while the result is the dependent variable. The independent variable is smoking, and the dependent variable is cancer, if we think that smoking causes lung cancer. Depending on the context, a dependent variable can be referred to as a predicted variable, measured variable, explanatory variable, experimental variable, responding variable, outcome variable, output variable, or label.

The component that is considered as a cause or impact of the problem/result is described or quantified by an independent variable. The investigator attempts to describe or explain the impact or effect of the variable on the dependent variable. Variability in the dependent variable is presumed to depend on variability in the independent variable. An independent variable is sometimes called an explanatory variable, predictor variable, manipulated variable, controlled variable etc.

10.4.4 Extraneous Variable

Generally, in various research studies, the focus is on identifying one independent variable and measuring its impact on the dependent variable. However, various other variables alter our predicted independent-dependent variable relationship. Extraneous variables aren't always included in studies.

10.4.5 Background Variable

Different demographic and socio-economic factors provide a data package that tells us about the study's background features. These variables are related to many independent factors, which influence or influence the dependent variable indirectly. As a consequence, they are referred to as background variables. If background components are important to the investigation, they should be measured.

10.4.6 Intervening Variable

A third variable is often responsible for an apparent link between two variables. Variables A and B, for example, may be highly correlated, but only because A causes the third variable, C, causing B in turn. C is the intermediary variable in this situation.

10.4.7 Suppressor Variable

In many circumstances, we have reason to suppose that the variables of interest are linked within themselves, yet our data contradicts this. It's likely that some unseen factors are concealing the true relationship between the two variables. Because it suppresses the true relationship between the other two variables, such a factor is known as a suppressor variable.

10.4.8 Moderating Variable

A simple one-to-one relationship must be modified to reflect other variables to properly characterise the link in the context of real-world research. This emphasises the significance to include a second indépendant variable (moderating variable), whose influence on the dependent and independent variable relationship is predicted to be significant.

10.4.9 Attributes

An attribute is a quality or characteristic of a specific variable. Variables and attributes are inextricably linked. A variable is a logical collection of characteristics. As variables can "vary," such as high and low scores. Thus these high and low scores are the attributes of a particular variables. The theory of attributes is concerned with qualitative characteristics that can be calculated using quantitative measurements. As a result, the attribute necessitates slightly different statistical treatments than the variables. Attributes are characteristics of the item under

investigation, such as a smoking or drinking habit. As a result, the terms 'smoking' and 'drinking' both refer to an example of an attribute.



CHECK YOUR PROGRESS

Q 1: What is meant by background variables? Answer in about 50 words.

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Q 2: Define the term variable in the context of research. Answer in about 60 words.

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10.5 POPULATION OR UNIVERSE OF A STUDY

The term "universe" or "population" refers to a collection of items about which we obtain information. The term population refers to the entire field of study for which knowledge is sought. For example, if a research chooses to take all 1500 students studying in a college to assess the average height of the students, the full aggregate of 1500 students will be referred to as the study's population. It is possible to have a finite or infinite population. Finite population is defined as a population with a finite number of things. On the other hand, infinte population refers to a population that has not been enumerated. The detailed description of finite and infinite population is as follows:

10.5.1 Finite and Infinite Population

Finite population refers to a population with a finite number of units that can be counted exactly. Here are a few examples of finite population:

- Population of the students who appeared in NEET Exam in India in September 2021.
- Students enrolled in Post Graduate courses in India.
- Number of teacher teaching in the University
- The population, in which the number of units is infinite and cannot be counted is called infinite population. The following are some examples infinite population:
- Decimal numbers lying between integers 1 and 2.
- Number of stars in the sky.
- Words formed by using all English alphabets.
- Number of cells in human body.

10.5.2 Homogeneous and Heterogeneous Population

A homogeneous population is one in which all of the units of the population are same or similar in terms of some characteristics. If all the units of population differ completely or in some aspects with one another, the population is called heterogeneous population. The mental and physical talents of all pupils in the same school and class differ from one another. This is an example of a population that is heterogeneous. Homogeneous is that where all the units possesses same characteristics.

10.5.3 Existent and Hypothetical Population

Existent population refers to population units that have a physical existence. In most circumstances, finite and existing populations can be thought of as alternatives to one another. A population of this type is students and teachers in a city, district, or state. Other examples of existing population are family members,

working women in a metropolis, and children with autism or dyslexia in a certain area of the city. Hypothetical population refers to a population whose units do not have physical existence but whose existence is assumed or whose probability of existence is determined using statistical methods. This type of population is sometimes referred to as a statistical population. The probability of such a population is determined by the repetition of a previous incidence or by statistical computation. The following are some examples of such a population. A population depicting the average lifespan of electric lights manufactured in a plant. The bulbs' life expectancy is based on the durability of bulbs that have been made and utilised in the past. It is impossible to determine the exact life of such goods. Maximum and minimum temperature of different cities can be assumed on the basis of past experience. It cannot be predicted precisely.

10.5.4 Known and Unknown Population

If the parameter of the population is known, it is called known population. Parameter refers to statistical measurement taken from the data from the entire population. For example, in the study of achievement of the students appeared in S. S. C. examination in 2019-2020, the set of all the students appeared in SSC exam in that year will be called known population because the average marks of all these students and standard deviation of their marks can be calculated or known easily. If the parameter of population is unknown or cannot be calculated easily, it is known as unknown population. For example, in the study of intelligence of secondary school students of Assam, the population will be of unknown type because average marks and standard deviation of scores of the students in intelligence test are not easily available and cannot be calculated easily because this population consists of a large number of students.

10.6 SAMPLE AS A CONCEPT

A sample is a subset of a population. In other words, a sample is a collection of selected or sorted units from a population. In other terms, a sample is a subset of the population that we select for research purposes. If a researcher chooses 400 students from a population of 1500, these 400 students are referred to as a sample. It means, the units, selected from the population as a sample, must represent all kind of characteristics of different types of units of population i.e. it should be representative.

10.6.1 Characteristics of an Ideal / Good Sample

Characteristics of an ideal sample are as follows.

- Number of units in sample must be proportionate. It means a size of sample must be in proper proportion of number of units in population.
- Units selected in sample must represent all the characteristics of different units of population.
- Sample should be helpful in realising all the objectives of research.
- Sample selection should be free from any kind of biases. It means all the units of population must have equal chance to be selected in the sample.
- Sample should be such, that can save time, energy and money of researcher.
- Contact of units of sample should be convenient for researcher. It means, units of sample
- should be within the reach of researcher.
- Collection of data from units of sample should be convenient for researcher. Selection of such sample makes the task of researcher easy and precise. Therefore sample is very much important in research.

Table 10.1 describe some terms related to sample:

10.1: Certain related Concepts in Sampling

Concept	Description
Sample	A representative group of individuals from a specific population
Sampling	The process of selecting a representative group of people or elements from a population. There are various methods of selecting a sample viz. probability and non-probability sampling methods.
Sampling Error	Sampling error is the difference between the means of sample groups and the population means. The term "sampling errors" refers to errors that occur as a result of the sampling procedure. It occurs as a result of poor sample method selection, erroneous sampling unit demarcation, population variability with various characteristics, and so on.
Non Sampling Errors	These errors are those which creep in due to human factors which always varies with one investigator to another. These errors general ling arise due to faulty planning, faulty selection of the sampling units, errors in compilation, negligence and non-response on the part of the respondent etc
Steps involved in the sampling process	(i)Define the population (ii)Identify the sampling frame. The sampling frame should be so selected which consists of almost all the sampling units. (iii) Specify sampling unit and sampling method (iv) Determine the sample size (v) Specify sampling plan (vi) Select the sample

10.6.2 Population and Sampling Methods

Any research can use a variety of data collection methods to obtain any measurement. Data can be gathered from either primary or secondary sources. A research study on the other hand, can use census methods or sampling methods to get an estimate on a specific research problem. The detailed description of both the methods is as follows:

Census Method: The census technique is a method in which information or data is collected from each and every unit of the population in relation to the subject under inquiry, and conclusions are reached based on this information. Complete enumeration is

another name for this procedure. The following are the merits and demerits of the Census method.

Merits of Census Method

- Data produced by the method of the census have greater reliability and precision as data from each unit of the universe are collected in this method.
- This method provides detailed information about every unit of the universe
- The strategy is better appropriate for a small population and a wide variety of attributes.

Demerits of Census Method

- The census approach is a costly one. As data is collected from each unit of the population, more money is required. This is why governments choose to employ this method for critical topics such as population censuses and agricultural censuses.
- This methods involves much time for data collection
- This type of data collection also necessitates a significant amount of labour. This necessitates a bigger number of enumerators.

Sampling Method: The sampling method is a data collection method in which data is collected from a sample of items drawn from a population and conclusions are drawn from them. In today's world, the sampling method is an important and widely used method of statistical investigation. In reality, there is almost no area where the sampling method is not used. The following are the merits and demerits of sampling methods.

Merits of Sampling Methods

- The sampling method is less costly. It saves time and money because just a small percentage of the population is studied.
- Data can be collected more quickly using a sampling method because it is obtained from some items in the universe. As a result, this method saves time.
- As number of items is less in sampling method, they can be

intensively studies

- In this method research work can be organized and executed more conveniently
- Sampling method is more scientific
- If the sample is selected in a way that entirely represents the universe, the outcome is more accurate and reliable.
- When it is impossible to conduct an investigation using the census method, the sampling method is more appropriate. In cases where the population is infinite or too large, the sampling method is used.

Demerits of Sampling Methods

- The sampling method is less accurate because, rather than enquiring about every unit in the universe, a partial inquiry or inquiry about a subset of units is conducted.
- If the method of sample selection is not unbiased or proper caution is not used, the results will undoubtedly be misleading.
- The investigator's bias is more likely, making the results less reliable.
- If all population units are different in that case, the sampling process will not prove very useful.

10.6.3 Difference between Census and Sampling Methods

On the basis of the above characteristics explained for both the methods, the main differences between the census and the sampling method are as shown in Table 10.2.

