Study Guide

METHODS OF SOCIAL RESEARCH

BS Sociology

Code No: 9450/9438

Unit: 1-9



Department of Sociology
Faculty of Social Sciencs & Humanities
ALLAMA IQBAL OPEN UNIVERSITY

STUDY GUIDE

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Department of Sociology
Faculty of Social Sciences and Humanities
Allama Iqbal Open University
Islamabad

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FOREWORD

Social research is a vital tool for understanding the complexities of human behaviour, social structures, and cultural dynamics. It equips us with the methods and frameworks needed to explore, analyse, and address the pressing issues that shape societies. "*Methods of Social Research"* is a course designed specifically for students of Allama Iqbal Open University (AIOU) in Pakistan and beyond, offering a comprehensive and accessible introduction to the principles, techniques, and applications of social research. Whether you are beginning your academic journey in sociology or seeking to refine your research skills, this course is tailored to meet your needs in a flexible and engaging manner, taking into account the unique demands of distance education.

This course is structured to guide you through the essential components of social research, from understanding the scientific method and research paradigms to formulating research problems, designing studies, and analysing data. Each unit is carefully crafted to provide clear explanations, practical examples, and case studies that are relevant to both Pakistani society and the global context. For instance, when discussing research design, you will encounter examples from local studies on social issues such as poverty, gender inequality, and community development, as well as comparisons with international research practices. These real-world connections are intended to help you understand how research methods can be applied to address pressing social challenges.

One of the key features of this course is its emphasis on critical thinking and practical application. Each unit includes self-assessment questions, discussion prompts, and activities designed to deepen your understanding and encourage you to apply what you have learned. By engaging with topics such as sampling techniques, hypothesis formulation, and data analysis, you will develop the skills needed to conduct rigorous and impactful research.

As students in Pakistan, you are uniquely positioned to explore and address the social issues that affect your communities. This course is designed to empower you with the knowledge and tools to think critically about these issues and contribute to meaningful change. Social research is not just about studying society; it is also about understanding how we can use evidence-based approaches to create a more just and equitable world.

We hope this course will inspire you to approach the field of social research with curiosity, intellectual rigour, and a commitment to making a difference. May it serve as a valuable resource in your academic journey and beyond, helping you to

better understand the social forces that shape our lives and the role you can play in shaping the future.

Welcome to the study of the course "*Methods of Social Research"*.

Prof. Dr. Nasir Mahmood
Vice Chancellor, AIOU

ACKNOWLEDGEMENTS

As the **Course Development Coordinator**, I extend my heartfelt gratitude to all those who contributed to the development of this coursebook. I am especially grateful to **Prof. Dr. Abdul Aziz Sahir**, Chairperson, for his unwavering support and leadership throughout this process. I also deeply appreciate the scholarly contributions of the **Course Reviewers, Prof. Dr. Hazir Ullah** and **Dr. Akhlaq Ahmad**, whose critical insights and academic expertise have significantly enhanced the quality of this work.

A special note of thanks goes to the dedicated **faculty of the Sociology Department**, whose encouragement, feedback, and scholarly discussions have been invaluable in refining the content of this coursebook. Their commitment to academic excellence continues to inspire and shape the learning experience for students. Additionally, I extend my appreciation to the **editorial team** for their meticulous review and attention to detail, ensuring clarity, coherence, and precision in the final manuscript.

The collective efforts of this esteemed team have played a crucial role in producing a coursebook that will serve as a valuable resource for students and researchers alike.

Dr. Nasim Khan Mahsud
Course Coordinator

INTRODUCTION

Social research is the cornerstone of understanding human behaviour, social structures, and cultural dynamics. It provides us with the tools to systematically investigate and analyse the complexities of society, enabling us to address pressing social issues and contribute to meaningful change. The course *Methods of Social Research* is designed to introduce you to the fundamental principles, techniques, and practices of social research, equipping you with the skills necessary to conduct rigorous and impactful studies.

This course is structured to guide you through the entire research process, from understanding the basics of scientific inquiry to designing and executing research projects. Whether you are a student of sociology or any other social science discipline, this course will help you develop a strong foundation in research methods that can be applied to both academic and real-world contexts.

The course begins with **Unit 1: Introduction to Research Methods**, where you will explore the nature of science, the scientific method, and the aims and functions of research. You will also learn about the different types of social research, the paradigms that guide sociological inquiry, and the norms of the scientific community. This unit will also introduce you to the debate surrounding value-free sociology, encouraging you to reflect on the role of values in research.

In **Unit 2: Elements of Enquiry**, you will delve into the building blocks of research, such as concepts, variables, and their relationships. You will learn how to conceptualise and operationalize key ideas, which are essential for designing effective research studies. This unit will also help you understand the importance of clarity and precision in defining research elements.

Unit 3: Selection and Formulation of Research Problem focuses on identifying and defining a research problem. You will explore the determinants of problem selection, the components of a research proposal, and the steps involved in conducting a study. This unit will help you develop the skills needed to formulate research questions that are both significant and feasible.

Unit 4: Review of Literature and Theoretical Framework emphasises the importance of reviewing existing literature and developing a theoretical framework.

You will learn how to identify relevant sources and use them to refine your research questions. This unit will also highlight the role of theory in guiding research and interpreting findings.

Units 5 & 6: Use of Computers introduce you to the role of technology in modern research. You will explore how to use computers for literature searches, online and offline data collection, and managing research data. These units will help you leverage digital tools to enhance the efficiency and scope of your research.

Unit 7: Formulation of Hypothesis focuses on the development of testable hypotheses. You will learn about the sources and types of hypotheses and how to formulate them effectively. This unit will help you understand the importance of hypotheses in guiding research and testing theories.

Unit 8: Population and Sampling covers the principles of sampling, including sample size, sampling frames, and different sampling techniques. You will understand how to select representative samples for your research, ensuring that your findings are valid and generalizable.

Finally, **Unit 9: Study Design** provides an overview of various research designs, including focus group discussions, participatory rural appraisal (PRA), and case studies. You will learn how to choose the appropriate design for your research objectives, ensuring that your study is both rigorous and relevant.

Throughout the course, you will engage with real-world examples, case studies, and practical exercises that will deepen your understanding of social research methods. By the end of this course, you will be well-prepared to design, conduct, and critically evaluate social research studies.

We hope that this course will not only enhance your research skills but also inspire you to contribute meaningfully to the field of social sciences. Let us embark on this journey of discovery and learning together.

Dr. Nasim Khan Mahsud
Course Coordinator

OBJECTIVES OF THE COURSE

The course *Methods of Social Research* is designed to provide students with a comprehensive understanding of the principles, techniques, and applications of social research. By the end of this course, students will be able to:

1. **Understand the Foundations of Social Research**:
    - Explain the nature of science and the scientific method.
    - Define research, its functions, aims, and significance in the social sciences.
    - Differentiate between various types of social research and their applications.
2. **Grasp Key Concepts and Frameworks**:
    - Identify and define key elements of research, such as concepts, variables, and hypotheses.
    - Understand the process of conceptualisation, and operationalisation in research design.
    - Analyse the relationships among variables and their role in research.
3. **Formulate and Design Research Problems**:
    - Develop the skills to identify, select, and formulate meaningful research problems.
    - Understand the components of a research proposal and the steps involved in conducting a study.
    - Assess the feasibility and significance of a research problem.
4. **Conduct Literature Reviews and Develop Theoretical Frameworks**:
    - Learn how to review and synthesise existing literature to inform research questions.
    - Understand the role of theoretical frameworks in guiding research and interpreting findings.
    - Identify credible sources and use them to refine research problems.
5. **Utilise Technology in Research**:
    - Gain proficiency in using computers and the internet for literature searches and data collection.

- Understand the value of online and offline research tools.
- Learn how to manage and organise research data using digital tools.

6. **Formulate and Test Hypotheses**:
    - Define hypotheses and understand their sources and types.
    - Develop testable hypotheses that align with research objectives.
    - Understand the role of hypotheses in guiding research and testing theories.
7. **Understand Sampling Techniques**:
    - Define key sampling concepts, such as population, sample, and sampling frame.
    - Learn about different sampling methods and their applications.
    - Determine appropriate sample sizes for research studies.
8. **Design Research Studies**:
    - Understand the various types of research designs and their suitability for different research questions.
    - Learn about qualitative and quantitative research methods, including focus group discussions, participatory rural appraisal (PRA), and case studies.
    - Develop the ability to choose and justify appropriate research designs for specific studies.
9. **Apply Ethical and Normative Standards**:
    - Understand the norms of the scientific community and the importance of ethical research practices.
    - Reflect on the debate surrounding value-free sociology and the role of values in research.
    - Develop a commitment to conducting research that is objective, transparent, and socially responsible.
10. **Enhance Critical Thinking and Analytical Skills**:
    - Develop the ability to critically evaluate research studies and their findings.
    - Apply research methods to analyse social issues and contribute to evidence-based solutions.

- Cultivate a mindset of curiosity, rigour, and innovation in social research.

By achieving these objectives, students will be equipped with the knowledge and skills necessary to conduct independent research, contribute to academic and professional fields, and address real-world social challenges. This course aims to empower students to become thoughtful, skilled, and ethical researchers who can make meaningful contributions to society.

ORGANIZATION OF THE COURSE

Methods of Social Research is a semester course of three credit hours, meticulously structured to make it accessible and manageable for students pursuing their studies through distance education. The course consists of nine units, each designed to be completed in one week with approximately 12-16 hours of study time. This includes studying the prescribed reading material, engaging with self-learning activities, and completing self-assessment exercises. The course is organized to foster the skill of self-learning, enabling students to develop a deep understanding of research methods and their applications. At the beginning of the course, you will find a course content overview, foreword, and introduction, which provide a comprehensive understanding of the course and its objectives. Each unit is structured to build a strong foundation in research methods, supported by examples from Pakistani society and global contexts to enhance understanding.

HOW THE COURSE IS ORGANIZED:

1. **Course Content, Foreword and Introduction**:
    - Provides an overview of the course, its objectives, and the structure of the study material.

2. **Unit Outlines and Learning Objectives**:
    - Each unit begins with a clear outline of its major themes and sub-themes.
    - Specific learning objectives are provided to guide your study and help you identify the key knowledge and skills you should acquire by the end of the unit.

3. **Simplified Explanations and Examples**:
    - Complex research concepts are simplified and explained with relatable examples from Pakistani society and global contexts.

4. **Prescribed Reading Material**:
    - Each unit includes a list of required readings that are essential for successful completion of the course. These readings are carefully

selected to complement the study guide and provide a deeper understanding of the topics.

5. **Self-Assessment Questions**:
    - At the end of each unit, you will find self-assessment questions designed to help you evaluate your understanding of the material and reinforce key concepts.

6. **Assignments and Final Examination**:
    - Assignment No. 1 is due after completing the first four units, and Assignment No. 2 is due after completing the next four units.
    - The final examination will cover all nine units, with a focus on integrating knowledge from the entire course.

HOW TO USE THE READING MATERIAL:

As this is a distance education course, the study material has been organised to help you develop a self-learning process in the absence of formal classroom teaching. Follow these steps to make the most of your study time:

1. **Step 1**: Read the course description thoroughly to understand the scope and objectives of the course.
2. **Step 2**: Familiarise yourself with the structure of the course and how to use the reading material effectively.
3. **Step 3**: Complete an initial quick reading of the required study material to get an overview of the content.
4. **Step 4**: Conduct a second, more detailed reading, taking notes on points that are unclear or require further clarification.
5. **Step 5**: Attempt the self-assessment questions at the end of each unit to test your understanding and reinforce key concepts.
6. **Step 6**: Revise your notes and revisit any challenging topics. You may find that concepts become clearer as you engage with the material repeatedly.
7. **Step 7**: Prepare for workshop classes by reviewing the material and noting questions or topics you wish to discuss with your teacher.
8. **Step 8**: Conduct a final reading of the study material to consolidate your understanding before the final examination.

METHODS OF ASSESSMENT:

Your performance in this course will be assessed through the following components:

1. **Assignments**:
    - Two assignments are required for this course.
    - Assignment No. 1 covers the first four units, and Assignment No. 2 covers the next four units.
2. **Workshops/Quiz**:
    - Participation in workshops is encouraged to enhance your understanding of the course material and attempt course-based quizzes.

3. **Final Examination**:
    - The final exam will cover all nine units, with an emphasis on integrating knowledge from the entire course.

STUDY CHART:

To help you stay on track, follow this study chart:

1. **Step 1**: Read the course description thoroughly.
2. **Step 2**: Understand how to use the reading material.
3. **Step 3**: Complete an initial quick reading of the study material.
4. **Step 4**: Conduct a detailed second reading and take notes.
5. **Step 5**: Attempt self-assessment questions.
6. **Step 6**: Revise your notes and clarify challenging points.
7. **Step 7**: Prepare for workshops/quiz and complete assignments.
8. **Step 8**: Conduct a final reading before the exam.

By following this structured approach, you will be well-prepared to succeed in *Methods of Social Research*. We wish you the best in your academic journey and hope this course inspires you to explore the fascinating world of social research with curiosity and enthusiasm.

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Unit: 1

INTRODUCTION TO RESEARCH METHODS

Written By: Dr. Nasim Khan Mahsud
Reviewed By: Prof. Dr. Hazir Ullah

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INTRODUCTION

Research methods in sociology provide a systematic approach to understanding social phenomena. Sociology, as a science, relies on research methods to uncover patterns, relationships, and causations in human behaviour and social structures. The application of research methods ensures that sociological findings are empirical, objective, and replicable. By employing scientific techniques, sociologists can move beyond personal biases and assumptions to develop theories and policies based on observable evidence. This unit introduces key concepts related to research methods, including the scientific method, types of social research, research paradigms, and the principles governing the scientific community. This unit introduces students to the foundational concepts of research methods in sociology. It explores the scientific method, the nature of social research, and the ethical and philosophical underpinnings of sociological inquiry.

OBJECTIVES

- Understand the scientific method and its application in sociology.
- Define social research and its aims.
- Identify different types of social research.
- Explore the concept of research paradigms and their relevance.
- Discuss the norms of the scientific community and the issue of value-free sociology.

Major Topics

- Science and Scientific Method
- Research: Definition, Functions, Aims
- Types of Social Research
- Sociological Research: An Overview
- Research Paradigm
- Norms of the Scientific Community
- Issue of Value-Free Sociology

1.1 Science and Scientific Method

Science is a systematic and logical approach to discovering how things in the universe work. The scientific method involves a series of steps, including observation, hypothesis formation, experimentation, and conclusion. In sociology, the scientific method helps researchers study social phenomena objectively. For example, Durkheim's (1897) seminal study on suicide applied the scientific method to understand how social factors, such as religion and marital status, influence suicide rates. This approach emphasises empirical evidence and reproducibility, which are critical for establishing reliable knowledge (Bryman, 2016). In the Pakistani context, the scientific method can be used to study issues like poverty, education disparities, and gender inequality. For instance, a study on gender disparities in education might begin with observing enrolment rates, forming hypotheses about cultural barriers, and testing these hypotheses through surveys or interviews (Ali & Khan, 2020). Science is a systematic approach to acquiring knowledge through observation, experimentation, and logical reasoning. The scientific method is a structured process used by researchers to investigate phenomena, formulate hypotheses, conduct experiments, analyse data, and derive conclusions. In sociology, the scientific method helps in studying social behaviour systematically, ensuring the credibility and validity of findings.

1.1.1 The Scientific Method

Sociologists make use of tried-and-true methods of research, such as experiments, surveys, field research, and textual analysis. But humans and their social interactions are so diverse that they can seem impossible to chart or explain. It might seem that science is about discoveries and chemical reactions or about proving ideas right or wrong, rather than about exploring the nuances of human behaviour. However, this is exactly why scientific models work for studying human behaviour. A scientific process of research establishes parameters that help make sure results are objective and accurate. Scientific methods provide limitations and

boundaries that focus a study and organise its results. This is the case for both positivist and quantitative methodologies and interpretive and qualitative methodologies. The scientific method involves developing and testing theories about the world based on empirical evidence. It is defined by its commitment to systematic observation of the empirical world and strives to be objective, critical, sceptical, and logical. It involves a series of prescribed steps that have been established over centuries of scholarship.

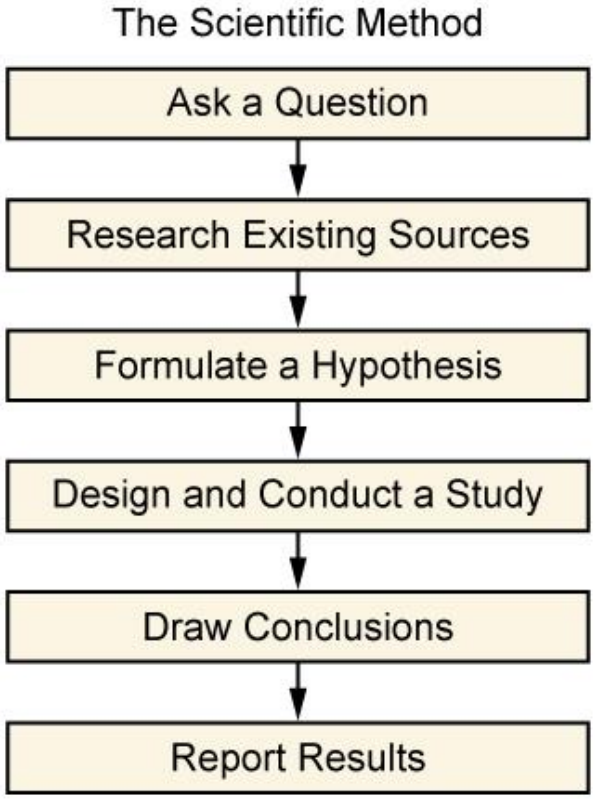


Figure 2.2. The scientific method is an essential tool in research.

But just because sociological studies use scientific methods does not make the results less human. Sociological topics are not reduced to right or wrong facts. In this field, results of studies tend to provide people with access to knowledge they did not have before—knowledge of other cultures, knowledge of rituals and beliefs, knowledge of trends and attitudes. No matter what research approach is used, researchers want to maximise the study's **reliability** (how likely research results are to be replicated if the study is reproduced). Reliability increases the likelihood that what is true of one person will be true of all people in a group. Researchers

also strive for **validity** (how well the study measures what it was designed to measure).