Table 10.2: Census Vs Sampling Methods

Basis of Comparison	Census Method	Sampling Method
Meaning	The census technique is a method in which information or data is collected from each and every unit of the population in relation to the subject under inquiry, and conclusions are reached based on this information.	The sampling method is a data collection method in which data is collected from a sample of items drawn from a population and conclusions are drawn from them.
Scope	All items related to the universe are investigated	Only a few items are inquired
Cost	Expensive	Economical
Field of investigation	Used for investigations with limited field	Used for investigations with large field
Results	Results would be more reliable and accurate	Results are less reliable and accurate due to various sampling and non-sampling errors during data collection
Enumeration	Complete	Partial
Homogeneity	This method is useful when units of the population are heterogeneous	This method is useful when units of the population are homogeneous
Type of universe	In such field where study of each and every unit of the universe is necessary, census method is more appropriate.	When population is infinite or vast, then sampling method is considered to be more appropriate.
Error	Not Present	Depends on the size of the population
Economy	It requires a large amount of money, time, and labour.	Relatively less money, time, and labour are required.
Organisation and Supervision	It is very difficult to organise and supervise the census method.	Easy to organize and supervise
Nature of Method	Old and not a very scientific method	New and Scientific



CHECK YOUR PROGRESS

Q 3: What is meant by unknown population?

Answer in about 60 words.

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Q 4: Define the term sample. Answer in about 60 words.

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10.11 LET US SUM UP

- In order to comprehend research, variables are important. The researcher can get a sense of the important variables related to that particular study by reviewing the literature, and data can be acquired from primary or secondary sources.
- Any attribute, characteristic, number, or quantity that changes over time or can take on different values in different conditions is referred to as a variable in research.
- Quantitative variables, often known as numerical variables, are variables that may be measured numerically. We can use a variety of quantitative and statistical methods to measure these characteristics.
- A continuous variable is one whose value may be determined through measurement. For example: height and weight of students in a class, time and distance etc.
- A discrete variable is one whose value may be calculated by counting. For example: number of students in a class, number of participants in a competitive exam, number of events in a program etc.
- Qualitative variables are those that can't be assessed directly, and there are various ways for measuring qualitative variables in research. The proxy variable can be used to describe the qualitative variable and this will give a way to measure the qualitative variable indirectly.
- A dependent variable is one that is utilised to characterise or evaluate

the problem or outcome being studied. In a causal relationship, the cause is the independent variable, while the result is the dependent variable.

- Depending on the context, a dependent variable can be referred to as a predicted variable, measured variable, explanatory variable, experimental variable, responding variable, outcome variable, output variable, or label.
- The component that is considered as a cause or impact of the problem/result is described or quantified by an independent variable.
- The term "universe" or "population" refers to a collection of items about which we obtain information. The term population refers to the entire field of study for which knowledge is sought.
- Finite population refers to a population with a finite number of units that can be counted exactly
- If the parameter of the population is known, it is called known population. Parameter refers to statistical measurement taken from the data from the entire population.
- A sample is a subset of a population. In other words, a sample is a collection of selected or sorted units from a population. In other terms, a sample is a subset of the population that we select for research purposes.
- The sampling method is a data collection method in which data is collected from a sample of items drawn from a population and conclusions are drawn from them. In today's world, the sampling method is an important and widely used method of statistical investigation.



10.12 FURTHER READING

(1) Guthrie , G. (2010) Basic Research Methods: An Entry to Social Science Research, Sage Publications, New Delhi, India

(2) Kumar, R. (2011) Research Methodology, Sage Publications, New Delhi, India

(3) Nachmias, D., and Nachmias C. (2014) Research Methods in Social Sciences, St. Martin's Press, New York



10.13 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Different demographic and socio-economic factors provide a data package that tells us about the study's background features. These variables are related to many independent factors, which influence or influence the dependent variable indirectly. As a consequence, they are referred to as background variables. If background components are important to the investigation, they should be measured.

Ans to Q No 2: A variable is something that has a value that changes over time. Some of the common examples of variables include: age, religion, gender, level of education, income, consumption, expenditure, family size, height, blood pressure readings etc. The value of each of these variables differ from one individual to other. Thus, any attribute, characteristic, number, or quantity that changes over time or can take on different values in different conditions is referred to as a variable in research.

Ans to Q No 3: If the parameter of population is unknown or cannot be calculated easily, it is known as unknown population. For example, in the study of intelligence of secondary school students of Assam, the population will be of unknown type because average marks and standard deviation of scores of the students in intelligence test are not easily available and cannot be calculated easily because this population consists of a large number of students.

Ans to Q No 4: A sample is a subset of a population. In other words, a sample is a collection of selected or sorted units from a population. In other terms, a sample is a subset of the population that we select for research purposes. If a researcher chooses 400 students from a population of 1500, these 400 students are referred to as a sample.



10.14 MODEL QUESTIONS

Short Questions (Answer each question in around 150 words).

Q 1: Discuss the Meaning and Definition of Variables in Research.

Q 2: Discuss the various Types of Variables.

Q 3: Discuss the concept of universe or population.

Q 4: Briefly describe the concept of sample.

Q 5: Distinguish between census and sample.

Q 6: Write short notes on the following:

(a) Quantitative Variables (b) Qualitative Variables (c) Independent and Dependent Variables (d) Extraneous Variables (e) Background Variables (f) Intervening Variables (g) Suppressor Variables (h) Moderating Variables (i) Finite and Infinite Population (j) Homogeneous and Heterogeneous Population (k) Existent and Hypothetical Population (l) Known and Unknown Population.

Essay type Questions: (Answer each question in about 300-500 words each.)

Q 1: What is meant by variable? Discuss its the various. Draw the major distinctions between quantitative variables and qualitative Variables.

Q 2: Briefly describe the concept of sample. Mention the important characteristics of a good sample. Distinguish between census and sample.

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UNIT 11: COLLECTION OF DATA

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Data Collection: Meaning

11.3.1 Data Collection: Importance

11.4 Types of Data

11.5 Sources of Secondary Data

11.6 Primary and Secondary Data: Merits and Demerits

11.7 Let Us Sum Up

11.8 Further Reading

11.9 Answer to Check Your Progress

11.10 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- acquire knowledge about meaning and importance of data collection in research
- know about Primary and secondary data
- discuss merits and limitations of both primary and secondary data.

11.2 INTRODUCTION

In previous units, we have learnt various aspects associated with research in economics. We have learnt about review of literature, design of research and various sampling techniques used. In this unit we will learn about collection of data- an important part of research. Starting from meaning and collection of data, the unit covers about primary and secondary data along with their relative meaning.

11.3 DATA COLLECTION: MEANING

Any statistical enquiry originates from collection of related facts or

information. These facts must be capable of measurement and this measurement may either be qualitative or quantitative. The facts and figures collected for any statistical enquiry, are recorded systematically. There are three concepts that are associated with data and its collection:

- Investigator
- Respondents
- Statistical units

An **Investigator** is a person who conducts the statistical enquiry. He must be a trained person and well-acquainted with statistical analysis. He counts or measures the characteristic under study. These measurements are further analysed statistically according to the objectives of the study.

Respondents are the persons from whom the information are collected by the investigator.

The measurements or counts in any statistical investigation are done with some identifiable object or a group of objects. These are known as statistical units. These units have to be defined clearly before collection of data. (Detail in section 11.3.1).

Thus, data collection is a process. It consists not only of counting or enumerating or measurement of information but recording of the same also. It must be a systematic process. In fact, the entire structure of the statistical analysis for any enquiry is based upon systematic collection of data.

11.3.1 Data Collection: Importance

It appears that collection of data is the first step of any statistical enquiry. In fact, an efficient and well -planned statistical enquiry must ensure so many preliminaries before collection of data. Otherwise, the conclusions of the study may be misleading and biased. That is why, collection of data is so important in its operationalization and handling. Before going for collection of data, one must examine the following points:

- Objectives and scope of the enquiry.
- Statistical units to be used.
- Sources of information.

- Method of data collection.
- Degree of accuracy in the final results.
- Type of enquiry.

Let us discuss the points in some detail.

Objectives and Scope of the Enquiry: The objectives of the enquiry should be defined in clear and concrete terms. Otherwise, some irrelevant information may be collected. Similarly, some important information may be omitted.

The scope of enquiry relates to the coverage with respect to the type of information, subject matter and geographical area. It will have a great bearing upon the data to be collected and also the techniques to be used for its collection and analysis. For example, in a study of cost of living index number the area of study (a particular area or state or the country as a whole) must be specified. Moreover, the class of people (such as low -income group, middle-income group) for which they are intended must be specified clearly.

Thus, any study depends on its objectives and scope. However, the objectives and scope should be in accordance with the available resources in terms of money, manpower and time limit required for results.

Statistical Units to be Used: As mentioned in section 11.3 statistical units on which data collection is done must be clearly defined. For socio-economic surveys a unit may be an individual, a family, a block of locality etc. For these types of surveys, some arbitrary units may be used which must be defined previously. These is no ambiguity for the physical units such as metres, kilometres, kilograms quintals etc. Thus, following requisites can be summarised for a statistical units:

- **It should be un-ambiguous:** It implies that every unit of the population should be distinct and non-overlapping and the units must cover the entire population.
- **It should be specific:** In many socio-economic surveys, arbitrary units have to be taken for some characteristics/

variables. These arbitrary units varies from survey to survey, but should be specific and clear for a particular survey. For example, in an enquiry relating to wage level of industrial workers, the wages might be weekly wages or monthly wages. Similarly, workers might refer to the skilled workers or workers working on daily basis. Whatever it may be, it must be specific.

- **It should be stable:** In order to compare at different places or time, the units should be stable. For example, difference in the value of money at different times as well as difference in measurement of weight of the same item make comparisons useless.
- **It should be appropriate to the enquiry:** as discussed in point 2 that the concept and definition of arbitrary statistical units varies from study to study. However, it should be appropriate for the particular study under consideration. For example, data on whole-sale prices are taken for studying the changes in the general price level. For constructing cost of living index number, the retail prices are the appropriate unit.
- **It should be uniform:** It implies that throughout the process of investigation, unit adopted for measurement must be homogeneous. For example, we cannot compare length if we use "metre" in some occasions and "yard" in some other occasions of the same study.

11.4 TYPES OF DATA

In preceding section, we have learned about the meaning and importance of data collection. Having discussed the preliminaries we have come to the conclusion that any statistical enquiry must ensure original collection of data. That is, it should be correct and proper. Otherwise valid and useful conclusions cannot be done even after adopting sophisticated techniques of analysis and presentation of results. Data may be obtained from the following two sources:

- The investigator or the organizer may collect data first hand. This

type of data is termed as Primary Data.

- The investigator may use the data from other published sources. This type of data is termed as Secondary Data.

It is clear that primary data are originally collected by an investigator or agency for the first time for any statistical investigation and used by them in the statistical analysis. Nature of primary data depends on the objectives and scope of the enquiry. Various variables as well as statistical units for them is defined prior to the collection of data. A detailed account on collection of primary data is given in Unit 12.