Returning to the Disney World topic, the reliability of a study would reflect how well the resulting experience represents the average experience of theme park-goers. Validity would ensure that the study's design accurately examined what it was designed to study, so an exploration of adults' interactions with costumed mascots should address that issue and not veer into other age groups' interactions with them or into adult interactions with staff or other guests.

In general, sociologists tackle questions about the role of social characteristics in outcomes. For example, how do different communities fare in terms of psychological well-being, community cohesiveness, range of vocation, wealth, crime rates, and so on? Are communities functioning smoothly? Sociologists look between the cracks to discover obstacles to meeting basic human needs. They might study environmental influences and patterns of behaviour that lead to crime, substance abuse, divorce, poverty, unplanned pregnancies, or illness. And, because sociological studies are not all focused on problematic behaviours or challenging situations, researchers might study vacation trends, healthy eating habits, neighbourhood organisations, higher education patterns, games, parks, and exercise habits.

Sociologists can use the scientific method not only to collect but to interpret and analyse the data. They deliberately apply scientific logic and objectivity. They are interested in but not attached to the results. Their research work is independent of their own political or social beliefs. This does not mean researchers are not critical. Nor does it mean they do not have their personalities, complete with preferences and opinions. But sociologists deliberately use the scientific method to maintain as much objectivity, focus, and consistency as possible in a particular study. With its systematic approach, the scientific method has proven useful in shaping sociological studies. The scientific method provides a systematic, organised series of steps that help ensure objectivity and consistency in exploring a social problem. They provide the means for accuracy, reliability, and validity. In the end, the scientific method provides a shared basis for discussion and analysis (Merton 1963).

1.2 Research: Definition, Functions, Aims

Research is defined as a systematic inquiry aimed at discovering new knowledge or verifying existing theories. In sociology, research serves several functions, including identifying social problems, informing public policy, and enhancing theoretical understanding. The aims of research include explanation, prediction,

control, and improvement of social conditions. Research is a systematic investigation aimed at establishing facts, principles, or generalizable knowledge. It serves several functions, including exploration, description, explanation, and prediction. For example, exploratory research might investigate the rising trend of mental health issues among Pakistani youth, while descriptive research could document the prevalence of these issues across different regions (Neuman, 2014). Explanatory research seeks to identify causes, such as the impact of social media on mental health, while predictive research might forecast future trends based on current data. Research also plays a critical role in policymaking. For instance, the Pakistan Social and Living Standards Measurement (PSLM) survey provides data that informs government policies on poverty alleviation and education (Pakistan Bureau of Statistics, 2021).

1. C.C. Crawford: "Research is simply a systematic and refined technique of thinking, employing specialised tools, instruments & procedures to obtain a more adequate solution of a problem than would be possible under ordinary means." It starts with a problem, collects data or facts, analyses these critically based decisions the actual evidence. It evolves original work instead of a mere exercise of personal opinion. It is quantitative, seeking to know not only what but also how much and measurement is therefore a central feature of it.

2) Webster Dictionary: "A careful inquiry or examination in seeking facts or principles, diligent investigation to ascertain something."

3) Francis Bacon: "Research is a power of suspending judgement with patience of meditating with pleasures of asserting with caution, of correcting with readiness of arranging thought with scrupulous plan.

All human beings are some type of researchers who give meaning to, interpret and predict their social world. This work of researching and theorising about society encompasses an infinite number of topics. Some of us may be concerned with the election taking place in the social surrounding, while others may be concerned with drug addiction and violence in the society, some in the problem of unemployment, and some in the farmer's suicides that are taking place in the country, while some may be concerned with their personal lives, some may be concerned with the climate change taking place. We may as a whole be concerned with both the micro and the macro issues that are happening in our village and those happening at the global level. We are interested in understanding and explaining our everyday experiences. This basic sense of curiosity is the foundation of social science research.

Human beings are not receptors of ideas but react to them accordingly. Because of this nature of human beings, the social reality, which is always changing, poses many questions to the human race to understand, interpret, give meaning and predict to this changing social reality. Because of this dynamic character of both human beings and social reality, research in social sciences holds a special place. In such a situation, research becomes an important tool in understanding the reality and the causes that are leading to changes, as well as resisting changes. Therefore, social research is a systematic effort to gain new knowledge. Social research helps us add new knowledge by supporting or disagreeing with the existing forms of knowledge.

Various definitions of social science research have been put forward by scholars. Some of the important definitions of social research are as follows.

Social science research can be defined as the act of re-examining the social world with the goal of better understanding or explaining why or how people behave. This definition emphasises the rediscovery process that is always rooted in research. Therefore, the word 'research' can be interpreted as 'renewed search' or 're-examination'.

P.V. Young defines social research as "the systematic method of discovering the new facts or verifying the old facts, their sequences, interrelationships, causal explanations and the natural laws which govern them." Stephenson defines social research as "a manipulation of things, concepts or symbols generalisingto generalize to extend correct and verify knowledge, whether that knowledge aids in the construction of a theory or the practice of an art." Social research is also defined as comprising defining and redefining problems; formulating hypotheses or suggesting solutions; collecting, organising and evaluating data, making deductions and conclusions; and at lastly, carefully testing the conclusions to determine whether they fit the formulated hypothesis.

From the definitions discussed above, it is clear that research in social sciences seeks to add to the existing knowledge about reality. However, social research is not as simple as it seems, and the doing of social research includes methods and tools and techniques of research, which help us to draw causal relationships, inter-relationships between variables and testing of hypotheses. From the definitions it is also clear that the research is not a work for an ordinary person but a specialized work that needs to be done by trained and qualified people, so that the inquiry, re-examination of the reality is done in a systematic manner, which therefore depends on the disciplinary orientation of the researcher.

Social research involves learning something new about the social world. A researcher, therefore, needs to think logically, follow rules and repeat steps over and over. S/he combines theories or ideas with facts in a systematic way and uses his or her imagination and creativity

1.2.1 Scope of Social Research

To the question "what is the scope of social research?" one may reply "of what use is a newborn child?" in the manner of Benjamin Franklin, who replied thus, when asked about the utility of his findings about the relationship between thunder clouds & electricity. This means that new knowledge is like a newborn baby, it holds great potential for growth & maturity. From the foregoing discussion, it is amply clear that social research as a scientific tool to study & analyse social problems has immense value. It studies them in a purely scientific spirit, i.e. to understanding their structure. A social scientist records & collects significant facts & figures of social problems & this in turn makes it possible to correct generalisations about them. The basic scope of social research is to understand sooner or later, but correctly, the nature of social events & processes & though this is done without any motive of particular reforms, the conclusions cannot be ruled out. In brief, the following is the scope of social research.

1. **Knowledge Building:** Generalisations drawn have a certain effect on the established corpus of knowledge. A general proposition having been established as an outcome of research may extend the bounds of knowledge existing at a point in time. It may, if it does not fit a certain body of existing knowledge in the sense of not arguing well with the expectations that can be legitimately drawn from it, exert pressure on the scientist to bring about certain amendments or modifications in this body of knowledge given the discordant note struck by this new general proposition. Contrarily, if the generalisation fits the established corpus of knowledge, it lends added credence to it.

   It will be in order to elaborate at some length on the points made above. The role of general propositions in enlarging or extending systematic knowledge may take various forms. It is thus that a new set of facts is brought within the grasp of the established corpus of knowledge in a meaningful way. In consequence, the bounds of knowledge get enlarged not just quantitatively but also qualitatively. E.g.. A general conception of "relative deprivation" may serve as a useful means for examining the relation between a rise in wages & productive efficiency of workers.

   Another way in which a general conception may enlarge systematic knowledge is by bringing to light the seeming inconsistencies in the existing corpus of knowledge & attempting to reconcile these. For example. The findings of studies on the effects of "authoritarian" & "democratic" classroom atmospheres

on learning & not seen to be consistent. A new general conception of the nature of a research finding helps us to reconcile these findings by pointing out that, whatever the classroom atmosphere, the important thing is the extent to which the teacher behaves according to the expectations of the students.
Yet another way in which a new general conception extends knowledge & attempts to point out certain gaps in the existing corpus of knowledge & bridge these gaps. The general conception or finding emanating from research may have another impact on the established body of knowledge, i.e. correcting the errors in it. If the new general proposition derived through manipulation of things, concepts, or symbols is discordant with what one would expect logically on the basis of the existing body of knowledge or theory, the only alternative is to effect corrections or modifications in the original theory in the light of new evidence.

Thus, the new statements of generality emanating as research outcomes serves as scales for verification of the existing system of knowledge is only repeating the obvious. As has been noted research involves testing to find out whether the empirical observations presented as general statements are in accord with the predictions that may be made on the basis of the existing body of knowledge. If such is not the case, the system needs to be revised or even rejected. An important aspect of scientific activity is verification of conclusions which have found place in the established system of knowledge.

2. **Study of Social Problem:** Where there is knowledge, ignorance cannot exist. The best way of removing superstitions, blind beliefs etc. is to transplant true knowledge in their stead. Eg, Before the intensive social research came into crime, the social causes of crime were not realised & people thought that propensity to crime was inherited. But now all this has changed. Thanks to social research, we no longer divide people into criminal & non-criminal tribes. We know what are the social surroundings which encourage criminal tendencies in man J.C. Merriam has very aptly observed- Much of the difficulty we encounter today is due to ignorance. The cure for these situations is new knowledge.
The scourge of ignorance is one greatest block to social progress. It breeds superstitions & blind faith in traditions, it keeps orthodoxy alive. By unraveling the intricate & complex phenomenon of popular beliefs, social research enables us to attack vigorously the citadels of orthodoxy of stop its growth. Gradually new knowledge seeps in popular mind & thus superstitions become diluted & ultimately removed. The key to the solution of social problems is their accurate & unbiased analysis & thereby to understand the causal factors responsible for them. The analysis of an untrained observer is not dispassionate & precise. Only

a social scientist is competent to undertake this task. Social scientists have successfully analyzed the problems of regionalism, casteism, linguism, communaliom etc.

3. **Theory making and policy making:**
   The extended, corrected & verified knowledge may be put to two possible uses: a) Theoretical b) Practical Knowledge.
   Thus, acquired may be used for constructing theoretic models. In other words, knowledge may be organized into propositions & these propositions may then be meaningfully articulated to form a more abstract conceptual system affording estimations about a class of thing or phenomena governed by a specified set of conditions. Such use of knowledge is often labelled as theory-oriented & the activities of a scientist who seeks knowledge for the sake of building theories of „non-utilitarian" import are often known as „pure" „basic" or „theoretical" research. Knowledge for the sake of knowledge i.e. only for the satisfaction of „knowing" is the attitude that underlies scientific activity of this order.

   The research which seek knowledge will be used mainly for policy making which can be used to solve various problems confronted by our society. They may serve some practical ends which are often called „applied" „action-oriented" or „practiceoriented". We shall be considering this aspect in greater details when an action oriented research has to be taken up. One should not consider these two orientations as comprising a perfect dichotomy. There is nothing as practical as a good theory & that endeavours to solve practical problems has many a time given birth to theories, i.e. practice is quite often "a blessing for the development of theory".
   Theory helps us to identify gaps in our knowledge & seek to bridge them with institutive, impressionistic or extensional generalizations. Laws propogate when they are united in a theory. As Karl Jespers said „It is only when using methodologically classified sciences that we know what we know & what we do not know. This way, theory constitutes a crucially important guide to designing of fruitful research.

1.2.2 Alternatives to Social Research

Many things that we know today are learned through an alternative to social research. A great part of our knowledge is based on what our parents and others have told us. You may also have knowledge based on personal experiences. An individual can acquire information/knowledge also through the use of common sense. Whereas, the social research is more structured, organized and systematic process, these alternatives are not. Some of the alternatives that we encounter in our daily lives are commonsense, media myths and personal experiences.

1. **Common Sense:** Sociology draws a great deal from commonsense as the former touches the everyday experiences of lay persons. As a result, there is a tendency to use one in place of the other. Sociological knowledge tends to be general, if not universal, on the other hand commonsense knowledge is particular and localised (Beteille 2009). Commonsense is not only localised it is also unreflective since it does not question its own origin and presuppositions. Further, sociology also helps us to show that commonsense is highly variable. Sociology helps us to understand a society and this could be deepened and broadened by systematic comparison between one society with other whereas commonsense is not in a position to reach such an understanding. This becomes possible because sociology makes use of its tools and techniques for systematic investigation of the object while commonsense involves preconception, which is rejected by sociology. Commonsense easily constructs imaginary social arrangements which is utopian whereas sociology is anti utopian in its central preoccupation with the disjunction between ideal and reality in human societies. Sociology is also anti fatalistic in its orientation. it does not accept the particular constraints taken for granted by commonsense as eternal or immutable. It provides a clearer awareness than commonsense of the range of alternatives that have been or may be devised for the attainment of broadly the same ends. Sociology is further value neutral and free of all forms of biases and value judgements but commonsense is often a source of biases and errors. Commonsense knowledge is the routine knowledge people have of their everyday world and activities. Different sociological approaches adopt different attitudes to commonsense knowledge. The concept is central to Alfred Schutz's phenomenological sociology, where it refers to organized and typified stocks of taken for granted knowledge upon which actiivities are based and that in the natural attitude are not questioned. For ethnomethodologizts commonsense or tacit knowledge is a constant achievement in which people draw on implicit rules of how to carry on and which produce a sense of organisation and coherence. For symbolic interactionists and other interpretive sociologists there is a less rigorous analysis of commonsense knowledge, but the central aim of sociology is seen as explicating and elaborating people's conceptions of the social world. However, some sociologists see commonsense knowledge as different from, if not opposed to, sociological understanding. For Durkheim sociology must break free of the prejudice of commonsense perceptions before it can produce scientific knowledge of the social world. For Marxists much commonsense knowledge is ideological or at least very limited in its understanding of the world. Therefore, to begin with we should see the difference between knowledge derived from commonsense and those having origin in sociological research and systematic methods.

2. **Personal Experiences:** Many things in this world are understood to be true on the basis of personal experiences and it is considered to be a legitimate source of knowledge. However, knowledge based on personal experiences can lead us astray. What is considered to be true may be the result of some form of distortion in judgement which leads to errors. Research avoids such errors but unfortunately many times such error prone personal experiences are accepted as the truth. Personal experiences may therefore lead to four types of errors. These errors are overgeneralization, selective observation, premature closure and halo effect. Overgeneralization occurs when you have some evidence that you believe and then assume that it applies to many other situations. Sometime this may go far beyond what can be justified based on the data or empirical observation that one has. Selective Observation occurs when an individual takes special notice of a small portion of the reality and generalize from them. Selective observation involves making observation in a way that it reinforces pre-existing thinking rather than observation in a neutral and balanced manner.

3. **Premature Closure:** It operates with and reinforces the first two errors. Premature closure occurs when the researcher feels that he has all the answers and do not need to listen, seek information or raise questions any longer. It means that the researcher makes a judgement, or ends the investigation before one has the amount or depth of evidence required by scientific standards.

4. **Halo Effect:** The halo effect states that we overgeneralize from what we believe to be highly positive or prestigious. It means that we allow the prior reputation of the person, places or things to color ones evaluation rather than evaluating all in a neutral and equal manner.

1.3 Types of Social Research

Social research can be broadly categorized into qualitative and quantitative methods. Qualitative research focuses on understanding social phenomena through non-numerical data, such as interviews, observations, and case studies. For example, an ethnographic study of rural communities in Pakistan might explore how traditional gender roles influence women's access to education (Khan, 2019). Quantitative research, on the other hand, uses numerical data to identify patterns and relationships. Surveys and experiments are common quantitative methods. For instance, a large-scale survey might examine the relationship between income levels and access to healthcare in urban Pakistan (Ali et al., 2021). Both approaches have their strengths and limitations, and researchers often use mixed methods to gain a more comprehensive understanding of social issues. we bring here a list of research types arranged in pairs.

Basic and applied
Descriptive and analytical
Empirical and exploratory
Quantitative and qualitative
Explanatory (causal) and longitudinal
Experimental and evaluative Types of Research
Participatory action research

If you look at the name of each type, it would become clear that they represent different aspects of research and it is quite possible for you to mix and match them. Combining different types of research would depend on the purpose of your research. Further, social research can be categorized into various types based on methodology and purpose:

- **Descriptive Research**: Aims to depict social phenomena without influencing them.
- **Exploratory Research**: Seeks to investigate new or unclear areas of study.
- **Explanatory Research**: Establishes causal relationships between social variables.
- **Applied Research**: Focuses on solving practical problems in society.

1.4 Sociological Research: An Overview

Sociological research is the application of scientific methods to study human behaviour and social institutions. It utilizes both qualitative and quantitative methods to collect data and analyse social interactions, inequalities, and cultural dynamics. Sociological research examines social behaviour, institutions, and structures. It often involves studying relationships between variables, such as the impact of poverty on crime rates or the role of education in social mobility. For example, a study in Pakistan might investigate how economic inequality affects access to higher education among different social classes (Hussain, 2020). Sociological research also addresses global issues, such as migration, climate change, and globalization, providing insights that are relevant across cultures. For instance, research on the impact of climate change on rural livelihoods in Pakistan can inform policies to support vulnerable communities (Ahmed & Malik, 2022).

1.4.1 Sociological Imagination in Social Research

The sociological imagination is the sociological vision, a way at looking at the world that can see connections between the apparently private problems of the individual and important social issues. The sociological imagination requires us, above all, to ‘think ourselves away’ from the familiar routines of our daily lives in

order to look at them anew. Sociological imagination argues for a humanist sociology connecting the social, personal and historical dimension of our lives and which is critical of abstracted empiricism and grand theory alike. Consider the simple act of drinking a cup of coffee. What could we find to say, from a sociological point of view, about such an apparently uninteresting piece of behaviour? An enormous amount. We could point out, first of all, that coffee is not just a refreshment. It has symbolic value as part of our day-ta-day social activities. Often the ritual associated with coffee-drinking is much more important than the simple act of consuming the drink. In all societies, drinking and eating provide occasions for social interaction and the enactment of rituals - and these offer a rich subject matter for sociological study. Adopting a sociological imagination allows us to see that many events which appear to concern only the individual actually reflect larger issues. Divorce, for instance, may be a very difficult process for someone who goes through it - what Mills calls a 'personal trouble'. But divorce is also a significant 'public issue' in many societies across the world. In Britain, over a third of all marriages ends in divorce within ten years. Therefore, the use of sociological imagination in social science research leads us to the larger picture. It allows us to generalize from experiences in everyday life.