On the other hand, secondary data have already been collected and processed by some agency or person, and taken over from here and used by any other agency for their statistical work. It is termed as secondary data as far as second agency is concerned. They may or may not be published. In the use of these data there exists no any problem regarding definitions of various terms and units used. It is because these type of data have already been collected under a given set of definitions of various terms and units used.

It is important to know that the distinction between primary and secondary data is a matter of degree or relativity only. The same set of data may be secondary in the hands of one and primary in the hands of others. A data set is primary to the source who collects and processes them for the first time. The same set becomes secondary for all other sources who later use it.

To clear the distinction, let us consider the data on fertility and mortality rates for India. Office of Registrar General of India, New Delhi publishes reports on various demographic rates such as birth rate and death rates etc. Similarly, United Nations Organisation (U.N.O.) publishes U.N. Statistical Abstract wherein data on various aspect are taken from individual countries. Therefore, so far as data on birth rate and death are concerned, the office of the Registrar General of India is the primary source, while U.N.O. is the secondary source.



CHECK YOUR PROGRESS

Q 1: State whether the following statements are true (T) or false (F).

(a) In collection of data, the statistical units should be stable. (T/F)

(b) Primary data is collected from a secondary source. (T/F)

11.5 SOURCES OF SECONDARY DATA

Secondary data can be obtained from the following two broad sources: (a) Published sources, and (b) Unpublished sources.

- **Published Sources:** The publications of various international organisations, government, semi-government and private organisations collects and publishes data on various aspects such as business, trade, labour, prices, consumption, production, industries, agriculture, income, currency and exchange, a number of socio-economic phenomena on a regular basis (monthly, quarterly, annually etc.). These publications are a very powerful source of secondary data. Now-a-days these are available on the official websites of the organisations. A brief summary of these sources has been outlined below.
  - **Central Government's Official Publications:** Office of the Registrar General and Census Commissioner of India ,New Delhi; Directorate-General of Commercial Intelligence and Statistics- Ministry of Commerce; Labour Bureau-Ministry of Labour; Directorate of Economics and Statistics-Ministry of Agriculture and Irrigation; The Indian Army Statistical Organisation- Ministry of Defence; National Sample Survey Organisation, Department of Statistics-Ministry of Planning; Central Statistical Organisation, Department of Statistics-Ministry of Planning-are some of the important central government organisations which publish statistical data on a number of topics of current interest-prices, wages, population,

production and consumption, labour, trade, army etc. Most of the data now-a-days are available in the official websites of the respective departments. Some of the main publications of these government agencies are:

- Monthly Abstract of Statistics: Monthly Statistics of Production of Selected Industries in India; Statistical Pocket Book, India; Annual Survey of Industries-General Review; Sample Surveys of Current Interest in India National Income Statistics-Estimates of Capital Formation in India etc. All published by the Central Statistical Organisation (C.S.O.), New Delhi.
- Census data in various census reports; Vital Statistics of India (Annual), Indian Population Bulletin (Bi-eennial)-all published by Registrar-General of India (R.G.I.)
- Various statistical reports on phenomenon relating to socio-economic and demographic conditions , prices, area and yield of different crops, as a result of the various surveys conducted in different rounds by National Sample Survey Organisation (N.S.S.O.)

In addition to the above, a number of departments both in State and Central Governments like Income Tax Department, Post and Telegraphs, Central Board of Revenues, Textlile Commissioner's Office and so on publish statistical reports on current problems and the information supplies by them.

- **Publications of Semi-Government Statistical Organisations:** Various semi-governmental organisations publish their annual/monthly reports which provide very useful information. Important among them are:
  - Annual Report of Bank, Currency and Finance; Reserve Bank of India monthly Bulletin etc.-published by Statistics and Economics Department of Reserve Bank of India
  - Publications of the Institute of Economic Growth New Delhi,

- Publications of the Institute of Foreign Trade, New Delhi.;etc.

In addition to these, publications of the institutions like Municipal and District Boards, Block and Panchayat Samitis on Vital Statistics, health, sanitation and other related subjects provides a fairly reliable and useful information.

- Publications of Research Institutions: Institutes like Indian Statistical Institute (I.S.I.) Calcutta and Delhi; Indian Council of Agricultural Research (ICMR), New Delhi; National Council of Educational Research and Training (N.C.E.R.T), New Delhi; The Institute of Labour Research, Mumbai etc. has been constantly publishing their findings of their research programmes in the form of monographs, research papers, journals etc. These are, of course valuable source of secondary source of data.
- Publications of Commercial and Financial Institutions: Federation of Indian Chamber of Commerce and Industries (FICCI), Institute of Chartered Accountants of India, Trade Unions, Stock Exchanges, Bank Bodies, Co-operative societies etc. are some of the important sources of secondary information on current economic, business and other phenomena.
- Reports of various Government Appointed Committees: The reports of various survey and enquiry committees like Simon-Kuznet Committee Report on National Income in India, Kothari Commission Report on Educational Reforms, Land Reforms Committee Report, Reports of NITTI Ayoug etc. are invaluable source of secondary data.
- Newspapers and Periodicals: Economic and Political Weekly, Economic Times, The Financial Express, Stateman's Year Book and the Times of India Year Book etc. are some of the important magazines, periodicals and newspapers which provide important statistical material on a number of important current socio-economic problems.

- International Publications: The publications of a number of international agencies provide invaluable statistical information on a variety of important economic and current topics. The publications of United Nations Organisations (U.N.O.) and it's subsideries like U.N.O. Statistical Year Book, U.N. Statistical Abstracts, World Health Organisation's Report on Contagious Diseases, Reports of International Labour Organisation (I.L.O.), Reports of International Monetary Fund (I.M.F.) and so on very valued publications of secondary data.

- **Un-published sources:** Records maintained by private firms or business enterprises, various departments and offices of both central and state governments, findings of individual research scholars in universities and research institutions may remained unpublished. Private firms may not be interested in publication because of maintaining their business secrecy. Moreover, individual researchers, due to the promise of keeping confidentiality to the respondents cannot publish their findings. In spite of unpublished ness, these are sources of secondary information of great value.



CHECK YOUR PROGRESS

Q 2: What are the main concepts associated with collection of data? (Write in about 60 words)

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11. 6 PRIMARY AND SECONDARY DATA: MERITS AND DEMERITS

In previous section we have learnt in detail about primary and secondary data. We have learnt that both are totally different in collection and follow-up treatment. Which type of data is to be used depends on the nature of study which the researcher is going to undertake. Each of these two types of data, has merit on some aspects and demerits on some other aspects. In order to differentiate both types of data as well to find out relative merits and demerits, let us have a look on the Table 11.1.

Table 11.1: Primary and Secondary Data: A comparison

Sl. No	Criteria	Primary Data	Secondary Data
1	Data Collection method	Data collected by researcher	Data collected by others
2	Originality	Original or unique information	Not original or unique information
3	Adjustment	Doesn't need adjustment, is focused	Need adjustment to suit actual aim
4	Sources	Surveys, Observations, Experiments	Internal records, Govt. published data etc
5	Methods	Observation, Experiment, Interview	Desk -research method, Searching online etc.
6	Reliability	More reliable	Less reliable
7	Time consumed	More time consuming	Less time consuming
8	Need of investigators	Needs team of trained investigators	Does not need team of investigators
9	Cost effectiveness	Costly	Economical
10	Collected when	Secondary data is inadequate	Before primary data is collected
11	Capability	More capable to solve a problem	Less capable to solve a problem
12	Suitability	More suitable to achieve objective	May or may not be suitable
13	Bias	Possibility of bias exist	Somewhat safe from bias
14	Collected by	Researcher or his agents	Persons other than who collects primary data
15	Precaution to use	Not necessary	Quite necessary

It is clear from Table 11.1 that in terms of second point, viz- originality , primary data seems better. Therefore, while taking secondary source of information it should be ascertained that the data to be taken must come from the original source (where it was collected and recorded). In terms of adjustment also (point-3) secondary data has the demerit of making

adjustment to suit the objective of the survey. May be because of no need of adjustment, primary data seems more reliable (point-6) than the secondary data.

Of course points 7,8 and 9 reveal the demerits of primary data as it is more time consuming, costlier and requires more trained investigators than the secondary data. Moreover, there may have biasness on the part of the researcher while collecting primary data(point-13). So the researcher must be very careful in the choice between two types of data.



11.7 LET US SUM UP

- Data collection is a process. It consists not only of counting or enumerating or measurement of information but recording of the same also.
- An efficient and well -planned statistical enquiry must ensure so many preliminaries before collection of data.
- The objectives of the enquiry should be defined in clear and concrete terms.
- The statistical units on which data collection is done must be clearly defined. They should also be unambiguous, specific, stable, uniform and appropriate for the enquiry.
- Two types of data are used in statistical enquiries: primary and secondary

  Secondary data can be collected from both published and unpublished sources.
- Primary data seems better in terms of adjustment ability, originality, reliability, capability and suitability. Moreover, there is no need of precaution in using these data.
- However, collection of primary data is costly in terms of time, money and trained men power needed. Also, it may suffers from personal biasness on the part of the investigator.
- Secondary data seems better in terms of less cost involved in terms of short collection period, money and trained men power

required. Also, no biasness is involved here.

- However, secondary data may be less reliable, needs adjustment and can be used with great precaution.



11.8 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(3) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



11.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: (a) True (b) False

Ans to Q No 2: There are three concepts that are associated with data and its collection:

a) Investigator

b) Respondents

c) Statistical units

An Investigator is a person who conducts the statistical enquiry. He must be a trained person and well-acquainted with statistical analysis. He counts or measures the characteristic under study. These measurements are further analysed statistically according to the objectives of the study.

Respondents are the persons from whom the information are collected by the investigator.

The measurements or counts in any statistical investigation are done with some identifiable object or a group of objects. These are known as statistical units.



11.10 MODEL QUESTIONS

Short Questions (Answer each question in about 40-50 words)

Q 1: What are qualities of a statistical unit that used in any statistical enquiry?

Q 2: Distinguish between Primary and Secondary data.

Q 3: Mention the main sources of secondary data.

Essay-type Questions (Answer each question in about 300-500 words)

Q 1: What is collection of data? Before collection of data, what point must be considered by the researcher?

Q 2: Discuss relative merits and demerits of primary and secondary data.