1.4.2 Durkheim and his Prescription for Sociological Research

Social science research is different from the natural science research. Durkheim advocated two basic procedures for establishing sociological proofs. The first procedure involved the examination of the cause and effect relationship between social phenomena. The second procedure was the method of concomitant variation. But the question was how do we examine this cause and effect relationship. Durkheim was of the opinion that a comparison could be made of those phenomena where both were simultaneously present and see whether the variations they display in these circumstances suggest that one depends upon the other. When the phenomena can be artificially created at the will of the observer the method is called experimental method. On the contrary, if the production of facts is not within our control and we can only bring them together in the way that they have been spontaneously produced. The method employed is called the indirect experiment or the comparative method.

For Durkheim sociological explanation rests exclusively in connecting a phenomenon to its cause or a cause to its effect. Since the social phenomena are beyond the control of the researcher and can escape the experimenter, comparative method, for Durkheim was the only method suitable for sociology. In this manner he rejected the historical method advocated by Comte. Further, Durkheim tried to establish the sociological proofs, rejected John Stuart Mill's declaration that even indirect experimentation is inapplicable to sociology. He in particular attacked

Mill's postulate that the same effect can be the result from various causes. Therefore, if we wish to use the comparative method by conforming to the principle of causality to demonstrate the sociological proof we have to follow the following proposition 'A given effect has always a single corresponding cause'(Durkheim 1958: 128). However, Durkheim argued that not all forms of comparative method were equally applicable to the study of social facts. He, in order to illustrate this, critiqued the five canons of experimental inquiry contained in Mill's System of Logic. More specifically, Durkheim objected Mill's Method of Agreement, Method of Difference, Joint Method of Agreement and Difference and Method of Residue. The fifth canon of the concomitant variable was however not criticized by Durkheim. Durkheim then proposed three methods by which such serial systematic variations might be formed.

First when dealing with very general facts about which we have extensive statistical data, the sociologist might limit his study to a single unique society. But a second method i.e. collecting facts from several societies of the same social type makes available a more extensive field of comparison. The sociologist could now confront the history of one society with another, to see if the same phenomenon evolves over time in response to the same conditions. But this method is applicable only to phenomena which have arisen during the existence of the societies in question and thus ignores that part of a society's social organisation which is inherited, ready made from earlier societies. The Third method was the genetic method. The genetic method yields both an analysis and synthesis of the facts under study by showing how each component element of the phenomenon was successively added to the other, it reveals them in their dissociated state and by means of the broad field of comparison, the fundamental conditions on which the formation and association of these elements depend are determined. 'Consequently, one cannot explain a social fact on any complexity save on condition that one follows its entire development throughout all species' (Durkheim, 1958:139). Durkheim warned in attempted to judge the direction of social evolution, the sociologist compares the state of a social fact during the decline of one society with its state during the early stages of its successor. Durkheim concluded, to arrive at a just comparison 'it will suffice to consider the societies compared at the same period of their development'(Durkheim, 1958:140).

Therefore according to Durkheim the characteristics of social research is that it is independent of all preconceptions whether philosophical or practical and it is objective.

1.5 Research Paradigm

A research paradigm is a framework that guides how research is conducted. The three main paradigms in sociology are positivism, interpretivism, and critical theory. Positivism emphasizes objectivity and the use of quantitative methods to test hypotheses. For example, a positivist study might use statistical analysis to examine the relationship between education and income in Pakistan (Bryman, 2016). Interpretivism, on the other hand, focuses on understanding subjective experiences and meanings. An interpretivist study might use in-depth interviews to explore how women in rural Pakistan perceive their roles in society (Khan, 2019). Critical theory seeks to challenge power structures and promote social change. For instance, a critical study might examine how patriarchal norms perpetuate gender inequality in Pakistani workplaces (Ali & Khan, 2020). So we can say a research paradigm refers to a framework of beliefs and practices that guide scientific inquiry. The main paradigms in social research include:

- **Positivism**: Emphasises objective reality and empirical observation.
- **Interpretivism**: Focuses on subjective meanings and social interactions.
- **Critical Theory**: Seeks to understand and challenge power structures within society.

1.6 Norms of the Scientific Community

Merton (1942) identified four norms that guide scientific research: universalism, communism, disinterestedness, and organised scepticism. Universalism means that research should be judged based on objective criteria, not the researcher's characteristics. Communism refers to the sharing of research findings for the benefit of society. Disinterestedness emphasises that researchers should avoid personal biases, while organised scepticism encourages critical evaluation of all research. These norms ensure the integrity and credibility of scientific research. For example, in Pakistan, adherence to these norms is essential for producing reliable data that can inform policy decisions (Hussain, 2020). We can conclude that the scientific community operates on certain norms to maintain the integrity of research:

- **Universalism**: Research should be evaluated based on merit, not the researcher's background.
- **Communalism**: Scientific knowledge should be shared openly.
- **Disinterestedness**: Researchers should remain unbiased.
- **Organised Scepticism**: All claims should be critically examined before acceptance.

1.7 Issue of Value-Free Sociology

Weber (1904) argued that sociology should be value-free, meaning researchers should avoid letting personal values influence their work. Value-free sociology advocates that research should remain objective and free from personal biases. Max Weber, a key proponent, argued that sociologists should separate their values from research to maintain scientific rigour. However, some sociologists believe that complete objectivity is unattainable and that values inevitably influence research. By value-free sociology, Weber meant that researchers' personal values and economic interests should not affect the process of social scientific analysis. If such factors affected the research process, then the social action could not be represented as objective.

Objective analysis is possible if sociologists use a rational method in which the research process is systematic, that is, 1) empirical data must be categorised in terms of clearly formulated concepts, 2) proper rules of evidence must be employed, and 3) only logical inference must be made. With the help of his methodological orientation, Weber implied that value-free sociology could not be a moral science and thereby distinguished between 'what ought to be', that is, the sphere of values, from 'what is', the sphere of science and that social science should focus only on the latter. He also implied that the new science of sociology contributes to an ongoing historical process in which magic and other forms of inherited wisdom become less acceptable as means for explaining events. Weber referred to this change as the process of rationalisation.

However, achieving complete objectivity is challenging, especially in culturally sensitive contexts like Pakistan. For example, a researcher studying religious practices might struggle to remain neutral if they hold strong personal beliefs. Despite these challenges, striving for objectivity is crucial for maintaining the credibility of sociological research. Researchers can achieve this by being transparent about their methods and acknowledging potential biases (Bryman, 2016).

1.7.1 Value Orientation in Research:

The relationship between science and value is complex. The work of science is not persuasion but rather a demonstration that, given certain conditions, events automatically follow. Persuasion may be systematic. It may make use of scientific findings. However, fundamentally different from demonstration.

The function of persuasion is to continue that something is right good, proper or desirable; on the other hand demonstration aims merely at stating that a particular relationship exists regardless of its rightness or beauty. It means that science is devoid of values and judgment.

In any scientific research, researchers must be careful about certain ethical values that scientific obligation revolves around the appropriate position of personnel value. The question, according to the social behavioural scientists, is what position should be taken should the researcher be concerned only about his scientific investigation. Again, should the scientific approach be moral or should the research concern itself with social values & morality? The central flow of this debate is whether the social sciences can be free from values & ethical considerations. It is possible to make social sciences independent of values & ideology. In this sense, social research posses special problems for the researcher. Any observation of one set of human beings by another includes values that one important in all human activity.

Social scientists like pioneers suggest that social science can be objective and independent of values & ideology. OtherOther scholars, like Mannhein, believed that insocial research & sociological thinking are found to be effective by social & cultural values of the research & the group that he is studying.

Grey in 1968 wrote a paper, "value free sociology" Grey argues that values. They suggest that the works of Max Weber & distinction is made between fact & statement of value.

However, in Weber's classic works the protestant ethic & of ethic & spirit of capitalism is an example of the values of sociologists entering into the study similarly Dannheim's classic work suicide is not value free Cooley's study of primary groups Veblen's study of Conspicuous insure are all example of value commitment of social scientist.

Grey concludes that the value face of Social Scientist is not possible while grounded attempts to explode the myth of a value-free sociology.

If value-free sociology is not possible, then can be researcher judge the people he is studying, the issues make it important for the researcher to know that he has no authority to judge another such problems as racial ethic & communal rights are studied by various sociologists in such research & investigation who is to judge? Is an obvious question.

Sociologists like more Weber, Weber Baer, ention Baer studied the scientific problems during their times. Similarly, studying racial conflict a communal conflict violence in the present times needs to be different; what is important is to use scientific methodology in the research study.

He suggests that if the social researcher takes an attitude of neutrality, then he accepts the existing value system. This posture is there forced on of irresponsibility, the man judgment of a consideration of values. Cannot be avoided in any social

research, infect the very selection of a problem has value in context. The debt of arguments for against a value-free approach in social sciences are opposed to value-free position & others are in favour of it.

1.7.2 Values and Social Science:

The sciences of values thus are different from each other. However, a total separation between the two is impossible, for it is the study of the sociologist to analyse relationship through understanding of relationship between the values of science. Before analysing this relationship, several other connections between values of science can be noted, of which some are of more significance.

1) The problem of all concern to the science is cursed by the destructive which are because by some of the applicants of modern society. As a question can be asked as to what the moral responsibility of the scientist in today's world scientists of all branches have indicated their awareness of this problem. It is significant to note that special organisations concerning this problem have also been set up. This problem basically refers to the use of science rather than the method of science.

2) The interaction between value & science is of particular interest to sociologists. There are 2 aspects involved in or related to this interaction.

a) Much of the subject matter of sociology is values; therefore, it becomes necessary to investigate how this fact may interfere with the application of the scientific method to sociology.

b) The moral involvement of the social scientist with his subject matter may result in certain biases & prejudice. The social scientist can bias his results favour of his values. "This value also plays an important role in social science as compared to the physical science."

The above-mentioned points indicate that science & values are interrelated & it is necessary to develop a need to systematically analyse this relationship. Value judgement plays an important role in social science data. It is mainly because of the fact that values are major determinants of human behaviour & therefore it is difficult to keep them apart. The social scientists who study the values of their own collar are infecting the receiver of the same value system. It is therefore difficult for him to stop these values from interfering with his scientific work. The situation becomes more complex when the social scientist is not only investigating confiding values. In such a case, he values the system out of the conflicting value system. The role of science is to search for facts or knowledge which is precise & accurate. In other words, science aims at finding the ultimate truth or reality. In this process, it may put forward facts which run opposite to an existing value. This is because there are certain values which are based on superstitious beliefs or prerational thoughts, science goes on destroying such values. Thus, with the help of a background of

value systems, science seeks to find out the validity of certain beliefs & practices in the society when values themselves are used as data for interpretation, the resultant is verification of the value system itself.

Research in social sciences involves the study of people, their behaviour in their social and cultural context The researcher has a moral obligation to the people he is studying. When the social researcher adopts unethical strategies, it may disturb the functions of the social scientist Various associations have formulated an ethical code of conduct for their member. This proves that the researcher needs to maintain certain moral values while conducting their studies. “However, this is not easy as of issue are involved”.

Self-Assessment Questions

MCQs

1. Which of the following is a step in the scientific method?
   a) Hypothesis formation
   b) Data interpretation
   c) Both a and b
   d) None of the above
   Correct Answer: c

2. Durkheim’s study on suicide is an example of:
   a) Qualitative research
   b) Quantitative research
   c) Applied research
   d) Basic research
   Correct Answer: b

3. Which research paradigm focuses on subjective experiences?
   a) Positivism
   b) Interpretivism
   c) Critical theory
   d) None of the above
   Correct Answer: b

4. Merton’s norm of “universalism” refers to:
   a) Sharing research findings
   b) Avoiding personal biases
   c) Applying the same standards to all research
   d) Questioning established knowledge
   Correct Answer: c

5. Weber's concept of value-free sociology emphasises:
   a) Personal biases
   b) Objectivity
   c) Subjective interpretation
   d) None of the above
   Correct Answer: b

Restricted Response Questions

1. Define the scientific method and explain its relevance in sociology.
2. Differentiate between qualitative and quantitative research with examples.
3. Discuss the role of research paradigms in sociological research.
4. Explain Merton's norms of the scientific community.
5. Critically analyse the concept of value-free sociology.
6. Define the scientific method and explain its key components.
7. Discuss the significance of research in sociology.
8. Explain the difference between qualitative and quantitative research.
9. What are the key norms of the scientific community?
10. How does value-free sociology influence social research?

Extended Response Questions

1. How can the scientific method be applied to study social issues in Pakistan? Provide examples.
2. Compare and contrast positivism and interpretivism in sociological research.
3. Discuss the challenges of maintaining objectivity in sociological research, particularly in the Pakistani context.
4. Critically evaluate the role of scientific methods in social research.
5. Discuss various types of social research with suitable examples.
6. Explain the concept of research paradigms and their impact on sociological studies.
7. Analyse the debate surrounding value-free sociology and its implications.
8. Compare and contrast qualitative and quantitative research methodologies.

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Unit: 2

ELEMENTS OF ENQUIRY

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INTRODUCTION

Research in sociology is built on fundamental elements that shape the process of investigation. These elements, concepts, conceptualisation, operationalisation, and variables serve as the foundation for empirical studies. Understanding these components allows researchers to develop clear research questions, design effective methodologies, and derive meaningful conclusions. This unit explores these fundamental elements, their interrelationships, and their significance in social research. This unit focuses on the foundational elements of social research, including concepts, variables, and their relationships. Students will learn how to conceptualise and operationalise research ideas, which are critical steps in designing sociological studies.

OBJECTIVES

- Define key concepts in social research.
- Understand the process of conceptualisation and operationalization.
- Identify different types of variables and their relationships.

Major Topics

- Concepts
- Conceptualization
- Operationalization
- Variables
- Types of Variables
- Relationship Among Variables

2.1 Concepts

Concepts are abstract ideas that represent objects, events, or phenomena. They are the building blocks of theory and research. For example, "social class" is a concept used to study inequality, while "gender" is a concept used to explore roles and identities in society (Bryman, 2016). In the Pakistani context, concepts like "honor" (izzat) and "kinship" (rishtedari) are culturally significant and often studied in sociological research (Ali & Khan, 2020). Concepts must be clearly defined to ensure they are measurable and applicable in research. Concepts are abstract ideas or general notions that represent social phenomena. In sociology, concepts help researchers categorise and interpret social reality. Examples include "social class," "inequality," and "gender roles." Concepts provide a shared language that allows for systematic study and comparison of social issues.

2.2 Conceptualization

Conceptualisation involves defining abstract concepts in measurable terms. It is the process of specifying what we mean by a concept. For instance, "poverty" can be conceptualised as income below a specific threshold, lack of access to basic needs, or relative deprivation compared to others in society (Neuman, 2014). In Pakistan, poverty is often conceptualised using multidimensional indicators, such as access to education, healthcare, and clean water (Pakistan Bureau of Statistics, 2021). Conceptualisation ensures that researchers are studying the same phenomenon, even if they approach it from different perspectives. So we can conclude that conceptualisation refers to the process of defining and refining concepts for research purposes. It involves specifying what is meant by a term and how it will be measured. For example, defining "poverty" may include considerations such as income levels, access to basic needs, and social exclusion.

What do we mean by conceptualisation? In short, we are referring to the process whereby we clarify a thought process and express it as a specific idea or concept. Conceptualization is about being clear and precise. We do not want there to be any confusion about what we intend to measure or document. This is important because,

regardless of whether the concept we're interested in is sensible, at a minimum, other researchers as well as practitioners will know exactly what I am doing. As an example, consider that we are interested in recidivism, the degree to which a former offender reoffends after having been

arrested or convicted. Specifically, we are interested in serious recidivism, that is, reoffending that is sufficiently serious to cause a great deal of concern for society.

How to begin? Well, we might start by clarifying what we mean by serious. I think it's fair to say that murder and rape are serious crimes. We might also consider robbery and aggravated assault to be serious. How about burglary? Is burglary a serious crime? It's certainly worrisome, particularly if the homeowner is at home during the burglary. How about motor vehicle theft? This is a non-violent crime (carjacking is separate and would be classified by the FBI as a robbery). However, it is certainly costly. What would you do if your car were stolen? It certainly wouldn't be a fun experience. How about theft of property — for example, theft of a bicycle or an iPhone? How about fraud? Or forgery? Or drug trafficking? Or drug possession? I'm pretty sure if I polled the class, each student would put together a different list of what he or she thinks of as capturing serious crime.

How can we add some precision and objectivity to this? We could begin by differentiating violent and nonviolent crime. In violent crimes, an offender uses force or threats of force against a victim. Nonviolent crimes either do not involve any direct contact between a victim and an offender or involve contact but no force. For example, pickpockets have direct contact with their victims but use no force. In contrast, robbery involves at least the threat to use force on victims. Using the FBI's classification system, burglary, auto theft, shoplifting, and the theft of unattended personal property, such as bicycles, are examples of nonviolent crimes. Assault, rape, robbery, and murder are violent crimes.

Hence, I might conceptualise serious crime as those crimes which involve violence or the threat of violence. This might not perfectly capture everyone's notion of serious crime, but at least we are using a clear and transparent definition that captures an underlying behaviour (violence or the threat of violence) that everyone is capable of understanding. If you disagree with the choice I have made, you would be free to argue that I have made an error in judgment.

2.2.1 Dimensions and Indicators

Now that we have conceptualised serious crime as that which involves violence or the threat of violence, we next turn to a related concept — just how serious is each crime we're con- considering? In other words, within our notion of serious crime, we want to have some measure of each crime's relative seriousness. About violent crimes, we could consider the extent of the victim's

injuries. The most serious injuries would be those which led to the victim's death. Short of this, the extent of injuries could range from the very serious (e.g., paralysis) to something more minor (e.g., an abrasion to an arm). We could also consider the psychological injuries stemming from the crime — that is, the victim's level of trauma. For example, a sexual assault which involves a very serious personal violation and is carried out over some time likely involves a great deal more emotional tramua than a robbery in which the victim is approached from behind and knocked down while their property is stolen, even if the robbery victim has more serious physical injuries. The extent to which there is trauma might depend on the length of an attack, the seriousness of the personal violation and the degree to which the threat of force was used by the perpetrator.