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UNIT 12: INTERVIEW

UNIT STRUCTURE

12.1 Learning Objectives

12.2 Introduction

12.3 Meaning of Interview

12.4 Process of Interview

12.5 Types of Interview

12.6 Merits of Interview

12.7 Demerits of Interview

12.8 Let Us Sum Up

12.9 Further Reading

12.10 Answer to Check Your Progress

12.11 Model Questions

12.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- put forward the meaning of interview
- understand the process of interview
- differentiate the different types of interviews
- discuss the merits and demerits of interview

12.2 INTRODUCTION

We have seen how the research process initiates. One of the most important aspects of any research process is data collection. There are different techniques of data collection. Out of these, interview method is a commonly used technique to collect data from a target group or sampled population. There are different types of interviews. There are certain prerequisites for the smooth conduct of the interview method. Again, it also has both advantages and disadvantages attached which we are going to discuss in detail in this unit.

12.3 MEANING OF INTERVIEW

Interview is a commonly used method of collecting information from people. In many walks of life we collect information through different forms of interaction with others. There are many definitions of interviews. According to Monette et al., 'an interview involves an interviewer reading questions to respondents and recording their answers'. According to Burns, 'an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person'. Any person-to-person interaction, either face to face or otherwise, between two or more individuals with a specific purpose in mind is called an interview.

There are two major functions of interview technique:

- **Description:** Since interviewer enquiries about certain topics, the respondents provide certain information which helps the interviewer to attain in-depth insights into the nature of the problem he or she is concerned about.
- **Exploration:** Interviews provide insight into unexplored dimensions of the problem. Respondents get a chance to explain the problem in a better manner which is generally not possible when information is collected through questionnaires.

Some characteristics of interview are as follows-

- There is face-to-face contact, conversational exchange and verbal interaction between the interviewer and the respondent.
- The interview is not limited to two individuals only; rather it could be a group of respondents, two or more interviewers.
- The relationship between interviewer and respondents who are strangers is generally transitory.
- Questions are asked and responses are received verbally.
- The interviewer records the responses accordingly and there is flexibility in the format of interview.

12.4 PROCESS OF INTERVIEW

For smooth conduct of the interview process, the first necessary condition is the understanding of the interviewer. The interviewer needs to be clear about the objectives and aspects of the studies to be conducted. Moreover, selecting the sample population, getting appointment from the respondents, informing the respondents about the time required for the interview, having an attitude so that the respondents feel comfortable to answer, and increasing respondents' motivation and so on are to be looked after by the interviewer. For successful conduct of the interview method, interviewers should be carefully selected, trained and briefed. They should be observant, objective, sensitive to norms and practices of the society taken for study, etc.. Occasional field checks should be made to ensure that interviewers are conducted following all the necessary requirements , not deviating from instructions given to them for performing their job efficiently. In addition, some provisions should also be made in advance so that if any selected respondent refuse to cooperate or are not available when an interviewer calls upon them, such cases are duly accommodated. In fact, interviewing is an art governed by certain scientific principles. Every effort should be made to create friendly atmosphere of trust and confidence, so that respondents may feel at ease while talking to and discussing with the interviewer. The interviewer must ask questions properly and intelligently, not only that s/he must also take into congnizance emotions of the respondents and then must record the responses accurately and completely. At the same time, the interviewer must answer legitimate question(s), if any, asked by the respondent and must clear any doubt that the respondents might have regarding purpose of the study, institutional affiliation etc. has. The interviewers approach must be friendly, courteous, conversational and unbiased. The interviewer should not show surprise or disapproval of a respondent's answer but he must keep the direction of interview in his own hand, discouraging irrelevant conversation and must make all possible effort to keep the respondent on the track.



CHECK YOUR PROGRESS

Q 1: Define interview. Answer in about 50 words.

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Q 2: Mention the characteristics of interview. Answer in about 60 words.

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12.5 TYPES OF INTERVIEW

The types of interview differ from one another in terms of structure, interviewer's role, number of respondents involved, and so on. Following are some of the important types of interview:

- **Unstructured Interviews:** In unstructured interview there are no specifications in the wording of the questions and order in which they are to be asked. The interviewer can form questions as and when required. The strength of unstructured interviews is the complete freedom they provide in terms of content and structure. We are free to order these in whatever sequence we wish. We also have complete freedom in terms of the wording we use and the way we explain questions to the respondents. We may formulate questions and raise issues on the spur of the moment, depending upon what occurs in the context of the discussion. Such interviews have no time limit for continuing the interview. Unstructured interviews are prevalent in both quantitative and qualitative research. The difference

is in how information obtained through them in response to our questions is likely to be used. In quantitative research we develop response categorizations from responses which are then coded and quantified. In qualitative research the responses are used as descriptors, often in verbatim form, and can be integrated with our arguments, flow of writing and sequence of logic.

Advantages of unstructured interview: The advantages of unstructured interview include the easy flow in which the interview can be conducted in the form of natural conversations and the questions are spontaneously asked. There is greater possibility of exploring in an unrestricted manner. Knowing the interest of the respondents, the interviewer can ask questions accordingly and gain more information from that specific area.

Disadvantages of unstructured interview: There are certain disadvantages like the responses of the respondents cannot be compared with each other. With no specific sequence and format of the questions, the reliability of the data becomes doubtful. Some aspects may be left out during the interview process and at times it results in wastage of time on account of irrelevant conversations.

- **Structured interviews:** In a structured interview the researcher asks a predetermined set of questions, using the same wording and order of questions as specified in the interview schedule. An interview schedule is a written list of questions, open ended or closed, prepared for use by an interviewer in a person-to-person interaction (this may be face to face, by telephone or by other electronic media). The researcher has little freedom to make changes in the order or wordings of the questions asked.

One of the main advantages of the structured interview is that it provides uniform information, which assures the comparability of data. Structured interviewing requires fewer interviewing skills than does unstructured interviewing. Moreover, structured interviews help to lessen the personal bias mostly seen in case of unstructured interviews.

- **Standardised and unstandardised interview:** In standardised interviews answer to each question is given in a standard form of set of responses given for this purpose. For instance, the response to be chosen by the respondents might be given as yes/no, agree/ disagree, satisfied/not satisfied, illiterate/less educated/highly educated, and so on. The information attained is helpful for quantitative analysis. Whereas in unstandardised interviews there is no particular standard for the answers, rather it is left open to the respondents. Such information is collected for qualitative research analysis.
- **Individual and group interviews:** In individual interviews the interviewer asks questions to one respondent at a time. Although it gives fair opportunity to the respondent to answer without any external influence and information on sensitive issues can be collected with the help of one to one interviews but if the number of respondents is too large, it would be a time consuming task to complete the entire process. On the other hand, in group interviews, there are more than one respondent. The group might be of two individuals like husband and wife, or a family with 10-15 members, or a group of farmers or a large group of students, and so on.
- **Personal interviews:** Personal interview method requires a person known as the interviewer asking questions generally in a face-to-face contact to the other person or persons. (At times the interviewee may also ask certain questions and the interviewer responds to these, but usually the interviewer initiates the interview and collects the information.) This sort of interview may be in the form of direct personal investigation or it may be indirect oral investigation. In the case of direct personal investigation the interviewer has to collect the information personally from the sources concerned. He has to be on the spot and has to meet people from whom data have to be collected. This method is particularly suitable for intensive investigations. But in certain cases it may not be possible or worthwhile to contact directly the persons concerned or on account

of the extensive scope of enquiry, the direct personal investigation technique may not be used. In such cases an indirect oral examination can be conducted under which the interviewer has to cross-examine other persons who are supposed to have knowledge about the problem under investigation and the information, obtained is recorded. Most of the commissions and committees appointed by government to carry on investigations make use of this method.

- **Focused interview:** It is meant to focus attention on the given experience of the respondent and its effects. Under it the interviewer has the freedom to decide the manner and sequence in which the questions would be asked and also has the freedom to explore reasons and motives. The main task of the interviewer in case of a focused interview is to confine the respondent to a discussion of issues with which he seeks conversance. Such interviews are used generally in the development of hypotheses and constitute a major type of unstructured interviews. For example, studying prisoners in jail about the restrictions on their freedom, work, recreation, interaction, food habits, etc. is an example of focused interview. One basic advantage of focused interview is that the respondents get more freedom to respond to the questions and hence there is the opportunity to gather more information.
- **Clinical interview:** Clinical interview is concerned with broad underlying feelings or motivations or with the course of individual's life experience. The method of eliciting information under it is generally left to the interviewer's discretion.
- **Non-directive interview:** Here, the interviewer's function is simply to encourage the respondent to talk about the given topic with a bare minimum of direct questioning. The interviewer often acts as a catalyst to a comprehensive expression of the respondents' feelings and beliefs and of the frame of reference within which such feelings and beliefs take on personal significance.



LET US KNOW

Advantages and Weaknesses of Personal Interview Method: Despite the variations in interview-techniques, the major advantages and weaknesses of personal interviews can be enumerated in a general way as follows:

- More information and that too in greater depth can be obtained.
- Interviewer by his own skill can overcome resistance, if any, of the respondents; the interview method can be made to yield an almost perfect sample of the general population.
- There is greater flexibility under this method as the opportunity to restructure questions is always there, especially in case of unstructured interviews.
- Observation method can as well be applied to recording verbal answers to various questions.
- Personal information can as well be obtained easily under this method.
- Samples can be controlled more effectively as there arises no difficulty of the missing returns; non-response generally remains very low.
- The interviewer can usually control which person(s) will answer the questions. This is not possible in mailed questionnaire approach. If so desired, group discussions may also be held.
- The interviewer may catch the informant off-guard and thus may secure the most spontaneous reactions than would be the case if mailed questionnaire is used.
- The language of the interview can be adopted to the ability or educational level of the person interviewed and as such misinterpretations concerning questions can be avoided.
- The interviewer can collect supplementary information about the respondent's personal characteristics and environment which is often of great value in interpreting results.

But following are some of the weaknesses of the personal interview

method:

- It is a very expensive method, especially when large and widely spread geographical sample is taken.
- There remains the possibility of the bias of interviewer as well as that of the respondent; there also remains the problem of supervision and control of interviewers.
- Certain types of respondents such as important officials or executives or people in high income groups may not be easily approachable under this method and to that extent the data may prove inadequate.
- This method is relatively more-time-consuming, especially when the sample is large and recalls upon the respondents are necessary.
- The presence of the interviewer on the spot may over-stimulate the respondent, sometimes even to the extent that he may give imaginary information just to make the interview interesting.
- Under the interview method the organization required for selecting, training and supervising the field-staff is more complex with formidable problems.
- Interviewing at times may also introduce systematic errors.
- Effective interview presupposes proper rapport with respondents that would facilitate free and frank responses. This is often a very difficult requirement.