All this is to say that within the category of "serious" crimes, we need to have some way to conceptualise seriousness. The FBI classifies the four violent "index" crimes of murder, rape, robbery and aggravated assault in that same order of seriousness. This is what they believe to be true, in general. Obviously, for a given crime, it will depend on the details of that crime. Whenever we are trying to conceptualise a concept, it is important to provide a definition of that concept that is as specific and precise as possible. It is also important to conceive of a way to consider the dimensionality of the concept (that is, how we will measure seriousness).

2.3 Operationalization

Operationalisation is the process of turning concepts into measurable variables. It involves defining how a concept will be measured in a study. For example, "education level" can be operationalised as years of schooling, highest degree obtained, or literacy rate (Bryman, 2016). In a study on gender inequality in Pakistan, "empowerment" might be operationalised as women's participation in decision-making, access to economic resources, or political representation (Khan, 2019). Operationalisation is crucial for ensuring that research findings are valid and reliable. So, operationalisation is the process of turning abstract concepts into measurable variables. This step ensures that concepts can be systematically observed and analysed. For instance, "educational attainment" may be operationalised as the highest level of education completed.

2.3.1 From Concept to Operationalisation

Once a researcher conceptualises what he or she would like to measure, the next step is to determine how this conceptualisation will be operationalised to produce a variable. Let me restate this because it is important. Operationalisation is the process of taking a concept and translating it into something that can be measured.

Concept → Operationalization → Measurement

To continue our "serious crimes" example, once we conceive of a serious crime as one which involves either violence or the threat of violence, we want to be able to generate a variable that we can use directly in our research. This may sound simple, and sometimes it is, but often it is not. One of the trickiest issues here is that the data we would like to have is not always available.

For example, let's consider a scenario in which we are interested in the recidivism of individ- uals who have been convicted of a violent crime (which we have defined to include murder, rape, robbery or aggravated assault). First, we will need to consider the follow-up period. Do we want to consider recidivism as of one year of release from prison? Two years? Three years? (In practice, usually, CJ researchers look at one- and/or three-year recidivism rates.)

Next, we will need to think about what type of recidivism we will count. We'll certainly count an individual as having recidivated if we observe that he commits a new serious crime. Let's say we'll also count as recidivism a new crime that is less serious (for example, burglary, larceny or motor vehicle theft). However, a large percentage (depending on the state, possibly as high as one-third!) of individuals returned to custody are returned not because they committed a new crime but rather for a technical violation. Typically, these are parole violations (a positive drug test, leaving the state, failing to show up for a probation/parole appointment). Do we want to count such individuals as having recidivated? On the one hand, they're back in prison, and the taxpayers have to pay for this. On the other hand, there is no new crime and therefore no new crime victim. The choice of whether or not to count this type of violation as recidivism is up to the researcher. The important thing is that the researcher must document all of the choices made in the course of research. This brings me to my penultimate point about operationalisation. In an ideal world, we would be able to observe whether every individual in our sample has committed a new crime.

But in the real world, we don't know this! After all, to know if someone has committed a crime, we'd need to follow that person around twenty-four hours, seven days per week. Instead, what we have are administrative data from the criminal justice system. We usually can observe whether the individual has been arrested, whether he has been charged with a crime, whether he has been convicted of a crime (including a guilty plea) and whether he has been returned to custody (incarceration). Hence, when we operationalise our notion of recidivism, we will be limited to what we can measure. We might conceptualise recidivism as being about whether or not an ex-inmate continues his or her bad behaviour upon being released from prison. However, we will operationalise this concept using data that indicates either re-arrest or a return to custody.

2.4 Variables

Variables are characteristics that can vary, such as age, income, or gender. They are the measurable counterparts of concepts. In social research, variables are used to test hypotheses and explore relationships. For example, in a study on the impact of education on income, "education" is the independent variable, and "income" is the dependent variable (Neuman, 2014). Variables can be categorical (e.g., gender) or continuous (e.g., age), and they can also be moderating or mediating variables that influence the relationship between other variables. Variables are measurable elements that can change or vary across individuals or groups. They serve as key units of analysis in research and allow sociologists to examine relationships between different factors.

We have talked about how a researcher begins by conceiving of a concept and then thinks about how to operationalise that concept. Now let's think about the types of measures that we can construct based on that operationalisation.

A variable is the end product of the measurement phase of a research project. In other words, we begin with a rough concept of what we're interested in measuring. Next, we think of a way to operationalise that concept. Next, we consider a way to measure what we're interested in. What we ultimately must come up with is called a variable. Accordingly, we can add to the schema introduced above:

Concept → Operationalization → Measurement → Variable

A variable must satisfy certain properties:

1. The values of a variable must be mutually exclusive. Researchers must be able to classify every observation in terms of one and only one value.
2. The values of a variable must be collectively exhaustive. As Maxfield and Babbie note, if the variable is to have any utility in research, researchers must be able to classify every observation in terms of one of the attributes composing the variable.

These concepts are potentially confusing, so let's consider a few examples:

Candidate Variable	Values of the Variable	Mutually exclusive	Collectively exhaustive
Age	0-120	Yes	Yes
Gender	male, female, other?	Probably	Yes
Race	black, white, Asian	No	Yes

In the table above, we've determined that race does not meet the criteria outlined above for a variable because the categories are not mutually exclusive. Why not? Because an individual might consider himself to be both white and black (e.g., Barack Obama) or both white and Asian (. e., Keanu Reeves). Using a simple conception of race means that we cannot construct a proper variable. Does this mean we cannot research race? No!

The solution is to redefine race so that it meets the criteria of a variable. In particular, since the issue is that while many individuals identify as only black, only white or only Asian, a growing number of individuals identify with multiple racial groups, instead of classifying individuals as either black, white or Asian, we could classify individuals in the following way:

1. black only
2. white only
3. Asian only
4. white and black only
5. white and Asian only
6. black and Asian only
7. white, black and Asian
8. Other race
9. choose not to identify

Now, race can be thought of as a variable because the categories are mutually exclusive. No one can be in multiple categories, given how we have written down the choices. At the same time, we have added so many categories that it might become unwieldy to analyse the data in a parsimonious way. One solution that researchers have developed is to recode a variable — that is, combine the categories in such a way as to be parsimonious but also mutually exclusive. For example, we could recode the above categories according to the following scheme:

1. black only: [1]
2. white only: [2]
3. Asian only: [3]
4. multiple race: [4]+[5]+[6]+[7]
5. other/choose not to identify: [8]+[9]

This new variable still satisfies our demand of mutual exclusivity, but it is considerably more parsimonious than our first attempt. We simply decided to recode the variable such that all multi-racial individuals are lumped together in one category. We also combined the "other" and "choose not to identify" categories. These categories are always an issue in survey research often individuals do not answer our questions at all. Other times, individuals provide an answer but not

necessarily one we have anticipated or offered them. For example, in response to being asked about their race in the U.S. Census, millions of Americans do not choose one of the boxes offered and instead simply write in "American." In other cases, answers may be completely unintelligible either because the respondent does not know how to answer a question or because he is trying deliberately to be difficult. For example, in response to a question about a respondent's income (always a sensitive question), a respondent might simply write "jello." Obviously, it is not clear what to do with this information!

Aside: This will obviously not be on the exam but the above discussion re- minds me of an incredible (and true) story from World War II. Anthony Clement "Nuts" McAuliffe was a United States Army general who was the acting division commander of the 101st Airborne Division troops defending Bastogne, Belgium during World War II's "Battle of the Bulge." Here is an account of how he earned the nickname "Nuts":

In December 1944, when the German army launched the surprise Battle of the Bulge, Major General Maxwell D. Taylor, commander of the 101st Airborne Division, was away, attending a staff conference in the United States. In Taylor's absence, acting command of the 101st and its attached troops fell to McAuliffe. At Bastogne, the 101st was besieged by a far larger force of Germans under the command of General Heinrich Freiherr von Lttwitz. On December 22, 1944, through a party consisting of a major, a lieutenant, and two enlisted men under a flag of truce that entered the American lines southeast of Bastogne (occupied by Company F, 2nd Battalion, 327th Glider Infantry), General von Lttwitz sent the following ultimatum to Gen. McAuliffe:

To the U.S.A. Commander of the encircled town of Bastogne: The fortune of war is changing. This time the U.S.A. forces in and near Bastogne have been encircled by strong German armored units. More German armored units have crossed the river Our near Ortheuville, have taken Marche and reached St. Hubert by passing through Hompre Sibret-Tillet. Libramont is in German hands. There is only one possibility to save the encircled U.S.A. troops from total annihilation: that is the honorable surrender of the encircled town. In order to think it over a term of two hours will be granted beginning with the presentation of this note. If this proposal should be rejected one German Artillery Corps and six heavy A. A. Battalions are ready to annihilate the U.S.A. troops in and near Bastogne. The order for firing will be given immediately after this two hours term. All the serious civilian losses caused by this artillery fire would not correspond with the well-known American humanity.

- the German Commander General McAuliffe's reply:
- To the German Commander: NUTS!
- The American Commander

Obviously, the German commander was pretty confused!

Postscript: The 101st was able to hold off the Germans until the 4th Armored Division arrived on December 26 to provide reinforcement. For his actions at Bastogne, McAuliffe was awarded the Distinguished Service Cross by General Patton on December 30, 1944, followed later by the Distinguished Service Medal.

In any case, the lesson from this lengthy aside is that often researchers have to exercise judgement in constructing variables.

2.5 Types of Variables

Variables can be classified into several types based on their role in research:

- **Independent Variables**: Variables that influence or cause changes in other variables (e.g., education level affecting income).
- **Dependent Variables**: Variables that are influenced by other variables (e.g., income being affected by education level).
- **Moderating Variables**: Variables that affect the strength or direction of the relationship between independent and dependent variables (e.g., gender moderating the relationship between education and income).
- **Mediating Variables**: Variables that explain the mechanism through which independent variables affect dependent variables (e.g., job type mediating the relationship between education and income).

For example, in a study on healthcare access in Pakistan, income might be an independent variable, healthcare access the dependent variable, and geographic location a moderating variable (Hussain, 2020).

Now that we have defined what a variable is and what criteria it must satisfy, let's consider the types of variables that we might employ in a research project. Broadly speaking, there are three types of variables: 1) nominal measures, 2) ordinal measures and 3) continuous variables. We'll define these in turn:

1. Nominal variables: These are variables which have only the properties of mutual exclusiveness and collective exhaustiveness — nothing more and nothing less. That is, a nominal variable assigns each unit in the dataset to a particular category, but there is no natural order to the categories. Examples include:
   a) Gender (Individuals can be either male or female, one is not higher or better than the other)

b) Marital status (Individuals can be either single, married, divorced or separated)
c) State of Residence (Individuals might live in any one of the 50 states in the U.S., again, one is not better than another)

2. **Ordinal variables:** These are variables which, in addition to having the properties of mutual exclusiveness and collective exhaustiveness, can be logically rank ordered. These variables continue to assign individuals to categories, but now one category can be characterised as either higher or lower than another in a meaningful and objective way. Examples include:
   a) Highest education completed (Individuals can have less than high school, a high school diploma, a college degree, a graduate degree. Each level indicates a higher level of education than the one before it)
   b) Rank within the police department (Individuals can be officers, sergeants, lieutenants, captains, etc. Each rank is associated with a higher level of authority than the one preceding it)
3. **Continuous variables:** These are variables which do not group individuals into categories and instead provide a simple numerical measure of some attribute. Examples include:
   a) Age: Police officers are generally between the ages of 18 and 65. We could even measure each individual's age more precisely (e.g., 18.54 years, 47.26 years, etc.)
   b) Income: Individuals' incomes might vary between $10,000 and $150,000. There are no categories. The variable is simply a number representing each individual's income
   c) SAT score: Though SAT scores are measured in 10-point intervals (i.e., there are no scores like 1076 or 1203), this is still a continuous variable since each 10-point interval represents a unique score.

Sometimes, variables are classified as being either continuous or categorical. In this case, the term "categorical" refers to variables that are either nominal or ordinal.

In general, it is fairly straightforward to tell if a variable is nominal, ordinal or continuous. However, sometimes these determinations can be a little tricky. Let's consider a couple of additional examples to make sure we're all on the same page:

Example #1: A variable measures each individual's income in $ for the 2023 calendar year.

This variable is continuous. The variable does not classify individuals based on their income. It is a numerical measure of how many dollars an individual earned last year.

Example #2: A variable classifies an individual's economic status based on that individual's income in $ for the 2023 calendar year. In particular, individuals are divided into those living below the poverty line, individuals whose incomes make them "working class," "middle class", and wealthy.

This variable is ordinal. Even though the underlying measure (income) is continuous, once we use income to group individuals into categories, the variable is no longer continuous. The variable is not nominal because there is still a logical ordering (i.e., "middle class" refers to a higher income than "working class"

Example #3: A variable documents each individual's occupation — e.g., teacher, police officer, therapist, lawyer, fast food worker, etc.

This variable is nominal. Even though each of us might have some sense of which jobs we think are better than others (e.g., most of us would probably prefer to be a lawyer rather than a fast food worker), there is no logical ordering that we could all agree upon. Some of us might rank "teacher" above "lawyer." Others might disagree. Each category simply describes a particular occupation. This is not to say that we could not conceive of a different variable that seeks to measure an individual's occupational status (say on a scale from 1 to 10). But this would be a different variable.

My advice is to think of a few potential variables and how you might classify them.

2.5.1 Scales

Another type of variable to consider is scale variables. A scale is a special type of ordinal variable, but it is sufficiently distinct from other ordinal variables that it merits its discussion. Scales are ordinal variables that arise from surveys of people's attitudes towards a particular issue. Specifically, it is common in survey research to ask people whether they agree or disagree with a particular statement. Examples of statements that one might ask survey respondents to evaluate in these terms include:

1. The level of immigration to the United States is currently too high.
2. Police in my community are doing a good job.
3. The United States should effect military intervention in Syria.

Respondents are often asked to provide one of the following responses to such a statement:

Strongly disagree (1) → Disagree (2) Somewhat disagree (3) → Neutral (4) → Somewhat agree (5) → Agree (6) → Strongly agree (7)

When the respondent is offered the seven choices listed above, the scale is known as a Likert scale. Why seven choices as opposed to ten or even twenty? After all, more choices would offer greater precision. As it turns out, psychologists believe

that there is a tradeoff between precision and accuracy when it comes to attitudinal variables. Human beings are generally able to accurately describe their feelings on a seven-point scale, but once we move beyond seven choices, people have a tough time figuring out how to translate their feelings into an answer choice.

Often, scale variables are combined into constructs called factors. The idea is that if you want to measure an individual's overall attitude for an item of interest (e.g., public safety), more questions are better than a single question. For example, we might ask individuals the following questions:

1. Police in my community are doing a good job.
2. It is safe to walk around my neighbourhood at night.
3. I would allow my children to walk home alone from school.
4. I do not worry about crime in my neighbourhood.
5. My neighbourhood is safer than other neighbourhoods.

As you can see from the list of questions above, each question asks individuals to evaluate how safe they feel in their neighbourhood. But each question is subtly different. Instead of analysing each question separately, we could combine the questions into a single factor that we might call "feelings of safety." There are various techniques for combining variables. The simplest is to simply average them or add them up. Other techniques are extremely complex. The choice of technique doesn't matter. The core idea is that a factor is a combination of topically related scales.

2.5.2 Assessing the Quality of a Variable

At this point, we have considered lots of different variables that we might be interested in studying. Each variable came about by operationalising a particular concept and seeking to measure it. At the end of the day, what we want to have are high-quality variables — that is, variables that are good measures of what we are interested in. But how do we know if a measure is "good" or not? Ideally, we would like to have a precise and scientific way to discern between "good" and "bad" variables. As it turns out, social scientists have developed various schemas and rules of thumb to judge the quality of variables. In general, there are four criteria for assessing the quality of a variable:

1. **Precision**: This refers to the specificity of a variable. For example, it is more specific and therefore more precise to say that a man is 45 years of age rather than simply saying that the man is in his "mid-40s." Likewise, it is more precise to say that the man is in his mid-40s rather than simply saying that the man is in his 40s. In almost all circumstances, the more precise our measure is, the better. However, there will be some cases in which precision matters only to a point. For example, if we are interested in assessing whether or not an individual passed

an exam to be admitted to the police academy on his or her first attempt, then we don't need to know that individual's exact score — we would just have to know if it were above or below a certain threshold.

2. **Accuracy**: This refers to the extent to which the variable contains errors. As social scientists, we would love to believe that all of our variables are correct all of the time, but, in reality, there are often errors in variables. For example, I have seen datasets in which individuals who are male are erroneously classified as female. Likewise, it is often the case, especially in survey research, where individuals lie to the researcher. People often lie about attributes such as education and income, which are often perceived to be measures of one's status. But people also often lie about their behaviours as well. For example, individuals do not always admit to drug use, criminal activity or participation in risky sexual behaviours. While we will always know the degree to which a variable is precise, in practice, it is often difficult to know whether a variable is accurate or not. There are sometimes statistical procedures to assess a variable's accuracy, but these are unavailable in most instances. The best way to know if a variable is accurate or not is to have some background information about how that variable came about. For example, if you are looking at rap sheets for criminal offenders, it would be helpful to know something about how police departments and courts generate these rap sheets. Who fills out the paperwork? Who enters the data into a computer? Which fields in the paperwork are often left blank or misclassified. This is why it is very, very important for researchers to talk to cops! By the way, do you know the origin of the term, "rap sheet?" It is actually an acronym for "record of arrest and prosecution."

3. **Validity:** We have already talked about various types of validity in Chapter 2. In this case, validity refers to the extent to which a particular variable captures the underlying concept that we are interested in measuring essentially this is what we meant when we dicussed construct validity in Chapter 2. Suppose, for example, that we are interested in measuring a high school student's readiness to take college classes. This is a difficult concept to measure because it involves many different attributes (academic ability, maturity, the student's ability to concentrate, the student's family situation, whether a student chooses an appropriate major given his or her skill set, etc) Unable to measure all of the various components of college readiness, researchers often, as a proxy, use a student's SAT score. Is a student's SAT score a valid measure of college readiness? For most students, probably not, but it is debatable. Some researchers view the SAT score as offering high validity; others argue that it is a completely invalid measure of college readiness.

In fact, there are several different ways to think about validity:

a) Face validity: This refers to whether a variable meets the criteria of plain old common sense. For example, suppose we are interested in measuring whether individuals are satisfied with the quality of policing in a given community. We might consider measuring satisfaction using the number of citizen complaints against police as a proxy. Surely this is imperfect — after all, lots of citizens may be dissatisfied but will never file a complaint. But the variable satisfies face validity in the sense that at least complaints should have something to do with perceptions of police quality. If instead I sought to measure perceptions of police quality by asking individuals in a community if taxes are too high or too low, this simply doesn't have any face validity. How on earth would citizens views on tax rates have anything to do with perceived police quality? Face validity can be assessed using the "man on the street" test. If I stopped a random dude walking down the street and explained my concept and my measure, it should be clear to this random guy, who presumably knows nothing about research, how the two are related.

b) Criterion-related validity: This refers to the degree to which a candidate variable predicts something that is known to be valid from prior research and is also thought to be highly related to the concept you are interested in measuring. For example, if it is true that SAT scores predict a student's GPA in his or her first year of college, to the extent that first-year college grades are what we mean when we refer to college readiness, we might conclude that SAT scores satisfy criterion-related validity.

Maxfield and Babbie use a nice example from a real research study of an attempt to establish criterion-related validity:

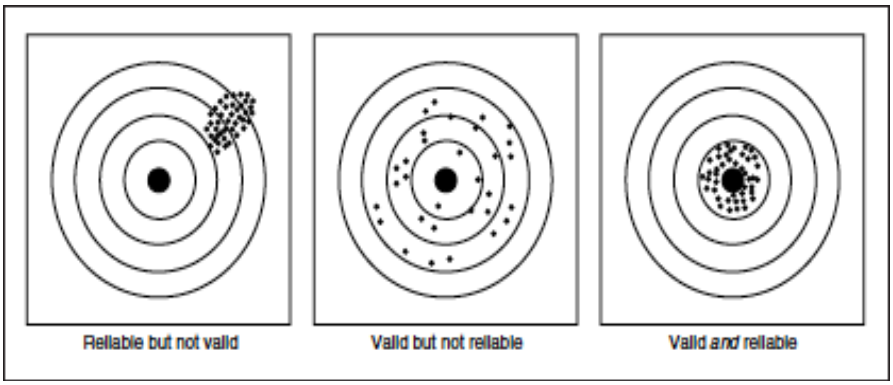
Timothy Heeren and associates (Heeren, Smith, Morelock, and Hingson 1985) offer a good example of criterion-related validity in their efforts to validate a measure of alcohol-related auto fatalities. Of course, conducting a blood alcohol laboratory test on everyone killed in auto accidents would be a valid measure. Not all states regularly do this, however, so Heeren and colleagues tested the validity of an alternative measure:

Single-vehicle fatal accidents involving male drivers occurring between 8:00 p.m. and 3:00 a.m. The validity of this measure was shown by comparing it with the blood alcohol test results for all drivers killed in states that reliably conducted such tests in fatal accidents. Because the two measures agreed closely, Heeren and associates claimed that the proxy, or surrogate, measure would be valid in other states.

a) **Construct validity**: This refers to the logical relationships among the variables we are interested in using. For example, suppose we are interested in measuring an individual's fear of crime. In order to gather data, we conduct a survey of individuals in a particular community and ask each survey respondent whether they typically leave their home after 11:00 pm. The degree to which this is a valid measure of fear of crime depends on whether individuals who fear crime more are less likely to leave their homes after 11:00 pm. If there is a strong association with fear and remaining home late at night, then our measure would meet the requirement of construct validity. If, instead, leaving one's home after 11:00 pm depended mostly on whether an individual works the night shift, then our variable would probably not meet the requirement so construct validity.

b) **Reliability**: Reliability refers to whether a particular measurement technique applied repeatedly to the same thing will repeatedly yield the same result. Reliability is really about the consistency of a variable in terms of measuring the underlying concept you are interested in.
To continue our example from above, let's assume, despite its questionable validity, that we would like to use the SAT exam as a measure of college readiness. We would need to know whether a student's SAT score is a reliable measure of his or her underlying ability for the SAT. In other words, if I know that a student received a score of 1500 on the SAT exam, does this mean that the student would score 1500 again if I asked him to retake the exam? What if I asked the student to retake the exam a third time? Or a fourth time? Of course, if a student took the SAT exam 100 times, he or she would probably receive many different scores. The student's scores might range from 1400 to 1600. The degree to which there is variability in these scores reflects how reliable the SAT score is. If the scores ranged from 800 to 2200, we certainly wouldn't think a student's SAT score, measured from only one test-taking experience, was a reliable measure of anything. However, if the scores ranged from 1470 to 1530, we might conclude that the exam is, in fact, a reliable measure, whether or not it is valid.

As you think through issues of validity and reliability, it may be useful to go home and think through a couple of examples. Maxfield and Babbie have a nice visual depiction, which may be helpful:



The above picture shows targets which you might imagine were used in target practice during a pistol course. In the first panel, the individual has consistently missed the target. However, all of his shots missed in the same area. Thus, we can say that we can reliably predict where the shots will end up — the problem is that they do not end up where we want them to end up. As such, this shooter is reliable but not valid. In the second panel, the shooter is, on average, around the target, but his misses are all over the place. Sometimes he fires too high; other times he fires too low. Likewise, sometimes he misses to the left; other times to the right. This shooter is valid but not reliable. In the final panel, the guy is a crack shot. He is consistently hitting the target. Thus, he is both valid and reliable.

2.6 Relationship Among Variables

Relationships among variables can be causal or correlational. A causal relationship implies that one variable directly influences another, while a correlational relationship indicates that variables are associated but not necessarily causally linked. For example, a study might find a causal relationship between education and income, where higher education leads to higher income (Bryman, 2016). In contrast, a correlational relationship might exist between education and health, where higher education is associated with better health outcomes, but other factors (e.g., access to healthcare) may also play a role (Ali et al., 2021). Understanding these relationships is essential for designing effective research studies. So, we can say that understanding relationships between variables is crucial in sociological research. These relationships can be:

- **Positive Correlation:** As one variable increases, the other also increases (e.g., higher education leads to higher income).
- **Negative Correlation:** As one variable increases, the other decreases (e.g., higher unemployment rates lead to lower household income).
- **Causal Relationship:** A change in one variable directly influences another (e.g., government policies affecting poverty levels).

Self-Assessment Questions

MCQs

1. Which of the following is an example of a concept?
   a) Age
   b) Social class
   c) Income
   d) Gender
   Correct Answer: b

2. Operationalisation involves:
   a) Defining abstract concepts
   b) Measuring variables
   c) Both a and b
   d) None of the above
   Correct Answer: c

3. A variable that influences another variable is called:
   a) Dependent variable
   b) Independent variable
   c) Moderating variable
   d) Mediating variable
   Correct Answer: b

4. Which type of variable is “age”?
   a) Categorical
   b) Continuous
   c) Moderating
   d) Mediating
   Correct Answer: b

5. A causal relationship implies:
   a) Correlation
   b) Influence
   c) Both a and b
   d) None of the above
   Correct Answer: b

Restricted Response Questions

1. Define ,conceptualisation and operationalization with examples.
2. Explain the difference between independent and dependent variables.
3. Discuss the types of variables used in social research.
4. How are causal relationships different from correlational relationships?

5. Provide an example of a moderating variable in a study on education and income.
6. Define and provide examples of key concepts in sociological research.
7. How does conceptualisation improve research clarity?
8. Explain the significance of operationalisation in empirical studies.
9. Differentiate between independent and dependent variables with examples.
10. What role do control variables play in sociological research?

Extended Response Questions

1. How would you operationalise the concept of "social mobility" in a study on Pakistani society?
2. Discuss the challenges of measuring abstract concepts in social research.
3. Analyse the relationship between education and income in the context of Pakistan.
4. Discuss the importance of conceptualisation, and operationalisation in social research.
5. Compare and contrast different types of variables with examples.
6. Analyse how the relationship among variables affects research findings.
7. Examine the challenges of defining and measuring abstract sociological concepts.
8. Evaluate the impact of extraneous variables on research validity.

Further Readings

Books:

- Babbie, E. (2020). The Practice of Social Research (15th ed.). Cengage Learning.
- Creswell, J. W. (2022). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). SAGE Publications.
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Articles and Reports:

- Pakistan Bureau of Statistics. (2021). Pakistan Social and Living Standards Measurement (PSLM) Survey Reports.
- Khan, R. (2019). Gender roles and empowerment in rural Pakistan. Journal of Gender Studies, 8(4), 67-82.

Databases and Online Libraries:

- JSTOR: https://www.jstor.org/
- HEC Digital Library: https://www.digitallibrary.edu.pk/
- Google Scholar: https://scholar.google.com/
- Directory of Open Access Journals (DOAJ): https://www.doaj.org/
- ResearchGate: https://www.researchgate.net/

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Unit: 3

SELECTION AND FORMULATION OF RESEARCH PROBLEM

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INTRODUCTION

The selection and formulation of a research problem are crucial steps in the research process, as they determine the direction and feasibility of the study. A well-defined research problem provides clarity and focus, guiding the research design, data collection, and analysis. This unit explores the factors influencing the selection of a research problem, its components, significance, and feasibility. The process of selecting a research problem requires a systematic approach to ensure that the study is meaningful, relevant, and contributes to the existing body of knowledge. Researchers must evaluate various determinants, including theoretical significance, social relevance, and ethical considerations, before finalising their research focus. This unit focuses on the critical process of selecting and formulating a research problem. A well-defined research problem is the foundation of any study, guiding the research design, methodology, and analysis. This unit will explore the determinants of problem selection, the components of a research proposal, and the steps involved in formulating a feasible research problem.

OBJECTIVES

- Understand the factors influencing the selection of a research problem.
- Identify the components of a research proposal.
- learn the steps involved in formulating a research problem.
- Evaluate the feasibility and significance of a research problem.

Major Topics

- Determinants of Selection
- Components of a Research Proposal
- Components of a Research Problem
- Significance of a Research Problem
- Steps in Research
- Feasibility of the Study

3.1 Determinants of Selection

The selection of a research problem is influenced by several factors, including personal interest, societal relevance, availability of resources, and academic significance. Personal interest ensures that the researcher remains motivated throughout the study. Societal relevance ensures that the research addresses pressing issues, such as poverty, education, or healthcare in Pakistan. For example, a study on the impact of climate change on agriculture in Punjab would be highly relevant given the region's dependence on farming (Ahmed & Malik, 2022). Availability of resources, such as funding, data, and access to participants, also plays a critical role in problem selection. Finally, the academic significance of a problem ensures that it contributes to existing knowledge and fills gaps in the literature (Bryman, 2016). So we can say that the selection of a research problem depends on various factors, including:

- **Personal Interest:** Researchers are more likely to engage effectively in a study they find interesting and relevant to their expertise.
- **Social Relevance:** The problem should address a significant social issue, such as poverty, education, health disparities, or gender inequality.
- **Theoretical Contribution:** The research should contribute to the advancement of knowledge in a particular field.
- **Practical Feasibility:** Availability of data, time, and financial resources should be considered before selecting a topic.
- **Ethical Considerations:** The research must adhere to ethical standards, ensuring the safety and confidentiality of participants.
- **Policy Implications:** Research topics that influence policy decisions or contribute to social change are highly valuable.

3.2 Components of a Research Proposal

A research proposal is a detailed plan that outlines the objectives, methodology, and significance of a study. A research proposal outlines the framework of a study and includes:

- **Title:** A concise, descriptive title reflecting the study focus.
- **Introduction:** Background, rationale, and significance of the study.
- **Research Objectives:** Clear, specific, and measurable objectives guiding the study.
- **Research Questions:** Key questions the study aims to answer.
- **Literature Review:** Summary of existing research relevant to the problem, identifying research gaps.
- **Methodology:** Research design, sampling methods, and data collection techniques.
- **Ethical Considerations:** Strategies to ensure ethical compliance, including informed consent and confidentiality.
- **Expected Outcomes:** Potential contributions and impact of the research on academia, policy, and society.
- **Timeline:** A schedule for completing different stages of the research.
- **Budget:** An estimate of the costs involved in conducting the research.
- **Bibliography/References:** A list of sources consulted during proposal preparation.

For example, a research proposal on gender disparities in education in Pakistan might include a literature review on existing studies, a hypothesis about cultural barriers, and a methodology involving surveys and interviews (Ali & Khan, 2020).

3.3 Components of a Research Problem

A research problem consists of several key components:

- **Thematic Area:** The broad subject under study.
- **Research Gap:** An identified gap in the existing literature that the study aims to address.
- **Research Questions:** Specific questions that the study seeks to answer.
- **Objectives:** Clear and measurable goals of the research.
- **Scope and Limitations:** The boundaries of the study, including the population, geographic area, and time frame. Boundaries and constraints of the study to ensure focus and manageability.
- **Significance:** The potential contribution of the study to theory, policy, or practice.

For instance, a research problem on the impact of social media on youth mental health in Pakistan might include a research gap in understanding cultural factors, specific questions about usage patterns, and objectives to identify risk factors and propose interventions (Khan, 2019).

3.4 Significance of a Research Problem

The significance of a research problem lies in its potential to contribute to knowledge, inform policy, or address societal issues. A significant research problem addresses gaps in the literature, provides new insights, or challenges existing assumptions. For example, a study on the effectiveness of microfinance programs in reducing poverty in rural Pakistan would be significant because it addresses a pressing social issue and provides evidence for policymaking (Hussain, 2020). The significance of a research problem also depends on its relevance to the target audience, such as academics, policymakers, or practitioners. It can be concluded that the importance of a research problem lies in its ability to:

- Contribute new insights to existing literature and fill knowledge gaps.
- Address critical social issues by providing empirical evidence.
- Guide policymakers in decision-making through evidence-based recommendations.
- Enhance academic discourse and future research in the field.

3.5 Steps in Research

The research process involves several steps, from problem formulation to reporting findings. These steps include:

- **Identifying the Problem & Assessing Feasibility:** Selecting a relevant and feasible research problem. Evaluating practical aspects of conducting research, including time, resources, and ethical considerations.
- **Reviewing the Literature:** Conducting a thorough review of existing research to identify gaps and inform the study.
- **Formulating Hypotheses/Research Questions:** Developing clear and testable hypotheses or questions.
- **Designing the Study:** Choosing an appropriate research design and methodology.
- **Collecting Data:** Gathering data using methods such as surveys, interviews, or experiments.
- **Analyzing Data:** Using statistical or qualitative techniques to analyze the data.
- **Interpreting Results:** Drawing conclusions based on the analysis.
- **Reporting Findings:** Presenting the results in a research report or publication.

For example, a study on the impact of parental education on children's academic performance in Pakistan would follow these steps, starting with identifying the problem and ending with reporting the findings (Ali et al., 2021).

In following image, you may find research process in a nutshell:



Steps involved in research process

3.6 Feasibility of the Study

Feasibility refers to the practicality of conducting a study, considering factors such as time, cost, access to data, and ethical considerations. A feasible research problem can be realistically addressed within the available resources and constraints. For example, a study on the impact of COVID-19 on mental health in Pakistan would need to consider the availability of participants, the cost of data collection, and the ethical implications of studying a sensitive topic (Ahmed & Malik, 2022).

Researchers must also consider the feasibility of their chosen methodology, such as whether they have the skills and resources to conduct a large-scale survey or a qualitative case study. Determining the feasibility of a research project involves several key considerations. Here's a structured approach to evaluating feasibility:

1. Define the Research Question

- Clearly articulate the research question or hypothesis. This helps in assessing its significance and relevance.

2. Literature Review

- Conduct a thorough review of existing literature to understand the current state of knowledge. This helps identify gaps that your research could fill and informs the methodology.

3. Assess Resources

- **Funding**: Evaluate the budget required and potential sources of funding.
- **Time**: Estimate the timeline for the project, including phases of research, data collection, analysis, and reporting.
- **Personnel**: Determine if you have the necessary expertise and manpower. Consider collaborations if needed.

4. Methodological Considerations

- Assess whether the proposed methods are appropriate and feasible given the resources and time constraints.
- Consider the availability of necessary tools, technology, and data.

5. Ethical Considerations

- Identify any ethical issues related to the research, including participant consent, data privacy, and potential risks.

6. Regulatory Compliance

- Ensure the project complies with relevant regulations and institutional guidelines, especially for projects involving human or animal subjects.

7. Risk Assessment

- Identify potential risks and challenges (e.g., logistical issues, recruitment challenges) and develop mitigation strategies.

8. Stakeholder Engagement

- Consider the interests and perspectives of stakeholders, including funding bodies, community members, and collaborators. Their support can be crucial.

9. Pilot Studies

- If applicable, conduct a pilot study to test the feasibility of your methods and refine your approach based on initial findings.

10. Review and Revise

- Be open to revising your project based on feedback from peers, mentors, or advisory boards. Continuous assessment throughout the project can help address feasibility concerns as they arise.

Conclusion

By systematically evaluating these factors, you can make an informed decision about the feasibility of your research project. A well-prepared feasibility assessment increases the likelihood of successful project execution and can help secure funding and support. We can conclude that the feasibility assessment involves:

- **Data Availability:** Ensuring access to necessary data sources for the research.
- **Time Constraints:** Determining if the research can be completed within a given timeframe.
- **Financial Resources:** Budgeting for expenses related to data collection, software, and personnel.
- **Ethical Approval:** Securing permission from relevant authorities and ensuring compliance with research ethics.
- **Researcher's Competency:** Assessing the researcher's skills and experience to carry out the study effectively.

Self-Assessment Questions

MCQs

1. Which of the following is a determinant of problem selection?
   a) Personal interest
   b) Availability of resources
   c) Societal relevance
   d) All of the above
   Correct Answer: d

2. A research proposal typically includes:
   a) Title and introduction
   b) Literature review and methodology
   c) Timeline and budget
   d) All of the above
   Correct Answer: d

3. Which of the following is a component of a research problem?
   a) Research gap
   b) Research questions
   c) Objectives
   d) All of the above
   Correct Answer: d

4. The significance of a research problem lies in its:
   a) Contribution to knowledge
   b) Relevance to policy
   c) Both a and b
   d) None of the above
   Correct Answer: c

5. The feasibility of a study depends on:
   a) Time and cost
   b) Access to data
   c) Ethical considerations
   d) All of the above
   Correct Answer: d

Restricted Response Questions

1. What factors influence the selection of a research problem? Provide examples.
2. Describe the key components of a research proposal.