- **Telephone interviews:** This method of collecting information consists in contacting respondents on telephone itself. It is not a very widely used method, but plays important part in industrial surveys, particularly in developed regions. Moreover, newspapers, radios and TV personnel generally use this method to access public opinion.

Merits of Telephone Interviews: Following are the merits of such a system-

- ➢ It is more flexible in comparison to mailing method.
- ➢ It is faster than other methods i.e., a quick way of obtaining information.

- It is cheaper than personal interviewing method since not many investigators are required.
- Recall is easy; callbacks are simple and economical.
- There is a higher rate of response than what we have in mailing method; the non-response is generally very low.
- Replies can be recorded without causing embarrassment to respondents.
- Interviewer can explain requirements more easily.
- At times, access can be gained to respondents who otherwise cannot be contacted for one reason or the other.
- No field staff is required.
- Representative and wider distribution of sample is possible.

Demerits of Telephone Interviews: But this system of collecting information is not free from demerits. Following are some of the disadvantages:

- Little time is given to respondents for considered answers; interview period is not likely to exceed five minutes in most cases.
- Surveys are restricted to respondents who have telephone facilities.
- Extensive geographical coverage may get restricted by cost considerations.
- It is not suitable for intensive surveys where comprehensive answers are required to various questions.
- Possibility of the bias of the interviewer is relatively more.
- Questions have to be short and to the point; probes are difficult to handle.
- Each selected respondent in the sample may not own a telephone and thus be left out from responding.
- Respondents are often not motivated over the telephone because they can terminate the interview at his/her will.
- Since answers are to be given quickly, the respondents might not get much time to think about the answers.

Thus, we see that the interview as a method of data collection seems to be easy, yet its adequacy, reliability and validity pose important problems. Interviewers differ in skill and interest; again respondents differ in ability and motivation. Hence, for a successful interview, accessibility of information, understanding of the respondents and motivation are the prime factors.



CHECK YOUR PROGRESS

Q 3: Mention some types of interviews. Answer in about 40 words.

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Q 4: Differentiate between structured and unstructured interview. Answer in about 50 words.

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12.6 MERITS OF INTERVIEW

Interview as a method of data collection has certain specific merits as follows:

- Quick information- desired information can be obtained quickly.
- Proper interpretation- respondents interpret the questions properly.
- Flexibility- in both asking questions and responding there is flexibility in the process.
- Checking validity- validity of the information can be easily checked. It gives higher response rate and identity of the respondents is known.
- Observance - the interviewer has the opportunity to observe respondents'

non-verbal behavior.

- Control- exercising control on the context of questions and answers is possible.

12.7 DEMERITS OF INTERVIEW

Following are some of the demerits or limitations of interview technique:

- Due to the fear of identity, the respondents might give improper answers or hide information and give wrong responses.
- Interviews are costly both in terms of money and time.
- Interviewer's attitude has a major role to play in the process. For instance, if he is angry or tired, he would not be able to conduct the interview properly. Again, if he is in any hurry, he would not take much time and end the process quickly. Doing so would result in inadequate information.
- It is less effective for sensitive questions.
- It offers less anonymity than other methods.
- There could be variability in responses with different interviewers, particularly when interview is unstructured.

Thus, the above are certain advantages and disadvantages involved in the technique of interview when used for data collection in a research study.



CHECK YOUR PROGRESS

Q 5: Mention some of the important merits of personal interview. Answer in about 60 words.

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Q 6: What is meant by a focused group interview? Answer in about 50 words.

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12.8 LET US SUM UP

- According to Monette et al., 'an interview involves an interviewer reading questions to respondents and recording their answers'. According to Burns, 'an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person'.
- Any person-to-person interaction, either face to face or otherwise, between two or more individuals with a specific purpose in mind is called an interview.
- Some characteristics of interview include- There is face-to-face contact, conversational exchange and verbal interaction between the interviewer and the respondent; the interview is not limited to two individuals only; rather it could be a group of respondents, two or more interviewers. The relationship between interviewer and respondents who are strangers is generally transitory. Questions are asked and responses are received verbally. The interviewer records the responses accordingly and there is flexibility in the format of interview.
- For successful implementation of the interview method, interviewers should be carefully selected, trained and briefed. They should be honest, sincere, hardworking, and impartial and must possess the technical competence and necessary practical experience.
- Some types of interview are- Unstructured Interviews, structured interviews, Standardised and unstandardised interview, Individual and group interviews, Personal interviews, Focused Group interview,

telephonic interview, etc. All of these types have their particular advantages and disadvantages.

- Certain advantages of interview method include- quick information, proper interpretation, flexibility, checking validity, control, knowing the identity of respondents, completeness of interviews and so on.
- Possibility of hiding information or providing wrong information, costly process, less effective for sensitive questions are some of the disadvantages of interview technique.



12.9 FURTHER READING

(1) Ahuja, R. (2018). Research Methods. Jaipur: Rawat Publications.

(2) Creswell, J W and Creswell, J D. (2018). Research Design. Sage Publications.

(3) Kothari, C.R. (2011). Research Methodology, Methods and Techniques. New Age International (P) Ltd.

(4) Kumar, R. (2011). Research Methodology. New Delhi: SAGE Publications India Pvt. Ltd.



12.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: According to Monette et al., 'an interview involves an interviewer reading questions to respondents and recording their answers'. According to Burns, 'an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person'.

Ans to Q No 2: There is face-to-face contact, conversational exchange and verbal interaction between the interviewer and the respondent; The interview is not limited to two individuals only; rather it could be a group of respondents, two or more interviewers; The relationship between interviewer and respondents who are strangers is generally transitory; Questions are asked and responses are received verbally; The interviewer records the responses accordingly and there is flexibility in

the format of interview.

Ans to Q No 3: Unstructured Interviews, structured interviews, Standardized and unstandardised interview, Individual and group interviews, Personal interviews, Focused Group interview, telephonic interview, etc.

Ans to Q No 4: In unstructured interview there are no specifications in the wording of the questions and order in which they are to be asked. The interviewer has complete freedom and can form questions as and when required. Whereas, in a structured interview the researcher asks a predetermined set of questions, using the same wording and order of questions as specified in the interview schedule and lacks freedom.

Ans to Q No 5: More detailed information can be obtained through personal interviews. Moreover, if the respondents have any difficulty, the interviewer can clear those instantly. In case of a face-to-face interview, the interviewer can keep motivating the respondents to answer properly.

Ans to Q No 6: Focused group interviews focus attention on the given experience of the respondent and its effects. Under it the interviewer has the freedom to decide the manner and sequence in which the questions would be asked and has also the freedom to explore reasons and motives. The main task of the interviewer in case of a focused interview is to confine the respondent to a discussion of issues with which he seeks conversance. Such interviews are used generally in the development of hypotheses and constitute a major type of unstructured interviews.



12.11 MODEL QUESTIONS

Long Questions. (Answer each question in around 300-500 words)

Q 1: Define the term 'interview'. Explain the characteristics of interview technique.

Q 2: Explain the process of interview used for data collection.

Q 3: What are the different types of interviews? Explain the types along with their advantages and disadvantages.

Q 4: What are the merits and demerits of the interview technique? Explain in details.

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UNIT 13: INTERVIEW TECHNIQUES - I QUESTIONNAIRE

UNIT STRUCTURE

13.1 Learning objectives

13.2 Introduction

13.3 Questionnaire: Meaning

- 13.3.1 Preparation of a Good Questionnaire
- 13.3.2 Features of a Good Questionnaire
- 13.3.3 Types of Questionnaire
- 13.3.4 Merits of Questionnaire
- 13.3.5 Demerits of Questionnaire
- 13.3.6 Difference between Questionnaire and Schedule

13.7 Let Us Sum Up

13.8 Further Reading

13.9 Answer to Check Your Progress

13.10 Model Questions

13.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- put forward the meaning of questionnaire
- acquire knowledge how to prepare a good questionnaire
- explain the different types of questionnaire
- discuss the merits and demerits of questionnaire as a technique of data collection
- explain the differences between questionnaire and schedule

13.2 INTRODUCTION

By now, we have learnt that data collection is the most vital aspect in any research and based on the nature of the study or research; there are different techniques of collecting data. Interview is one such important technique, which we have discussed, in the previous unit. From that unit we have learnt about the meaning and types of interview and the processes in

which an interview is conducted. In this unit, we shall learn about questionnaire, a tool for data collection. In simple words questionnaire is a series questions printed or typed in a definite order on a form or set of forms for collecting primary data from the respondents. Here we shall discuss about how to prepare a questionnaire, what are the features of a questionnaire, the different types of questionnaire and the merit and demerits of a questionnaire.

13.3 QUESTIONNAIRE: MEANING

As mentioned above, Questionnaire is a research tool used to collect primary data. According to Goode and Hatt, the word questionnaire refers to a mechanism or tool for securing answers to questions by using a form, which the respondent fills himself. Thus, anyone who has filled in a job application has had the experience of answering a questionnaire. In a research study, the researcher develops a series of questions on the basis of the objectives of his/her study. The set of questions are all logically related to the central problem of the study. The researcher then arranges the questions in a logical sequence, prints it in a form or set of forms and gives it to his/her respondents. The aim is to generate response from the respondents on the issue or the topic of the study. The respondents are expected to read and understand the questions and write down the reply in the space provided in the questionnaire itself. They are also expected to answer the questions on their own without any external influence. Thus, a questionnaire can be defined as a research instrument, which has a series of pre-set questions that are framed in a certain way to gather objective information from respondents. It is a most popular and widely used technique of data collection used in field survey. In the next section, we shall discuss how to prepare a questionnaire.

13.3.1 Preparation of a Questionnaire

Preparation of a questionnaire is a complex task. Since questionnaire has to be filled by the respondents, it is very essential to prepare the questionnaire in such a way that the respondents

can easily understand what is being asked. The questions therefore need to be very precise and comprehensive. The questions must be connected to the objectives of the study and should be such that they fetch appropriate and required data for the study. Further, the questionnaire should also be very sensitive towards the respondents and should not hurt the sentiment and dignity of the respondents. Therefore preparing a questionnaire requires cautious efforts of the researcher. The researcher must give importance on the following aspects while preparing a questionnaire.