3. Explain the steps involved in the research process.
4. Why is the significance of a research problem important?
5. Discuss the factors that determine the feasibility of a study.
6. Define a research problem and explain its importance in social research.
7. What are the key determinants of selecting a research problem?
8. Discuss the role of literature review in problem formulation.
9. How does feasibility influence the research process?
10. Explain the ethical considerations in selecting a research problem.

Extended Response Questions

1. How would you formulate a research problem on gender inequality in education in Pakistan?
2. Analyse the challenges of conducting a study on mental health in a developing country like Pakistan.
3. Discuss the importance of a literature review in the research process.
4. Discuss the significance and key components of a research proposal.
5. Compare and contrast different factors influencing the selection of a research problem.
6. Examine the steps involved in defining a research problem with relevant examples.
7. Evaluate the feasibility aspects that researchers must consider before starting a study.
8. Analyse the impact of research problem formulation on the overall research process.

Further Readings

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Unit: 4

REVIEW OF LITERATURE AND THEORETICAL FRAMEWORK

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INTRODUCTION

A thorough review of literature is a fundamental step in social research, providing the foundation for understanding existing knowledge and identifying gaps that justify further investigation. It helps in contextualising the research problem within the broader academic discourse. Alongside the literature review, establishing a theoretical framework is crucial in guiding the research design and interpretation of findings. Theoretical perspectives provide structured ways of analysing social phenomena, ensuring that the study is anchored in well-established academic traditions. This unit explores the significance of literature review, different sources of information, and the role of theoretical frameworks in formulating research problems. It also discusses the process of synthesising prior studies, evaluating their contributions, and effectively integrating them into the research process. This unit focuses on the critical role of the literature review and theoretical framework in social research. A thorough literature review helps researchers understand existing knowledge, identify gaps, and build a foundation for their study. The theoretical framework provides a lens through which the research problem is examined, guiding the research design and interpretation of findings. This unit will explore the significance, sources, and contribution of literature reviews and theoretical frameworks in sociological research.

OBJECTIVES

- Understand the purpose and significance of a literature review.
- Identify the sources of literature for a research study.
- learn how to contribute to the formulation of a research problem through a literature review.
- Develop a theoretical framework to guide the research process.

Major Topics

- Significance of Literature Review
- Sources of Literature
- Contribution to Formulation of the Research Problem
- Theoretical Framework

4.1 Significance of Literature Review

The next step researchers undertake is to conduct background research through a **literature review**, which is a review of any existing similar or related studies. A visit to the library and a thorough online search will uncover existing research about the topic of study. This step helps researchers gain a broad understanding of work previously conducted on the topic at hand and enables them to position their research to build on prior knowledge. It allows them to sharpen the focus of their research question and avoid duplicating previous research. Researchers—including student researchers—are responsible for correctly citing existing sources they use in a study or that inform their work. While it is fine to build on previously published material (as long as it enhances a unique viewpoint), it must be referenced properly and never plagiarised. To study hygiene and its value in a particular society, a researcher might sort through existing research and unearth studies about childrearing, vanity, obsessive-compulsive behaviours, and cultural attitudes toward beauty. It's important to sift through this information and determine what is relevant. Using existing sources educates a researcher and helps refine and improve a study's design.

A literature review is a systematic examination of existing research on a topic. It serves several key purposes:

- **Identifying Gaps:** It helps researchers identify gaps in the existing literature that their study can address. For example, a literature review on gender disparities in education in Pakistan might reveal a lack of studies on the role of cultural norms in rural areas (Ali & Khan, 2020).
- **Building a Theoretical Foundation:** It provides a theoretical foundation for the study by summarising key concepts, theories, and findings. For instance, a study on poverty might draw on Amartya Sen's capability approach to understand the multidimensional nature of poverty (Sen, 1999).
- **Understanding Existing Knowledge:** It provides an overview of what has already been studied, preventing duplication of research efforts.
- **Defining Key Concepts and Variables:** Clarifies the terminology and theoretical underpinnings of the study.
- **Supporting Methodological Choices:** Justifies the selection of research design, data collection methods, and analytical techniques.

- **Avoiding Duplication:** It ensures that the research does not duplicate existing studies, saving time and resources.
- **Informing Methodology:** It helps researchers choose appropriate methods and tools based on what has worked in previous studies.
- **Establishing the Research Rationale:** Demonstrates the study's relevance and necessity in the academic field.

A well-conducted literature review is essential for producing high-quality research. For example, a study on the impact of social media on youth mental health in Pakistan would benefit from a review of global studies on social media usage and mental health, as well as local studies on cultural factors (Khan, 2019).

4.2 Sources of Literature

Researchers can draw on a wide range of sources for their literature review, including:

- **Academic Journals:** Peer-reviewed journals are the most reliable source of academic research. Examples include *Journal of Sociology*, *Pakistan Journal of Social Sciences*, and *Journal of Educational Research*.
- **Books:** Textbooks and monographs provide in-depth discussions of theories and concepts. For example, Bryman's *Social Research Methods* (2016) is a key resource for understanding research methodologies.
- **Theses and Dissertations:** These provide detailed studies on specific topics and can be accessed through university libraries or online repositories like ProQuest.
- **Government Reports:** Reports from organisations like the Pakistan Bureau of Statistics or the World Bank provide valuable data and insights. For instance, the *Pakistan Social and Living Standards Measurement (PSLM) Survey* offers data on poverty, education, and health (Pakistan Bureau of Statistics, 2021).
- **Conference Papers:** These provide the latest research findings and emerging trends.
- **Online Databases:** Resources like JSTOR, Google Scholar, and HEC Digital Library provide access to a wide range of academic literature.

It can be further summarised that researchers rely on various sources when conducting a literature review, which include:

- **Scholarly Books:** Provide in-depth analysis and historical context for research topics.
- **Journal Articles:** Offer peer-reviewed, up-to-date research findings and theoretical discussions.

- **Conference Proceedings:** Present the latest academic discussions and ongoing research.
- **Theses and Dissertations:** Contain extensive research and serve as valuable references.
- **Government Reports and Policy Documents:** Provide empirical data and policy insights.
- **Databases:** Platforms like JSTOR, Google Scholar, and PubMed facilitate access to relevant literature.
- **Web-Based Sources:** Online repositories, institutional reports, and credible websites contribute to literature reviews.

For example, a study on climate change and rural livelihoods in Pakistan might draw on academic journals for theoretical insights, government reports for data, and theses for case studies (Ahmed & Malik, 2022).

4.3 Contribution to Formulation of the Research Problem

A literature review plays a critical role in formulating the research problem by:

- **Identifying Research Gaps:** It helps researchers identify areas that have not been adequately studied. For example, a review of literature on gender disparities in education might reveal a lack of studies on the role of teachers' attitudes in perpetuating inequality (Ali & Khan, 2020).
- **Refining Research Questions:** It helps researchers refine their research questions based on existing knowledge. For instance, a study on poverty might start with a broad question like "What causes poverty?" and refine it to "How do cultural factors contribute to poverty in rural Pakistan?"
- **Providing Theoretical Insights:** It provides theoretical insights that can guide the research. For example, a study on social mobility might draw on Pierre Bourdieu's theory of cultural capital to understand how education influences social mobility in Pakistan (Bourdieu, 1986).
- **Informing Methodology:** It helps researchers choose appropriate methods and tools based on what has worked in previous studies.

Further, the literature review plays a critical role in shaping research by:

- **Refining Research Problems:** Helps narrow broad topics into specific, researchable problems.
- **Formulating Research Questions:** Provides insights into key issues requiring investigation.
- **Developing Hypotheses:** Suggests possible relationships between variables based on previous findings.
- **Providing Theoretical Foundations:** Establishes a scholarly framework for interpreting results.

- **Avoiding Redundancy:** Ensures that the study does not duplicate existing work without adding value.

For example, a study on the impact of microfinance on women's empowerment in Pakistan might use the literature review to identify gaps in understanding the role of cultural barriers and refine its research questions accordingly (Hussain, 2020).

4.4 Theoretical Framework

A theoretical framework is a structure that guides the research process by providing a lens through which the research problem is examined. It consists of concepts, theories, and models that explain the phenomenon under study. The theoretical framework serves several key functions:

- **Guiding Research Design:** It helps researchers choose appropriate methods and tools. For example, a study on gender inequality might use feminist theory to guide its research design (Bryman, 2016).
- **Interpreting Findings:** It provides a basis for interpreting the findings. For instance, a study on poverty might use Amartya Sen's capability approach to interpret how lack of access to education and healthcare contributes to poverty (Sen, 1999).
- **Linking to Existing Knowledge:** It links the study to existing knowledge and theories. For example, a study on social mobility might use Bourdieu's theory of cultural capital to explain how education influences social mobility in Pakistan (Bourdieu, 1986).

Developing a theoretical framework involves selecting relevant theories and concepts, defining key terms, and explaining how they relate to the research problem. For example, a study on the impact of social media on youth mental health might use theories of media effects and psychological well-being to develop its framework (Khan, 2019). A theoretical framework serves as a lens through which research is conducted and interpreted. It consists of:

- **Conceptual Underpinnings:** Foundational theories relevant to the research topic.
- **Assumptions and Propositions:** Statements that define expected relationships between variables.
- **Models and Constructs:** Established models that guide research design and data interpretation.

Common sociological theories used in research include:

- **Functionalism:** Examines social structures and their functions.
- **Conflict Theory:** Analyses power dynamics and inequalities.
- **Symbolic Interactionism:** Focuses on meanings and social interactions.
- **Feminist Theory:** Explores gender relations and social justice.

Frameworks in research play a crucial role in shaping the direction of a research project. They serve as the foundation upon which studies are built and analysed, offering a lens through which researchers can interpret their findings. However, they are also a source of confusion for researchers, so, in this blog post, I explain the differences between theoretical and conceptual frameworks, why they are important in research, and how researchers can choose a framework for their study.

4.4.1 Theoretical and conceptual frameworks: what are the differences?

The most common confusion I see when talking to researchers about frameworks is that they do not understand the difference between a theoretical and a conceptual framework. So, what are the differences?

- A researcher uses a theoretical framework when they are using a pre-established theory for their study. A theoretical framework is founded upon a well-established theory, focuses on explaining phenomena using this existing theory, and is chosen based on examining which theories are commonly used in the field.
- A researcher uses a conceptual framework when they select concepts from several theories and construct them into a framework for a specific study. A conceptual framework is constructed by the researcher, aims to explore relationships between different concepts, and is developed by synthesising different ideas from the field.

It is important to note that you should choose *either* a theoretical or a conceptual framework – usually, one project does not have both. This is because they serve the same purpose – they provide the vision for your study. Having two competing frameworks, therefore, would confuse your study. The only time you would have two frameworks is if your project had two distinct parts that were unrelated to each other.

4.4.2 Why do frameworks matter in research?

So why is it important to have a framework in your study? Frameworks are important because they provide a foundation and vision for your project. They help the researcher make sense of the chaos of the data by revealing the theories or concepts that will be used to analyse and explain findings. Frameworks influence:

- **The research design**: Theoretical and conceptual frameworks help shape the research design, including the choice of data collection and analysis methods. By setting out the key concepts and their relationships, they provide a roadmap for conducting the study.
- **The data analysis**: They offer a lens for interpreting the data collected during the research. This is particularly crucial in qualitative data analysis, where the researcher seeks to understand complex phenomena through the perspectives of participants.

- **The rigour and relevance of a study**: The use of a theoretical or conceptual framework enhances the rigour of a study by ensuring that its findings can be linked back to broader discussions in the field.
- **How research builds on existing knowledge**: Grounding research in a theoretical or conceptual framework ensures that new studies build upon or challenge the existing body of knowledge.

Frameworks also reveal the beliefs and assumptions of the researcher. This necessitates that the researcher carefully articulate their framework, explaining key concepts within the framework and why they are important for the particular study. Concepts can often mean different things to different people. For example, if you mention to your friend that you just adopted a dog but do not provide further details, the image of your dog in your head could be quite different from what your friend imagines. In the same way, research concepts are often multifaceted and require careful explanation in a research project.

4.4.3 Identifying frameworks in the literature

Identifying frameworks in published articles is a crucial skill for researchers, enabling them to understand a study's theoretical or conceptual underpinnings, replicate research designs, or apply similar frameworks in their work. However, this is not always easy, and sometimes frameworks are not explicitly stated. So, how do you identify a framework in a published study?

- **Look for explicit mentions**: This is the easiest strategy, provided that the framework is mentioned explicitly, of course. Search for sentences such as "This study is grounded in X theory" or "We employ Y's conceptual model as a framework."
- **Consider the research questions**: The nature of the research questions or hypotheses can often indicate the type of framework being used.
- **Trace the references**: Frameworks can be identified by looking at the citations of foundational works within a published source. Checking these references can provide a deeper understanding of the framework that the authors have used. Below, I have listed some of the most common frameworks used in social sciences, particularly educational research. Searching for words such as these will help you find the framework in a study.
    - Bourdieu's Theory of Practice
    - Foucault's theories on power, discourse, and knowledge
    - Bronfenbrenner's Ecological Systems Theory
    - Cultural-historical theory (Vygotsky) or Cultural-historical activity theory (Vygotsky and Leontiev)
    - Theories of learning (e.g., community of practice, experiential learning, transformative learning)

- Performativity and/or embodiment (e.g., gender performativity)
- Intersectionality and/or epistemic (in)justice
- New literacies theory or digital literacies
- TPACK (Technological pedagogical content knowledge)

4.4.4 How to choose a framework?

Choosing the right framework for your research is a critical decision that shapes your study's direction, coherence, and trustworthiness. Whether you opt for a theoretical or conceptual framework depends on your research objectives, the nature of your study, and the existing literature in your field.

- The first step in choosing a framework is to clarify your research objectives: What are you trying to discover, explore, explain, or analyse? Your research objectives will guide your choice of framework by highlighting the key concepts, theories, or models that are most relevant to addressing your research questions.
- The second step is to conduct an extensive literature review to identify potential frameworks that have been applied to similar research problems. By examining how these frameworks have been used in past studies, you can identify gaps (i.e., look for areas where existing frameworks may not fully address your research problem or where there is room for further exploration), assess applicability (i.e., determine how well the frameworks align with your research objectives and the specific context of your study), and draw inspiration (i.e., even if existing frameworks do not fit your needs exactly, they can provide a starting point for developing your own).
- The third step is to assess the theoretical alignment by ensuring the framework's underlying assumptions align with your research philosophy. This involves thinking about the philosophical assumptions (e.g., your ontology, epistemology, and axiology) that underlie different frameworks and whether they are compatible with your view of the world.
- The fourth step is to consider the methodological fit of each potential framework. The framework you choose should complement your research methodology, as it will influence the design, data collection, and analysis methods you will use.
- The fifth step is to explore the flexibility of the framework to your specific research context. Some frameworks may be too rigid, limiting your ability to explore the nuances of your research problem fully. Others might offer the adaptability needed to address unique aspects of your study.
- Finally, the sixth step is to reflect on the potential originality and contribution of the framework. Your chosen framework should enable you to make a meaningful contribution to your field. This might involve applying an existing framework in a new context, combining frameworks

innovatively, or developing a new conceptual framework based on your findings.

Remember that context matters. Just because a theory is common in your field does not mean it is appropriate for your particular context. You might have to modify it by integrating theories or concepts relevant to your context, ensuring it more accurately reflects the cultural, political, religious, or additional aspects of your environment.

- **Conduct a context analysis**: Understand the broader and specific conditions in which your research is situated.
- **Engage with local knowledge**: Leverage insights from local experts and contextual literature to understand the context-specific nuances.
- **Evaluate frameworks for context sensitivity**: Assess potential frameworks for their ability to accommodate or adapt to the specificities of your research context.
- **Consider the adaptability of the framework**: Determine if the framework can be modified to better align with contextual demands without losing its theoretical integrity.

Incorporating context into the decision-making process for selecting a research framework underscores a commitment to conducting thoughtful, rigorous, and impactful research that resonates with its intended audience and addresses the complexities of the real world.

4.4.5 Some final thoughts…

The adoption of a well-defined framework in research is not merely a formal requirement but a cornerstone for ensuring the rigour, coherence, and depth of your study. A framework acts as a compass, guiding researchers through the complexities of their inquiry, from formulating research questions to interpreting findings. It provides a structured lens through which data can be examined, theories tested, and new insights uncovered, ensuring that research is not conducted in a vacuum but is connected to and informed by, the wider scholarly community. Moreover, selecting and applying a framework necessitates a deep engagement with the subject matter and the methodological approaches best suited to exploring it. This engagement fosters a more nuanced understanding of the research problem and enriches the research design, ultimately enhancing the quality and impact of the findings.

Self-Assessment Questions

MCQs

1. What is the primary purpose of a literature review?
   a) To identify gaps in existing research
   b) To duplicate previous studies
   c) To avoid using theories
   d) None of the above
   Correct Answer: a

2. Which of the following is a source of literature for a research study?
   a) Academic journals
   b) Government reports
   c) Theses and dissertations
   d) All of the above
   Correct Answer: d

3. A theoretical framework helps in:
   a) Guiding research design
   b) Interpreting findings
   c) Linking to existing knowledge
   d) All of the above
   Correct Answer: d

4. Which theory might be used to study social mobility in Pakistan?
   a) Bourdieu's theory of cultural capital
   b) Amartya Sen's capability approach
   c) Feminist theory
   d) All of the above
   Correct Answer: a

5. A literature review contributes to the formulation of a research problem by:
   a) Identifying research gaps
   b) Refining research questions
   c) Providing theoretical insights
   d) All of the above
   Correct Answer: d

Restricted Response Questions

1. Explain the significance of a literature review in social research.
2. What are the key sources of literature for a research study?

3. How does a literature review contribute to the formulation of a research problem?
4. What is a theoretical framework, and why is it important in research?
5. Discuss the role of theories in developing a theoretical framework.
6. Define literature review and explain its importance in research.
7. What are the key sources of literature in social research?
8. How does a literature review contribute to formulating a research problem?
9. Differentiate between a theoretical framework and a conceptual framework.
10. Explain the role of scholarly databases in conducting a literature review.

Extended Response Questions

1. How would you conduct a literature review for a study on gender inequality in education in Pakistan?
2. Analyse the challenges of developing a theoretical framework for a study on poverty in rural Pakistan.
3. Discuss the importance of linking a research study to existing knowledge and theories.
4. Discuss the significance of literature review in social research, providing relevant examples.
5. Compare and contrast different types of sources used in literature review.
6. Explain how a literature review shapes research questions and hypotheses.
7. Analyse the impact of theoretical frameworks in guiding research methodology.
8. Evaluate the role of emerging digital resources in modern literature reviews.

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Unit: 5 & 6

USE OF COMPUTERS IN RESEARCH

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INTRODUCTION

Computers and the internet have transformed social research by providing tools for efficient data collection, analysis, and dissemination. With the ability to gather and process large volumes of data, researchers can now conduct studies more quickly, cost-effectively, and on a broader scale than ever before. The use of computers and the internet in social research has dramatically transformed how data is collected, analysed, and shared. Computers allow researchers to access vast repositories of digital information, conduct literature searches efficiently, and manage complex datasets. The internet, with its rich databases, web search engines, and online resources, provides access to a range of materials that were once difficult or impossible to obtain. This unit aims to explore how social researchers can leverage technology to conduct literature searches, gather data, and manage research findings more efficiently and effectively0. By combining both offline and online tools, researchers can optimise their approaches to gathering and analysing data. This unit explores the role of computers and the Internet in modern social research. With the advent of digital technology, researchers now have access to powerful tools for data collection, analysis, and dissemination. This unit will cover the use of computers for literature searches, online and offline data collection, and the application of internet-based tools in sociological research. It will also discuss the ethical considerations and challenges associated with using digital technologies in research.

OBJECTIVES

- Understand the role of computers in literature searches and data collection.
- Differentiate between offline and online data searches.
- learn how to use the internet for research purposes.
- Explore the process of transferring and analysing data using computer software.
- Discuss the ethical implications of using digital tools in social research.

Major Topics

- Using the Computer for Literature Search
- The Value of Offline and Online Searches
- Using the Internet for Research
- Search on the Web
- Taking Data to the Computer

5.1 Using the Computer for Literature Search

Computers have revolutionised the way researchers conduct literature reviews. Digital tools allow researchers to access a vast number of academic resources quickly and efficiently. Key tools for literature searches include:

- **Academic Databases:** Platforms like JSTOR, PubMed, and Google Scholar provide access to peer-reviewed journals, books, and conference papers. For example, a researcher studying gender inequality in Pakistan can use these databases to find relevant studies (Ali & Khan, 2020).
- **Library Catalogues:** University libraries often have digital catalogues that allow researchers to search for books and theses. The HEC Digital Library in Pakistan is a valuable resource for local and international literature (HEC, 2021).
- **Reference Management Software:** Tools like Zotero, Mendeley, and EndNote help researchers organise and cite their sources. These tools are particularly useful for managing large volumes of literature.
- **Digital Libraries and Databases**: With the evolution of technology, literature searches have moved from relying on physical libraries and archives to the utilisation of **digital libraries and academic databases**. Databases such as **JSTOR**, **Google Scholar**, **PubMed**, and **ERIC** are indispensable tools for accessing peer-reviewed journal articles, books, theses, and conference papers. These digital resources provide an effective method for accessing a broad spectrum of academic literature. Researchers can search for articles using specific keywords, dates, authors, or journals, facilitating a targeted and efficient review process.
  Example: A researcher investigating social mobility in Pakistan can use JSTOR or Google Scholar to locate academic papers like "Social Mobility in Pakistan: A Critical Review," which provides access to peer-reviewed articles and publications specific to the region and topic.
- **Research Networks**: **ResearchGate** and **Academia.edu** offer platforms where researchers upload their work, making it publicly available to a global audience. These networks not only provide access to articles but also

facilitate direct communication with authors for collaboration or to request unpublished data or drafts.

Example: A sociologist studying the impact of migration on family structures in South Asia can connect with authors in this field through these platforms, requesting insights or data from similar studies to strengthen their research.

For example, a study on the impact of climate change on agriculture in Pakistan might begin with a comprehensive literature search using these tools to identify gaps and build a theoretical framework (Ahmed & Malik, 2022).

5.1.1 Data Collection Methods Using Computer Technology

- **Online Surveys and Questionnaires**: Platforms such as Google Forms, SurveyMonkey, and Qualtrics make it easier to design and distribute surveys globally. These platforms offer tools to analyse responses in real-time.
- **Web Scraping**: This technique involves extracting data from websites, which is particularly useful for analysing social media data and public opinions. Tools like Beautiful Soup and Scrapy facilitate web scraping for research purposes.
- **Online Interviews and Focus Groups**: Virtual platforms such as Zoom, Microsoft Teams, and Skype are widely used for conducting interviews and focus groups. These tools also offer features like transcription, which aids in data analysis.

5.1.2 Use of Software for Data Analysis and Statistical Tools

- **SPSS**: This statistical software remains a popular choice for analysing social research data. It offers a wide range of functions for both descriptive and inferential statistics and is particularly user-friendly for researchers with limited statistical experience.
- **R**: R is an open-source statistical programming language that provides powerful tools for data analysis and visualisation. It is widely used in advanced social research for its flexibility and depth in statistical procedures.
- **Python**: Python is a versatile programming language with libraries like Pandas, NumPy, and Matplotlib, which allow researchers to conduct data analysis, create visualisations, and automate data management tasks.

5.1.3 Data Visualisation and Presentation Tools

- **Excel**: Despite its simplicity, Excel remains one of the most commonly used tools for data entry and basic analysis. Its charting functions help present simple visual representations of data.

- **Tableau**: Tableau is a powerful data visualisation tool that allows researchers to create interactive, shareable dashboards. It is useful for presenting complex data in an accessible format, helping to convey findings clearly.
- **Gephi**: This tool is used for network analysis and visualisation. It helps researchers to examine social networks, connections, and relationships within large datasets.

5.2 The Value of Offline and Online Searches

Both offline and online searches have unique advantages in social research:

- **Offline Searches**: These involve accessing physical resources, such as books, journals, and archival materials. Offline searches are valuable for accessing rare or historical documents that may not be available online. For example, a researcher studying the history of education in Pakistan might visit archives to access old government reports and policy documents (Hussain, 2020). Despite the growing reliance on the internet, offline resources remain invaluable. Many historical documents, government reports, and some primary data collections are not available online. Researchers may need to visit physical libraries, archives, and government agencies to access older reports or materials not been digitised.
  Example: A researcher examining the role of women in early 20th-century Pakistani politics may need to visit local archives to access non-digitised historical newspapers, government reports, and personal letters that are not available online.

- **Online Searches**: These provide access to a vast amount of information quickly and efficiently. Online searches are particularly useful for accessing the latest research and data. For example, a researcher studying poverty in Pakistan can use online databases to access recent surveys and reports from the Pakistan Bureau of Statistics (Pakistan Bureau of Statistics, 2021). In contrast, online searches provide unparalleled access to a wide variety of current research materials. Searching the internet allows access to a vast range of sources, including open-access journals, government databases, and digital collections. Platforms like Google Scholar index scholarly articles from numerous disciplines, providing a centralised place for research materials.
  Example: A researcher studying global inequality may use Google Scholar to locate articles from international journals such as the "Journal of Economic Inequality," which are freely available online, ensuring quick access to the latest findings in the field.

- **Integrating Both Methods**: The most effective researchers often combine both online and offline resources to gain a comprehensive view of the literature. Online searches provide access to the most current publications, while offline searches may offer historical context and materials that are yet to be digitised. By synthesising both, researchers can ensure that they cover all bases in their literature reviews.
  Example: For a study on educational disparities in Pakistan, the researcher might use Google Scholar for the latest research on education policy and simultaneously consult offline reports from Pakistan's Ministry of Education to explore government statistics that may not yet be available online.

Combining offline and online searches allows researchers to access a wider range of resources and produce more comprehensive studies.

5.2.1 Secondary Data Collection from Online Sources

- **Online Databases**: Platforms like JSTOR, Google Scholar, and PubMed provide access to a wealth of peer-reviewed research articles, books, and reports, making them invaluable for secondary data collection.
- **Social Media and Web Data**: Social media platforms such as Twitter, Facebook, and Reddit are rich sources of data for social research. Researchers often analyse trends, sentiment, and public opinion by extracting data from these platforms using APIs and web scraping tools.

5.2.2 Internet-Based Research Methods

- **Online Surveys and Polls**: These have become one of the most effective methods for gathering primary data. Tools like Qualtrics, SurveyMonkey, and Google Forms allow for the collection of data from a wide range of respondents.
- **Content Analysis**: The internet provides researchers with vast amounts of textual data, from blogs to social media posts. Content analysis of online text data can reveal public opinions, discourse patterns, and more.
- **Digital Ethnography (Netnography)**: Netnography involves studying online communities and cultures. Researchers immerse themselves in digital spaces (e.g., forums, social media groups) to observe interactions and understand digital behaviour.

5.2.3 Ethical Considerations in Computer and Internet-Based Research

- **Privacy and Consent**: Ensuring that participants' data remains private is a major ethical concern, especially when collecting information through online platforms. Researchers must adhere to ethical guidelines by

obtaining informed consent and ensuring that data is anonymised when necessary.

- **Data Security**: Secure storage and transmission of data are essential. Researchers should use encrypted platforms and safe data storage methods to protect sensitive research information from cyber threats.
- **Digital Divide**: One of the ethical challenges in internet-based research is the unequal access to technology. Researchers must be aware of the limitations this may impose on the diversity of their study participants.

5.2.4 Challenges in Using Computers and the Internet for Social Research

- **Accuracy and Reliability of Online Data**: The vast amount of data available on the internet includes both reliable and unreliable sources. Researchers must critically assess the credibility of online information before using it in their studies.
- **Cybersecurity Risks**: Online research methods and the storage of digital data expose researchers to cybersecurity threats such as hacking or data breaches. Researchers need to follow best practices for online security.
- **Managing Large Datasets**: Computers allow researchers to handle large datasets, but this can also present challenges in terms of data organisation, storage, and analysis. Advanced data management techniques and tools are necessary for effective handling.

6.1 Using the Internet for Research

ICT, or Information and Communication Technologies or ICT refers to such technologies that provide us access to the vast body of knowledge through telecommunications. This may include a wide range of communication technologies like the internet, wireless networks, cellular phones, and, of course, other modes of communications. Undoubtedly, information and communication technologies have gifted our society with an extensive range of dynamic communication modalities which enabled our people to communicate in real time, especially with others inhabiting far-off countries through such technologies as instant messaging, voice over IP, Video Conferencing and teleconferences. Social networking sites like Facebook, Twitter, and Instagram allow users across the globe to establish contacts with one another frequently and with considerable warmth and comfort. We can say that ICT serves as the base of modern computation, which in turn has engineered the most modern form of virtual communication and dialogue. Though it is quite difficult to find one universal definition for ICT, we generally take the coinage to mean all those apparatus, devices, network-related configurations, applications and system rubrics that grossly account for individuals and government or corporate bodies, that work in unison as stakeholders to interact themselves or to enable interaction in a digitized world.

While talking of the nitty-gritty of an ICT system, it must be said that it consists of both the wired and the wireless networks. At the same time, it would also imply the existence of near-archival technologies like land-line telephones, radio, and television. Though updated as they may have become, their use has not become redundant, for we still use them in the automated world today, perhaps in an altered version alongside the contemporary artificial intelligence and robotic technology. The list of ICT constituents can be exhaustively long, for it keeps adding to one after the other, and just, for instance, our smartphones, digital devices, and robotic systems are just a few additions to the existing ones. ICT, in short, is the technological arrangement made to expedite the process of interaction or social communication among individuals, groups, or organisations in the digital age. In short, ICT, therefore, is an all-encompassing term that covers all and every device, system or application that ranges from radio, television, digital phones, computers, both hardware and software network, satellite coverage; and at the same time various applications, systems, and services related to them such as video-calling and distance education.

Along with ICT came the age of the ubiquitous 'digital divide', for it brought along with it a notorious gender gap in the society, riding on the tide of socio-economic factors which tore the society apart. ICT has increasingly been used as an initiator for higher education since the 1990s. A decade ago, we spoke of technical and vocational education as well as training the teachers. It was only in the late 1990s that we could see a change, and this was reflected in the wider world.

ICT seems to have its application in the social research domain, largely owing to its ability to facilitate the knowledge accumulation process, which is a prerequisite for building a robust system of inquiry. Let us have a look at the areas where ICT can be of immense help to social research. The relevant areas of application for ICT in social research can be broadly classified into three major areas. These three categories are given below: 1) Application of ICT in pre-data collection and analysis. 2) Application of ICT in data collection and analysis. 3) Application of ICT in post-data collection and analysis. If we specifically now emphasise on internet then we can say that the internet has become an indispensable tool for social researchers. It offers several advantages:

- **Access to Data:** Researchers can access large datasets, such as government surveys and international reports, online. For example, the World Bank's Open Data platform provides free access to global development data (World Bank, 2021).
- **Collaboration:** Online platforms like ResearchGate and Academia.edu allow researchers to collaborate and share their work with others.

- **Dissemination:** Researchers can publish their findings in open-access journals or on personal websites, making their work accessible to a wider audience.

For example, a study on the impact of social media on youth in Pakistan might use online surveys to collect data and publish its findings on an open-access platform (Khan, 2019).

Internet tools for searching online include the following:

- Web-based Journals and Databases: Open-access journals like PLOS ONE, arXiv, and BioMed Central offer free, peer-reviewed research articles on various subjects, including social sciences. These journals are particularly useful for researchers in fields that require access to up-to-date research without the financial burden of expensive journal subscriptions.
  Example: A researcher investigating climate change's social impacts might use PLOS ONE to find peer-reviewed articles on environmental sociology that are openly accessible.

- **Government and NGO Websites**: Researchers can benefit greatly from government websites and NGO reports, which often contain valuable statistics and research on social issues. For example, websites such as the Pakistan Bureau of Statistics or international organisations like the World Bank provide data on topics such as poverty, education, gender inequality, and economic growth.
  Example: A researcher examining income inequality in Pakistan might access the Pakistan Bureau of Statistics to obtain the latest census data, while an international researcher could consult the World Bank for global inequality reports and comparative data.

- **Online Communities**: Platforms like Reddit, Quora, and Twitter can serve as informal sources of qualitative data. Researchers can use these platforms to gauge public opinions, conduct surveys, or collect anecdotal evidence. Forums like Reddit allow users to share personal experiences, which can be analysed for patterns in social behaviour.
  Example: A researcher conducting a study on mental health issues in young adults may analyse posts on Reddit's mental health forums to identify emerging trends or issues in the community that may not yet be represented in formal studies.

6.2 Search on the Web

Effective web searches require the use of specific strategies and tools:

- **Search Engines:** Google Scholar is a powerful tool for finding academic literature. Researchers can use advanced search options to narrow down their results by date, author, or publication.
- **Boolean Operators:** Using terms like AND, OR, and NOT can help researchers refine their searches. For example, searching for "gender AND education AND Pakistan" will yield more targeted results.
- **Subject-Specific Databases:** Platforms like PubMed for medical research or ERIC for education research provide access to specialised literature.

For example, a researcher studying healthcare access in rural Pakistan might use PubMed to find studies on healthcare delivery and Google Scholar to find broader sociological studies (Ali et al., 2021).

- **Effective Web Searching**: The internet is vast, and web searching requires efficient techniques to locate relevant research materials. Search engines like Google, Bing, and DuckDuckGo can be leveraged to find articles, reports, and other types of scholarly material. However, simply using keywords is often inefficient. To improve search efficiency, researchers can use Boolean operators such as AND, OR, and NOT to refine their results.
  Example: A researcher seeking articles on "gender inequality in South Asia" might use a search query like "gender inequality AND South Asia" to retrieve articles that specifically address both terms, filtering out irrelevant results.

- **Refining Search Queries**: Refining search queries involves the use of specific search terms to find the most relevant materials. Using quotation marks for exact phrases (e.g., "social stratification in Pakistan") or including field-specific terms like "case study" or "survey data" can help target specific types of research materials.
  Example: A researcher studying youth migration in Pakistan might search for "youth migration AND Pakistan AND economic impact" to pinpoint articles that analyse both the demographic and economic factors associated with migration.

- **Advanced Search Features**: Search engines and databases often offer advanced search options that allow researchers to filter results by publication date, type of content, author, or peer-review status. For example, Google Scholar allows users to filter results by citations, helping researchers find the most influential studies on their topic.

Example: A researcher investigating the impact of gender norms on education could use Google Scholar's filters to prioritise articles published in the last five years, ensuring they are using the most current data.

6.3 Taking Data to the Computer

Once data is collected, it must be transferred to a computer for analysis. This process involves:

- **Data Entry:** Manually entering data into spreadsheets or statistical software. For example, survey responses can be entered into Microsoft Excel or SPSS for analysis.
- **Data Cleaning:** Removing errors and inconsistencies from the data. This step is crucial for ensuring the accuracy of the analysis.
- **Data Analysis:** Using software like SPSS, STATA, or R to analyse the data. These tools allow researchers to perform statistical tests, create visualisations, and interpret their findings.

For example, a study on the impact of microfinance on women's empowerment in Pakistan might use SPSS to analyse survey data and generate insights (Hussain, 2020). Further, it helps as follows:

- **Data Collection Tools**: Once data is collected, researchers must store and manage it efficiently. Programs like Excel, Google Sheets, or Microsoft Access are commonly used for organising quantitative data, such as survey results or statistical data. These programs provide basic functionalities for sorting, filtering, and performing descriptive analysis.
  Example: A researcher collecting survey data on public attitudes toward climate change might enter responses into Excel, organising them by demographic factors such as age, gender, and education level to observe trends.

- **Statistical Software for Analysis**: For more advanced data analysis, statistical software such as SPSS, R, and Python is frequently used. These tools can handle large datasets and provide advanced functions such as regression analysis, factor analysis, and data visualisation.
  Example: A researcher analysing large survey datasets on social mobility might use SPSS to run regression models to determine how different socioeconomic factors impact upward mobility.

- **Data Management and Security**: Proper data management is essential for ensuring that research data is organised and easily retrievable. Researchers should use cloud services such as Google Drive, Dropbox, or secure external hard drives to store their data. Regular data backups are also critical to prevent data loss.

Example: A researcher working on a longitudinal study of education outcomes may use Google Drive to store and back up data, ensuring that it is accessible from multiple devices and protected from accidental loss.