- **General Form:** Questionnaires should have definite, concrete and predetermined questions. Each respondent should be asked the same questions and the questions should be presented with exactly the same wording and in the same order to all the respondents.
- **Question Sequence:** The researcher must be very careful about the question sequence while preparing a questionnaire. The questionnaire would be meaningful and effective only when the questions are put in a definite order or sequence. The questions must follow a specific pattern; each question following from the above. The questions must be easy; its meaning clear and there should be a flow from one question to the other so that it helps the researcher to easily understand and give his/her views/ answers. The initial or the first few questions should be the easiest to answer and should be able to arouse the interest of the respondents.
- **Question formulation and wording:** The questions put in the questionnaire should be simple and written in a lucid language. The questions should be such that they are understood easily They should not lead to any misunderstanding and miscommunication. Further, the questions should convey only one thought at a time.

13.3.2 Features of a Good Questionnaire

- Questionnaire should be precise and simple. It should comprise of short and crisp questions that are easily understandable by the respondents.
- Questions should follow a logical sequence where it starts with the easiest questions followed by the difficult ones. It should proceed from the easy/simple to the complex questions.
- A good questionnaire should be comprehensible by the respondents. It may emphasize on the significant or important areas of the concerned research and yet the questions should be framed in a way so that the respondents do not hesitate to put forward their answers or opinions.
- The responsibility of a good questionnaire towards research is that the respondents should realize the importance of the questions asked and not brush them off as unimportant or insignificant.
- A good questionnaire should avoid questions that may be embarrassing or annoying to the respondents. Although questionnaire as a data collection tool does not leave much ground for the respondents to express themselves subjectively and also in most cases guarantee anonymity, in the ones that involve face to face interaction with the respondents, the questions should be framed with more sensitivity and care so as to not make the respondent uncomfortable. This is important for getting data, which is not coloured by uneasiness. Personal and intimate questions should be asked towards the end.
- The researcher must avoid technical or difficult terms and imprecise language, which may be incomprehensible, misunderstood or misinterpreted.
- The researcher must avoid those questions, which may hurt the sentiments and dignity of the respondents.
- The questionnaire must be prepared in a way that sufficient

space is provided for the respondents to answer the open-ended questions.



CHECK YOUR PROGRESS

Q 1: Fill in the blanks.

(a) Questionnaire is a series of _____ questions to gather _____ information from respondents.

(b) A good questionnaire should be _____ by the respondents.

13.3.3 Types of Questionnaires

Two most significant dimension along which questionnaires commonly vary are: (a) degree of structure, and (b) number of response possibilities.

Degree of Structure: In light of degree of structure, questionnaires may be of three types, i.e structured, semi-structured and unstructured. A Questionnaire can be structured or semi-structured depending on the needs of the research. Structured questionnaires are also called closed questionnaires, which usually consist of pre-set options from which respondents need to choose their answer. They are those in which the questions to be asked from the respondents and the instruction to be followed by the interviewers are very precisely and concisely stated in advance.

Semi-structured or open-ended questionnaires consist of fixed questions but leaves space for the respondents to answer in their own words. Semi-structured questionnaire may result in subjective answers for some questions, and hence does not fully qualify as quantitative data.

On the other hand, unstructured questionnaires are those in which specify only the broad areas of a subject and not the form or sequence of questions. In this context, formulation of questions is left to the interviewers themselves who are free to question respondents as their own choice.

Number of response possibilities: Here, questionnaires also vary in respect of the number of response possibilities provided to the subject. If a question provides the subject with only two response possibilities it is known a dichotomous question.

13.3.4 Merits of a Questionnaire

As said above, a questionnaire is an important tool of primary data collection. However, using questionnaire as a research tool has its own advantages and disadvantages, and hence, should only be used depending on the requirements of the research. For example, some research might demand elaborate subjective opinion from the respondents. In that case, a questionnaire would not prove to be fruitful in terms of data. Whereas, a research, which demands objective answers from respondents, would benefit a lot from a well designed, good and crisp questionnaire. Hence, as per the need of the research concerned, a questionnaire can primarily be divided into closed questionnaires and open-ended questionnaires. To elaborate further, we shall discuss a few merits and demerits of questionnaires in general that fit into both the categories.

- **Cost effective:** The best thing about a questionnaire is that it is cost effective. It is economical in terms of both time and money, to say the least, since it does not always require the researcher to interact with the respondents at a personal level. It thus saves research time, which is precious, and money as there is not a lot of travelling involved. Further, a large number of data can be collected from a large population in a very less time, making it one of the most convenient tools for conducting objective research.
- **Standardization of facts:** As a research tool, a questionnaire makes the data easy to analyze. The data collected through a questionnaire can thus be used to arrive at a generalization regarding a particular research finding. Questionnaire is the

easiest way to derive patterns of social realities on the basis of information received from the data. It also helps the researcher to codify the patterns, further making it useful as quantitative data.

- **Comparable:** One important benefit of using questionnaire as a research tool is that of comparability. The data collected through multiple questionnaires on the same topic from different respondents can be compared to arrive at generalizations or patterns of social reality. A skilful researcher may design the same set of questions in different and tactful ways for potentially diverse response from the same respondents. Though a questionnaire does not leave much room for the researcher to peak into the subjectivities of the answers provided by the respondents, the said trick proves to be useful in most cases.
- **Anonymity:** Anonymity provides most respondents with the comfort to answer certain questions that they think might be controversial or uncomfortable. A Questionnaire also ensures a kind of detachment from the answer provided, making the respondents flexible with their opinions. Without having to write one's name on it, one becomes free from the fear of unwanted associations, thus being able to contribute towards an objective data.
- **Quantifiable:** Questionnaire can help provide data which is quantifiable, that is, data which can be standardized and used for further research in similar and extended areas. A closed questionnaire is more effective in deriving quantified data.

13.3.5 Demerits of a Questionnaire

- **Lack of Personal Contact with Respondents:** One of the major demerits of questionnaire as a tool of data collection is that it does not allow the researcher to have personal interaction or contact with the respondents. This disadvantage also leads to further disadvantages throughout the process of the research, such as lack of subjective and diverse

perspectives in the research, including lack of empathy, issues of validation, etc. No personal contact between the researcher and the respondents also generates a sense of detachment on the part of both the parties, resulting in a danger of the research being taken casually.

- **Poor response:** This immediately follows the above mentioned disadvantage. A Questionnaire always runs the risk of gaining poor response among the respondents. This could be because of multiple reasons such as laziness, unwillingness, busyness and other personal reasons of the respondent, but the primary reason is generally lack of personal contact between the researcher and the respondent. This could also lead to situations like incompletely filled questionnaires or half-hearted responses.
- **Issue of validation:** Questionnaire as a research tool can face serious issues of validation. Questionnaire is always done in written format and since not all of the respondents may be well-versed in the language used, there may be misinterpretation of the questions asked. This will obviously result in poor quality data or wrong data, thus hampering the findings of the research. Further, the researcher might not be physically present while the questionnaire was being filled up (in terms of online questionnaire or postal questionnaire). Hence, there is no way that the researcher can explain a difficult question or rephrase it to make it understandable for the respondent. This also means that the researcher would generally be clueless about any manipulation of information by the respondents.
- **Misinterpretation:** In the case of questionnaire, the issue of misinterpretation can be faced by both respondents and the researcher, since the researcher is often not present while the respondent is filling the questionnaire and the respondents too are likely to not be present while the researcher is interpreting the responses. The researcher might also face the problem of legibility in responses filled in by respondents, due to bad

handwriting or unclear answers (in case of open-ended questionnaires).

- As mentioned above, preparation of a questionnaire has a lot to do with the quality of the data collected. A good questionnaire is most likely to lead the researcher to a good quality data. Despite the limitations that it is susceptible to, questionnaire is a very popular tool of collecting data in both qualitative and quantitative research methods.

13.3.6 Differences between Questionnaire and Schedule

It is a common tendency among researchers to use questionnaire and schedule interchangeably, and they do seem to be similar in certain cases. However, there are quite a few differences between the two.

- Both consist of a series of pre-set questions to be answered by the respondents, but the fundamental difference between a questionnaire and a schedule is that the questionnaire has to be filled by the respondents, while a schedule must be filled by the enumerator or the researcher herself on behalf of the respondents.
- Both are primary methods of data collection in which data is obtained by asking questions, but a questionnaire is designed to collect data from large, diverse and widely scattered groups of people whereas a schedule usually caters to a smaller population with whom the researcher interacts personally.
- A questionnaire may or may not involve personal interaction (can be sent to the respondent via mail to be filled online or by post) whereas a schedule fundamentally involves personal interaction between the researcher and the respondents.
- Both have same pre-set questions for all the respondents to ensure reliability of data. But in most cases, a questionnaire is comparatively rigid, using standardized words and phrases to get uniform results. A schedule on the other hand is more flexible,

allowing the interviewer to modify the questions as per requirement of the interview scene.

- The success of a questionnaire is majorly determined by the quality of the questions asked whereas that of a schedule depends on the honesty and competence of the interviewer. However, qualities that both questionnaire and schedule must possess as primary data collection tools are that they have to be clear and comprehensible and at the same time sensible to the respondents, and they both must be prepared responsibly so as to bring out data of rich quality.



CHECK YOUR PROGRESS

Q 2: State whether the following statement is true or false.

Questionnaire is a cost effective tool for data collection. True or false

Q 3: Fill in the blanks.

(a) In a schedule, the answers of the respondents are filled up by_____.

(b) A schedule allows _____ to the interviewer in terms of reframing questions.

(c) Questionnaire and interview are both _____ tools of data collection.



13.4 LET US SUM UP

- A questionnaire is one which consists of a number of questions printed or typed in a definite order or on a form or set of forms. It is given to the respondents who are expected to read, understand, and write down their reply in the space provided.
- Questionnaire can primarily be divided into closed questionnaires and open ended questionnaires.

- Questionnaire can be structured or semi-structured, depending on the needs of the research.
- Structured or closed questionnaires usually consist of pre-set options from which respondents need to choose their answer.
- Semi-structured or open-ended questionnaires consist of fixed questions but leave space for the respondents to answer in their own words.
- A good questionnaire should be comprehensible by the respondents.
- A good questionnaire should consist of logical questions looking for logical answers.
- A good questionnaire should avoid questions that may be embarrassing or annoying for the respondents.
- A good questionnaire should be designed in such a way that it draws the interest of the respondents. Failure to do so might lead to failure of the questionnaire to collect adequate data.
- Questionnaire as a data collection tool is cost effective. It is economical both in terms of time and money.
- Questionnaire makes the data easy to analyze. The data collected through questionnaire can be used to arrive at a generalization regarding a particular research finding and deriving patterns of social realities.
- Use of questionnaire makes data easily comparable and hence quantifiable.
- One of the major demerits of questionnaire as a tool of data collection is that it does not allow the researcher to have personal interaction or contact with the respondents, followed by poor response rate, issue of validation and misinterpretation.
- A questionnaire has to be filled by the respondents, while a schedule must be filled by the enumerator or the researcher herself on behalf of the respondents.
- A questionnaire collects data from large, diverse and widely scattered groups of people whereas a schedule usually caters to a smaller population with whom the researcher interacts personally.



13.5 FURTHER READING

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(2) Kothari, C.R., (2004) Research Methods and Techniques. New Delhi. New Age International Publisher.

(3) Kvale, S., (1996) InterViews: An Introduction to Qualitative Research Interviewing. Sage.

(4) Rubin, H.J., and Rubin, I. S., (2004) Qualitative Interviewing: The Art of Hearing Data. 2nd Edition. Sage. Young, P.V., (2009) Scientific Social Surveys and Research. New Delhi. Prentice Hall.

Web Sources:

1) http://www.londoninternational.ac.uk/sites/default/files/ programme_ resources/lse/lse_pdf/subject_guides/sc2145_ch1-3.pdf



13.6 ANSWERS TO CHCK YOUR PROGRESS

Ans to Q No 1: (a) Pre-set (b) Comprehensible

Ans to Q No 2: True

Ans to Q No 3: (a) Interviewer (b) Flexibility (c) Primary



13.7 MODEL QUESTIONS

Short Questions (Answer each question in around 150 words).

Q 1: Distinguish between questionnaire and schedule

Q 2: Briefly explain the different types of questionnaire.

Long Questions. (Answer each question in around 300-500 words)

Q 1: Discuss how to prepare a good questionnaire.

Q 2: Discuss the merits and demerits of questionnaire.

Q 3: Explain the features of a good questionnaire.

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UNIT 14: INTERVIEW TECHNIQUES - II

UNIT STRUCTURE

14.1 Learning Objectives

14.2 Introduction

14.3 Case Study

- 14.3.1 Objectives and Characteristics of Case Study Method
- 14.3.2 Forms of Case Study
- 14.3.3 Steps in Case Study
- 14.3.4 Advantages of Case Study
- 14.3.5 Disadvantages of Case Study

14.4 Focus Group- Meaning and Definition

- 14.4.1 Characteristics of Focus Group
- 14.4.2 What Focus Group can and cannot tell you ?
- 14.4.3 Steps for Conducting a Focus Group Discussion
- 14.4.4 Significance of Focus Group Discussion
- 14.4.5 Advantages of Focus Group Discussion
- 14.4.6 Disadvantages of Focus Group Discussion

14.7 Let Us Sum Up

14.8 Further Reading

14.9 Answer to Check Your Progress

14.10 Model Questions

14.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- discuss case study method of conducting research
- explain how to make empirical enquiry about a contemporary phenomenon through the case study method
- discuss the advantages and disadvantages of case study method
- discuss focus group discussion as a method of conducting research
- explain the necessary steps for conducting a focus group discussion
- discuss the advantages and disadvantages of focus discussion.

14.2 INTRODUCTION

This is the concluding unit of this course. In the previous unit, we discussed some important issues relating to construction of a questionnaire. In this Unit, we shall discuss two important techniques of conducting interviews, viz, case study and focus group discussion.

It is expected that with this Unit, you will get a proper insight into the important areas of research methodology in Economics.

14.3 CASE STUDY

In simple terms, Case study is an in depth study of a particular situation. It is a method through which a very broad area of research is narrowed down into one easily researchable topic. Case study methods attempts to find out the reasons behind the behaviour pattern of the study subjects and its relationship with the environment.

According to P.V.Young, "case study is a comprehensive study of a social unit, be it a person, a group of persons, an institution, a community or a family

Kromrey says that case study involves studying individual cases, often in their natural environment and for a long period of time.

According to Goode and Hatt, " Case study is a method of exploring and analysing the life of a social unit".

Thus, we can say that case study is a method that serves different purposes- describing, exploring and explaining a situation as well as generating a theory. It involves qualitative methods of research and presents a holistic account about a particular phenomenon.

14.3.1 Objectives and Characteristics of Case Study Method

Objectives of Case study Method

- The first and foremost objective of case study method is to analyse the behavioural patterns of a single unit and its relations with the environment.

- Another major objective of a case study is that it forms the basis for a detailed study in the future. So we can say that case study is a preliminary form of investigation.
- Case study determines and defines the research question and develops hypothesis in a quantitative study.
- Case study is used by researchers to refute generalization in research.
- One of the objectives of case study is to test whether a quantitative study can be done or not.
- Case study explores, explains and describe a particular situation.

Characteristics of Case Study Method

- In case study a small number of unit is studied.
- It studies the units in totality and not some specific aspects or variables of the units.
- Case study can be qualitative or quantitative
- In this method, one unit is considered to be one study
- Case study covers a wide cycle of time
- In this method the case is the core or centre of enquiry.

14.3.2 Forms of Case Study

For different purposes of evaluation, researchers opt for different types of case study methods. Some of those are explained below-

- **Intrinsic Case study:** The study of a case (person, group, department, community) where the case itself is the primary interest in exploration is known as intrinsic case study. Here the researcher does not have to select one particular case. For example, evaluating the implementation of a new principle in an organization.
- **Instrumental Case study:** In this kind of case study, the researcher begins with a research question and make use of a case that simplifies or illuminates his analysis. So we can say

that in Instrumental case study, the case is simply a preliminary technique that paves way for further research. For example, a researcher interested in women and food habits might set up a study with middle aged women and calcium intakes in their food. In this case, the women and the food habits are not the focus. The focus is learning the relationship between women and the food habits, and why certain women have weaker bone.

- **Pilot case study:** Sometimes a researcher conducts some condensed studies before implementing a large-scale investigation. Such studies are called pilot or exploratory case studies. The main objective of this kind of case study is to have identifying research question and selecting types of measurement.
- **Cumulative Case study:** In cumulative case study the researcher aggregate information about the same unit that has been previously collected at different times. This allows him to generalize information on the basis of past data. It also saves time, money and energy.
- **Illustrative Case study:** Illustrative case studies are descriptive in nature. In this type of case study one or two instances of the same events is used to describe an existing situation. Such as study familiarises the researcher with the research area.
- **Historical case study:** Historical case study is dependent on recordings, documents and interviews. This type of study traces the development of a person, organization or a system over time. For example, the study of a political party from its formation till its rise to power.
- **Situational case study:** Situational case study studies a particular event or situation. All participants of the event are sought and their views are recorded. That helps the researcher understand and analyse the situation as a whole. For example, the reasons behind strike of workers in a factory. Here the management, the participant workers, the police forces who arrived at seen to control the situation are all interviewed.

14.3.3 Steps in Case Study Method

A good case study can be conducted if the following steps are followed:

Step 1: Selection of the Case - Whether or not to opt for a Case Study depends on the type of research a person is conducting. If a case study is required, then he/she has to identify the main objective of conducting the study. The selection of a particular case depends on whether the study is simply a preliminary reading for further investigation or whether the researcher is interested in solving a particular problem through the Case Study.

Step 2: Collection of Data - After selecting the case, the researcher has to make preparations for date collection through the case. Here, he/she can use different methods such as personal interviews, survey of records and interviews etc. Generally quantitative techniques of data collection are applicable in this procedure.

Step 3: Preliminary Data Analysis - The third stage in a case study is systematically analysing the preliminary data collected from the case. This will help the researcher to raise more important questions relating to the research as well as to form relevant hypothesis.

Step 4: Thorough study of the case - After identifying the important questions and constructing the hypothesis the researcher conducts a thorough study of the case. Here, he/she uses the method of prolonged observation and formal as well as informal interviews. The researcher keeps on investigating until he/she finds satisfactory answers to the problem and can draw a clear picture of the investigation.

Step 5: Follow-Up Investigation- In order to ensure the reliability of the data so far collected, the researcher repeats the process of observation and interview and reaises questions whenever and wherever necessary. This follow -up helps him/her to arrive at reliable and valid conclusions.

Step 6: Generalization of the findings-Through the conclusion of the case study, the researcher ensures a generalization of the data collected and analysed. Through this generalization he/she can draw a clear picture of the investigation and extend this understanding to arrive at a conclusion.

14.3.4 Advantages of Case Study Method

- Case study method is an intensive investigation and exploration of a unit through which a researcher can understand an event deeply and thoroughly.
- Case studies expose the researcher to real life situations which is otherwise difficult. That's why we can say that case study simplifies complex concept.
- Through case study the continuous analysis of the life of a social unit can be conducted in order to dig-out the facts.
- It is a very important tool of hypothesis formulation in a research area.
- Case study helps the researcher to make comparison about the different types of facts collected during the study.
- Case study improves analytical thinking, communication skill, tolerance, capability and logical mindset of a researcher.
- It increases the researcher knowledge about a particular social phenomenon
- Case study method is a comprehensive method of data collection in research. It is an inclusive study that enables the researcher to understand a broad range of topics.
- Case study method helps the researcher to develop a questionnaire and interview schedule.

14.3.5 Disadvantages of Case Study Method

- It is difficult to find appropriate case studies for all types of research.
- Case study has limited representatives because it focuses on

single units as a whole. That is why generalization through case study may not always be correct.

- Due to his/her deep connection with the participants, the researcher may develop subjectivity while conducting a case study.
- Case study is not an easy and simple method of research. It is very difficult for a lay-man to conduct a case study.
- Case study is a time consuming instrument of data collection. Hence it may not be the best medium for short term research
- As it is a narrow study, discrimination and biased can occur while investigating a social unit.
- In case study method, there is a huge possibility of memory and judgement errors both on the part of the participants and the observer.
- It is very difficult to draw a definite cause/effect from case studies.



CHECK YOUR PROGRESS

Q 1: Who introduced the method of case study in research?

Q 2: Mention any two objectives of case study

14.4 FOCUS GROUP: MEANING AND DEFINITION

In simple terms, a focus group is a small group of six to ten people who are led through an open discussion by a skilled moderator. The main goal of the moderator is to carry forward an open and spontaneous discussion among the participants so that all the participants can express maximum number of ideas and opinions.

A focus group discussion is a good way to gather people from similar experiences and backgrounds and discuss a specific topic of interest. This kind of interviews were originally called "Focussed interviews" or "Group-

depth interviews". This technique of interview was developed after World War II. Since then it has become an important method of data collection in social science.

According to Kruger, "Focus group discussion is a carefully planned discussion design to obtain perception on a defined area of interest in a permissive, non-threatening environment."

Focus group discussions are defined as semi structured group discussions, which yield qualitative data on the community level by facilitating interaction between participants.

14.4.1 Characteristics of Focus Group

- A focus group discussion usually consist of six to ten participants.
- The moderator engages the participants in small talks and gradually builds rapport amongst them.
- The moderator does not join the conversation between the participants.
- In a focus group interview, the participants should talk no more than about an hour.
- Recording the focus group discussion is a must
- In a focus group discussion small issues should be discussed and bigger issues must be avoided.
- The moderator should always maintain impartiality particularly in facial expression and verbal comments.
- In a focus group discussion the participants are always explained the purpose and outcome of the discussion.
- Focus group discussion is a voluntary process where conversation flows among the participants.
- This type of discussion is relaxed, comfortable and often enjoyable for participants as they share their ideas and perception.

14.4.2 What Focus Groups Can and Cannot Tell You

As a method of data collection, focus group can be fun and useful but often an inexperienced moderator may be led astray by focus group discussion because opinions of the participants can often be misleading and subjective. Therefore if a researcher strictly relies on such a discussion as a research strategy, then he/she should have a clear idea about what focus groups can and can not tell him/her. These can be pointed out as follws-

What focus groups can tell you?

- Give an idea on how some people think or feel about a certain issue.
- Give an insight on why people held certain opinions
- Help improve the research planning and research design
- Gives a scope for evaluating the problem at hand
- Gives an insight for developing the research strategy

What focus groups cannot tell you?

- Valid information about individual
- A definite information about how things have changed over time with regards to a particular issue.
- Information that the researcher can applied generally to other groups of people as well
- Can not provide random samples for the study.

14.4.3 Steps for conducting a Focus Group Discussion

Generally there are four distinct step used to conduct focus group discussion. These are-

- Question designing
- Selection and preparation of participants
- Organizing the interview
- Analyzing the data

These are discussed in some detail as below:

Question designing: The first and foremost task of the researcher

or moderator in a focus group discussion is to design the questions to be addressed during the discussion. Generally eight to twelve questions are prepared by the researcher. The questions should be simple, short, open-ended and to the point because the participants wont have a chance to see the questions. Generally three types of questions are used in focus group discussion- engagement questions (introduction of participants to make them comfortable with the topic of discussion), exploratory questions (in order to gather as much information as possible) and finally exit questions (to verify whether anything important was left out during the Discussion).

Selection and preparation of participants: Ideally in a focus group discussion the participants do not know each other but should have a common background and must be comfortable with one another. So we can say that in order to get maximum information out of a focus group, the researcher should select a homogenous group of participants. In this regard some important criteria's that are focussed on are gender, age, position in society, economic background etc. On the basis of these criteria's the researcher includes or excludes individual.

The selection process is arranged using a number of ways such as- i) Nomination (individuals with knowledge about the research area nominate people who they think would make good participants),ii) Random selection (participants from a large but defined group can be randomly selected until the researcher attains the desired number of required participants), iii) All members of a group (in some cases all members of an existing group can participate in a focus group discussion, for instance the owners of an MNC), iv) Similar position (here the researcher selects people on the basis of their roll, position, job title or condition), v) Voluntary participants (in case where the selection criteria is broad)

After selecting the focus group, the researcher must contact all the participants and conform their interest and availability. On the basis of that he/she should organize the time and location of the

focus group discussion and inform everyone concerned. The participants should also be informed about the duration of the interview and the issues to be discussed. Efforts should be made to make them feel easy and comfortable.

Organizing the Interview: An ideal focus group is conducted by a moderator with the help of an assistant moderator. Generally, the researcher plays the role of the moderator and carries forward the different discussion in the focus group. The assistant moderator takes notes and records the entire focus group discussion. The first thing a moderator should do in the beginning of the discussion is to take consent of all participants. He/she should create a friendly and easy environment for all the participants to open-up and put forward their views. He also addresses the purpose of the discussion, sets ground rules and tries to adequately cover all issues within the time limit of the focus group. After the participants leave, the moderator and assistant moderator checks the notes and recording device used label them along with date, time and name of the group.

Analysing the data: Analysing the data gathered is the most important and critical job for the moderator. At first all information gathered from the participants must be boiled down to select the one's useful and essential for the research. The researcher then may use different methods to analyse that information such as: labelling them under different columns, identifying categories and sub-categories of issues or summarizing different view point on the same issue. One's these findings are systematically organized they are ready for presentation.

14.4.4 Significance of Focus Group Discussion

Focus group discussions are often used as a tool of research so that the researcher can familiarise himself or herself with the situation at hand. The most important objective of a focus group is to find solution to different problems through flows of voluntary discussion. Group attitudes and believes can also be

investigated through such a discussion which is difficult to achieve through any other technique of data collection.

Generally, a researcher employs the use of focus group discussion in the beginning of studying the problem. This helps him/her to generate ideas at the exploratory stage of the study. Moreover, focus groups are very useful when the researcher aims to investigate complex ideas and behaviours. The open-ended questioning of a focus group helps the researcher to arrive at the depth of the problem. At the same time the different opinions of the participants can help the researcher to explore differences and commonalities about the situation.

Focus group discussion can help the researcher to develop the framework for conducting further research. His understanding of quantitative data will also depend through analysis of the results of these discussions. However, the researcher must always be aware that the participants might not be entirely honest and truthful about their opinions. At the same time misinterpretation and biased findings can be very damaging for further research. Therefore, the results of focus group discussion can be most fruitful only when the researcher is experienced, intuitive and does not take the opinions of the participants for granted.

14.4.5 Advantages of Focus Group Discussion

- The researcher can take advantage of the fact that people naturally interact and are influenced by others
- During the discussion participants often agree or disagree with others and thus create more energy and more data.
- Focus group discussion can provide more scope to understand perceptions, attitudes and experiences of the research subjects.
- Data can be provided more quickly and at lower cost than individual interviews
- The researcher can directly interact with the respondent as well as gain information from non-verbal responses during the

interview

- This type of interview is very flexible in nature and can involve a wide range of individuals, settings and topics.
- The data analysis process is very easy to conduct and results can be easily understood.

14.4.6 Disadvantages of Focus Group Discussion

- Focus group discussions are more difficult to manage than one on one interviews. Therefore the interviewer must be an experienced person
- The discussion may be inhabited by unexpected conflict, power struggle and other group dynamics among the participants.
- One or two person may dominate the whole discussion while ignoring or intimidating the other participants.
- Focus group discussion require trained moderator who knows about group dynamics otherwise he/she may knowingly or unknowingly misinterpret the responses of the participants
- The participants may not always be honest or sure about their responses about a particular issue.



CHECK YOUR PROGRESS

Q 3: What is meant by focus group? Answer in about 60 words.

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Q 4: What does a focus group describe? Answer in about 50 words.

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14.4 LET US SUM UP

- Case study method of research is an intensive study of a phenomenon.
- An English philosopher Frederic Leplay introduced this method which was adopted by social researcher like Herbert Spencer, Healey, Mitchell etc.
- Case study is not a method of data collection but is a research strategy or an empirical enquiry that uses multiple evidential sources.
- It involves qualitative methods of research and presents a holistic account about a particular phenomenon.
- The first and foremost objective of case study method is to analyse the behavioural patterns of a single unit and its relations with the environment.
- Case study explores, explains and describes a particular situation.
- It studies the units in totality and not some specific aspects or variables of the units.
- In this method the case is the core or centre of enquiry.
- For different purposes of evaluation, researchers opt for different types of case study methods such as Intrinsic Case study, Instrumental Case study, Pilot case study, Cumulative Case study, Illustrative Case study, Historical case study, Situational case study etc.
- Case studies help the researcher to connect with his/her research problem. These are in-depth analysis that makes the researcher simplify and understand the background of a particular case.
- Case study method allows the exploration, simplification and understanding of complex issues.
- Focus group discussion is a form of interview that occurs in a group setting and can reveal detailed information and deep insight about a particular situation.
- A focus group discussion is a good way to gather people from similar experiences and backgrounds and discuss a specific topic of interest

Generally, there are four step used for conducting focus group discussion. These are- Question designing, Selection and preparation of participants, Organising the Interview, Analysing the data.

- Focus group discussions are often used as a tool of research so that the researcher can familiarise himself or herself with the situation at hand
- Focus group discussion can help the researcher to develop the framework for conducting further research.



14.5 FURTHER READING

(1) Ahuja, Ram (2001): Research Methods, Rawat Publications, New Delhi.

(2) Chattopadhyay, Krichnadas & Sudarshana Sen (2013): Rudiments of Social Research, Levant Books, Kolkata.

(3) Kothari, C. R. (2004): Research Methodology - Methods and Techniques, New Age International (P) Ltd, New Delhi.



14.6 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: An English philosopher Frederic Leplay introduced the case study method.

Ans to Q No 2: Two objectives of case study are mentioned as below-

(1) The first and foremost objective of case study method is to analyse the behavioural patterns of a single unit and its relations with the environment.

(2) Another major objective of a case study is that it forms the basis for a detailed study in the future. So we can say that case study is a preliminary form of investigation.

Ans to Q No 3: A focus group is a small group of six to ten people who are led through an open discussion by a skilled moderator.

Ans to Q No 4: Focus group discussion can describes following:

- Give an idea on how some people think or feel about a certain issue.
- Give an insight on why people held certain opinions
- Help improve the research planning and research design
- Gives a scope for evaluating the problem at hand
- Gives an insight for developing the research strategy.



14.7 MODEL QUESTIONS

Short Questions (Answer each question in around 150 words).

Q 1: State the meaning of Pilot Case study.

Q 2: Why is case study an important technique of collecting data for research?

Q 3: Explain the concept of focus group discussion.

Q **4:** Explain the process of designing question for focus group discussion with example.

Q 5: What are the essential qualities for a good moderator?

Long Questions. (Answer each question in around 300-500 words)

Q 1: Discuss the various steps of case studies which are important in research.

Q 2: Explain the Significance of case study in research.

Q 3: Discuss the advantage and disadvantages of case study.

Q 4: Briefly discuss the step for conducting focus group discussion.

Q 5: Discuss the significance of focus group discussion.

Q 6: Discuss the advantages and disadvantages of focus group discussion?



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Web Sources:

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