Self-Assessment Questions

MCQs

1. Which of the following is a tool for literature searches?
   a) JSTOR
   b) Google Scholar
   c) Zotero
   d) All of the above
   Correct Answer: d

2. What is the advantage of offline searches?
   a) Access to rare documents
   b) Quick access to the latest research
   c) Both a and b
   d) None of the above
   Correct Answer: a

3. Which platform allows researchers to collaborate and share their work?
   a) ResearchGate
   b) PubMed
   c) Google Scholar
   d) None of the above
   Correct Answer: a

4. What is the purpose of data cleaning?
   a) To remove errors and inconsistencies
   b) To analyse the data
   c) To publish the findings
   d) None of the above
   Correct Answer: a

5. Which software is commonly used for data analysis in social research?
   a) SPSS
   b) STATA
   c) R
   d) All of the above
   Correct Answer: d

Restricted Response Questions

1. Explain the role of computers in literature searches.
2. What are the advantages of online searches in social research?
3. How can researchers use the internet for data collection and dissemination?
4. Describe the process of transferring data to a computer for analysis.
5. Discuss the ethical considerations of using digital tools in research.
6. How can you use both offline and online searches effectively in social research?
7. Discuss the role of Google Scholar in literature search for social research.
8. Explain the advantages and challenges of using the internet for collecting social research data.
9. What are some effective strategies for refining your web search results?
10. Describe the process of transferring research data from a collection tool to a computer for analysis.

Extended Response Questions

1. How would you conduct a literature search for a study on climate change in Pakistan using digital tools?
2. Analyse the challenges of using online data for social research in developing countries like Pakistan.
3. Discuss the importance of data cleaning and analysis in ensuring the accuracy of research findings.
4. Compare the use of online and offline search techniques in social research. What are their respective advantages and limitations?
5. Evaluate the role of the Internet in expanding access to research materials. How has this affected the field of social research?
6. Discuss the ethical considerations of using web scraping and online surveys for social research. What precautions should researchers take?
7. Explain how transferring data to a computer for analysis can affect the quality of research. What software and tools are most effective for managing research data?
8. What challenges do researchers face when using the internet to conduct literature searches and gather data? How can they overcome these challenges?

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Unit: 7

FORMULATION OF HYPOTHESIS

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INTRODUCTION

A hypothesis is a critical component of the research process that serves as a tentative statement about the relationship between variables. It provides a direction for investigation, ensuring that research is structured and systematic. A well-defined hypothesis enables researchers to test assumptions and draw meaningful conclusions. Hypothesis formulation is a key step in scientific inquiry, bridging the gap between theory and empirical research. This unit discusses the definition, sources, types, and testability of hypotheses, emphasising their role in sociological research. A hypothesis is a **tentative statement** that proposes a possible explanation for a phenomenon or a relationship between variables. It serves as the foundation for research, guiding the design, data collection, and analysis processes. A well-formulated hypothesis is clear, testable, and grounded in existing knowledge. It provides direction to the study and helps researchers focus on specific objectives. Without a hypothesis, research can become aimless and lack a clear purpose. In this unit, we will explore the definition, sources, types, and characteristics of a testable hypothesis, along with examples and practical applications.

OBJECTIVES

By the end of this unit, students will be able to:

- Define and explain the concept of a hypothesis.
- Identify the sources from which hypotheses are derived.
- Differentiate between the types of hypotheses.
- Formulate a testable hypothesis for a given research problem.
- Understand the importance of hypotheses in the research process.

Major Topics

- Definition of Hypothesis
- Sources of Hypotheses
- Types of Hypotheses
- Testable Hypothesis

7.1 Definition of Hypothesis

A hypothesis is a testable prediction about the relationship between two or more variables. It is often derived from theories, observations, or prior research and provides a focus for empirical investigation. A hypothesis is not a final answer but rather a proposed explanation that can be supported or refuted through research. For example, a researcher might hypothesise that students who participate in extracurricular activities have higher academic performance than those who do not. This statement is testable because it can be evaluated by collecting and analysing data on students' participation in extracurricular activities and their academic performance (Creswell & Creswell, 2023). A hypothesis is a precise, testable statement predicting the relationship between two or more variables. It is formulated based on theoretical knowledge and empirical evidence. According to Kerlinger (1973), a hypothesis is "a conjectural statement of the relation between two or more variables." This definition highlights the importance of a hypothesis in scientific research, where it serves as a foundation for data collection and analysis (Creswell, 2018). The importance of a hypothesis lies in its ability to guide the research process. It helps researchers narrow their focus, define their variables, and design appropriate methods for data collection and analysis. A well-formulated hypothesis is clear, specific, and grounded in existing knowledge. It should also be falsifiable, meaning that it can be proven wrong if the data does not support it. Without a hypothesis, research can become unfocused and lack a clear direction (Bryman & Bell, 2022).

- **What is a Hypothesis?**

A hypothesis is an assumption that is made based on some evidence. This is the initial point of any investigation that translates the research questions into predictions. It includes components like variables, population and the relation between the variables. A research hypothesis is a hypothesis that is used to test the relationship between two or more variables.

- **Characteristics of Hypothesis**

The following are the characteristics of the hypothesis:

- The hypothesis should be clear and precise to consider it to be considered reliable.
- If the hypothesis is relational, then it should be stating the relationship between variables.
- The hypothesis must be specific and should have scope for conducting more tests.
- The way of explaining the hypothesis must be very simple, and it should also be understood that the simplicity of the hypothesis is not related to its significance.

A **hypothesis** is an assumption about how two or more variables are related; it makes a conjectural statement about the relationship between those variables. It is an "educated guess" because it is not random but based on theory, observations, patterns of experience, or the existing literature. The hypothesis formulates this guess in the form of a testable proposition. However, how the hypothesis is handled differs between the *positivist* and *interpretive* approaches. Positivist methodologies are often referred to as **hypothetico-deductive methodologies**. A hypothesis is derived from a theoretical proposition. Based on the hypothesis, a prediction or generalisation is logically deduced. In positivist sociology, the hypothesis *predicts* how one form of human behaviour influences another.

Successful prediction will determine the adequacy of the hypothesis and thereby test the theoretical proposition. Typically, positivist approaches operationalise variables as **quantitative data**; that is, by translating a social phenomenon like "health" into a *quantifiable* or numerically measurable variable like "number of visits to the hospital." This permits sociologists to formulate their predictions using mathematical language like regression formulas, to present research findings in graphs and tables, and to perform mathematical or statistical techniques to demonstrate the validity of relationships.

Variables are examined to see if there is a **correlation** between them. When a change in one variable coincides with a change in another variable, there is a correlation. This does not necessarily indicate that changes in one variable *cause* a change in another variable, however, just that they are associated. A key distinction here is between independent and dependent variables. In research, **independent variables** are the *cause* of the change. The **dependent variable** is the *effect*, or the thing that is changed. For example, in a basic study, the researcher would establish one form of human behaviour as the independent variable and observe the influence it has on a dependent variable. How does gender (the independent variable) affect the rate of income (the dependent variable)? How does one's religion (the independent variable) affect family size (the dependent variable)? How is social

class (the dependent variable) affected by the level of education (the independent variable)? For it to become possible to speak about causation, three criteria must be satisfied:

- There must be a relationship or correlation between the independent and dependent variables.
- The independent variable must be before the dependent variable.
- There must be no other intervening variable responsible for the causal relationship.

Table 7.1. Examples of Dependent and Independent Variables. Typically, the independent variable causes the dependent variable to change in some way.

Hypothesis	**Independent Variable**	**Dependent Variable**
The greater the availability of affordable housing, the lower the homeless rate	Affordable Housing	Homeless Rate
The greater the availability of math tutoring, the higher the math grades	Math Tutoring	Math Grades
The greater the police patrol presence, the safer the neighbourhood	Police Patrol Presence	Safer Neighbourhood
The greater the factory lighting, the higher the productivity	Factory Lighting	Productivity
The greater the amount of public auditing, the lower the amount of political dishonesty	Auditing	Political dishonesty

7.2 Sources of Hypotheses

Hypotheses are derived from various sources, including theories, observations, literature reviews, and personal experiences. Each of these sources provides a foundation for developing testable predictions about relationships between variables.

1. **Theories**: Existing theories often serve as the basis for hypotheses. Theories provide a framework for understanding phenomena and predicting relationships between variables. For example, based on Maslow's Hierarchy of Needs, a researcher might hypothesise that *job satisfaction increases when employees' self-actualisation needs are met* (Kerlinger & Lee, 2020).

2. **Observations**: Observations of real-world phenomena can also lead to hypotheses. For instance, a teacher in Pakistan who notices that students who eat

breakfast perform better in class might hypothesise that *eating breakfast improves concentration levels*. Similarly, a researcher in the West might observe that employees who take regular breaks are more productive and hypothesise that *breaks improve workplace efficiency* (Babbie, 2021).

3. **Literature Review**: Reviewing previous studies can help researchers identify gaps in the literature and generate hypotheses. For example, a review of studies on sleep and academic performance might lead to the hypothesis that *sleep duration affects exam scores* (Trochim & Donnelly, 2020).

4. **Personal Experience**: Researchers' personal or professional experiences can inspire hypotheses. For example, a manager in Pakistan who observes that employees in a positive work environment are more productive might hypothesise that the *work environment influences job performance*. Similarly, a researcher in the West might draw on personal experience to hypothesise that *remote work increases job satisfaction* (Field, 2021).

We can conclude that Hypotheses in social research can be derived from multiple sources:

- **Existing Theories**: Many hypotheses originate from established theories that suggest relationships between variables. For example, Karl Marx's theory of class struggle has inspired numerous hypotheses regarding economic disparity and social mobility.
- **Previous Research**: Empirical studies provide insights that can help in hypothesis formulation. For instance, research on gender pay gaps has led to hypotheses about workplace discrimination and income inequality.
- **Personal Observations**: Everyday experiences often inspire hypotheses. A researcher studying online behaviour may hypothesise that excessive social media use negatively affects mental well-being.
- **Logical Deduction**: Reasoning based on prior knowledge can help develop hypotheses. If educational attainment correlates with higher income, one may hypothesise that increased access to education reduces poverty.

Sources of Hypothesis

The following are the sources of the hypothesis:

- The resemblance between the phenomenon.
- Observations from past studies, present-day experiences and from the competitors.
- Scientific theories.
- General patterns that influence the thinking process of people.

7.3 Types of Hypotheses

Hypotheses can be classified into several types based on their nature and purpose. The most common types include null hypotheses, alternative hypotheses, directional hypotheses, and non-directional hypotheses.

1. **Null Hypothesis (H_0)**: The null hypothesis states that there is **no relationship** or **no effect** between variables. It serves as a default position that researchers aim to test against. For example, a null hypothesis might state that *there is no significant difference in test scores between students who study with music and those who study in silence* (Creswell & Creswell, 2023). States that there is no relationship between variables. Example: "There is no significant difference in academic performance between online and in-person students."

2. **Alternative Hypothesis (H_1 or Ha)**: The alternative hypothesis states that there **is a relationship** or **effect** between variables. It is the opposite of the null hypothesis and represents the researcher's prediction. For example, an alternative hypothesis might state that *students who study with music perform better on tests than those who study in silence* (Bryman & Bell, 2022). Suggests a relationship or effect exists. Example: "Students attending in-person classes perform better academically than those in online classes.

3. **Directional Hypothesis**: A directional hypothesis predicts the **direction** of the relationship between variables. For example, a researcher in Pakistan might hypothesize that *increasing the amount of fertiliser will increase wheat yield*. Similarly, a researcher in the West might hypothesise that *increasing the minimum wage will reduce poverty rates* (Kerlinger & Lee, 2020). Specifies the nature of the relationship between variables. Example: "Increased study hours lead to higher grades."

4. **Non-Directional Hypothesis**: A non-directional hypothesis predicts a relationship but **does not specify the direction**. For example, a researcher might hypothesise that *there is a relationship between the amount of fertiliser and plant growth*. This type of hypothesis is used when there is insufficient evidence to predict the direction of the relationship (Trochim & Donnelly, 2020). Suggests a relationship exists but does not specify its direction. Example: "There is a relationship between social media usage and mental health."

5. **Causal Hypothesis:** Indicates a cause-and-effect relationship. Example: "Job satisfaction positively affects employee productivity."

6. **Descriptive Hypothesis:** Describes characteristics of a phenomenon. Example: "Teenagers spend an average of four hours per day on social media."

Examples of Hypothesis

The following are examples of hypotheses based on their types:

- Consumption of sugary drinks every day leads to obesity is an example of a simple hypothesis.
- All lilies have the same number of petals is an example of a null hypothesis.
- If a person gets 7 hours of sleep, then he will feel less fatigued than if he sleeps less. It is an example of a directional hypothesis.

Functions of Hypothesis

The following are the functions performed by the hypothesis:

- A hypothesis helps in making observations and experiments possible.
- It becomes the starting point for the investigation.
- :A hypothesis helps in verifying the observations.
- It helps in directing the inquiries in the right direction.

7.4 Testable Hypothesis

A testable hypothesis is one that can be supported or refuted through empirical data. To be testable, a hypothesis must meet several criteria:

1. **Clear and Specific**: The variables and their relationship must be clearly defined. For example, the hypothesis that *students who sleep at least 8 hours per night will have higher academic performance than those who sleep less than 8 hours* is clear and specific (Creswell & Creswell, 2023).

2. **Measurable Variables**: The variables must be quantifiable or observable. For example, *sleep duration* can be measured in hours, and *academic performance* can be measured by GPA (Bryman & Bell, 2022).

3. **Falsifiable**: A hypothesis must be falsifiable, meaning that it can be proven wrong if the data does not support it. For example, if data shows no difference in academic performance based on sleep duration, the hypothesis is falsified (Kerlinger & Lee, 2020).

4. **Based on Existing Knowledge**: A hypothesis should be grounded in theories, observations, or prior research. For example, the hypothesis that

employees who work in a positive work environment report higher job satisfaction than those who work in a negative work environment is based on existing knowledge about the impact of work environment on job satisfaction (Field, 2021).

For a hypothesis to be scientifically valid, it must be testable. This requires:

1. **Operational Definitions**: Variables must be clearly defined and measurable. Example: Defining "social media usage" as "hours spent daily on social media platforms."

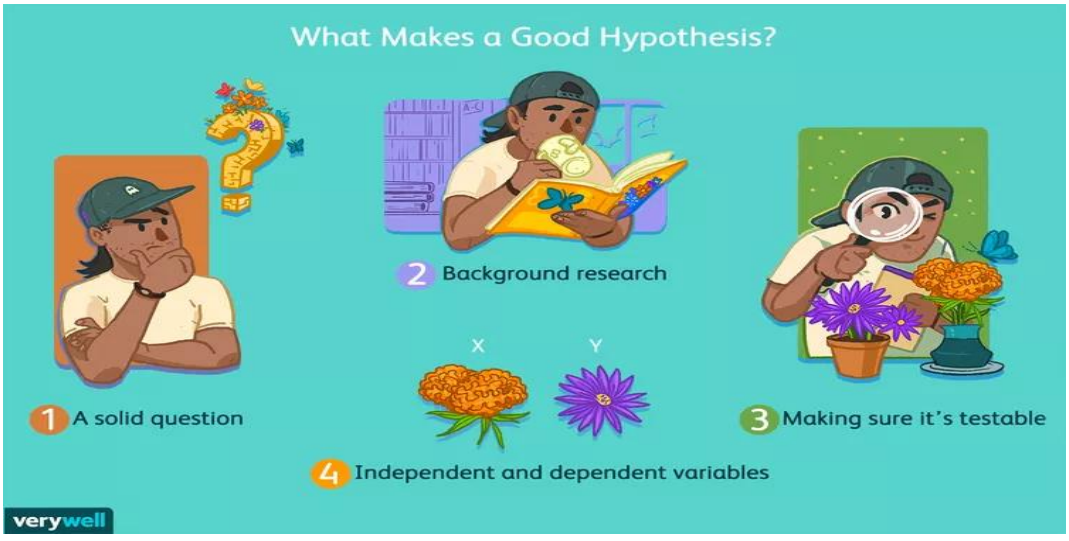
2. **Empirical Verification**: The hypothesis should be tested using observable data. Example: Surveying to examine the link between exercise and stress reduction.

3. **Falsifiability**: A hypothesis must be structured so that it can be proven false if incorrect. Example: "Higher levels of education reduce unemployment rates." If the data do not support this, the hypothesis can be rejected.

Examples of Testable Hypotheses:

- **From Pakistan**: Students in urban areas of Pakistan have higher access to digital learning tools than students in rural areas.
- **From the West**: Employees in tech companies in Silicon Valley report higher levels of job satisfaction than employees in traditional manufacturing industries.

In a nutshell, we can say as follows:



7.4.1 How will Hypothesis help in the Scientific Method?

Researchers use hypotheses to put down their thoughts, directing how the experiment would take place. The following are the steps that are involved in the scientific method:

- Formation of a question
- Doing background research
- Creation of a hypothesis
- Designing an experiment
- Collection of data
- Result analysis
- Summarising the experiment
- Communicating the results

Self-Assessment Questions

Multiple Choice Questions (MCQs)

1. **Which of the following best defines a hypothesis?**
   a) A proven fact
   b) A personal opinion
   c) A literature review summary
   d) **A testable prediction about variables**
   Correct Answer: d

2. **A null hypothesis (H_0) states:**
   a) There is a positive relationship between variables
   b) **There is no relationship between variables**
   c) The dependent variable causes the independent variable
   d) The hypothesis is always true
   Correct Answer: b

3. **Which hypothesis predicts the direction of a relationship?**
   a) Non-directional hypothesis
   b) Null hypothesis
   c) **Directional hypothesis**
   d) Complex hypothesis
   Correct Answer: c

4. **A researcher in Karachi hypothesises that *"students using digital tablets perform better in exams."* This hypothesis is derived from:**
   a) A theory
   b) **Observation**

c) Literature review
d) Personal bias
Correct Answer: b

5. **A testable hypothesis must be:**
   a) Vague and broad
   b) **Falsifiable**
   c) Based on opinions
   d) Untestable
   Correct Answer: b

Restricted Response Questions

1. Define a "non-directional hypothesis" and provide an example from Pakistan.
2. What is the role of a literature review in hypothesis formulation?
3. Differentiate between independent and dependent variables using an example from the West.
4. Why is falsifiability important in hypothesis testing?
5. Identify the error in this hypothesis: *"Students who study harder are better humans."*
6. Define hypothesis and explain its role in research.
7. Differentiate between null and alternative hypotheses with examples.
8. List and describe the steps in formulating a hypothesis.
9. Explain the characteristics of a good hypothesis.
10. Discuss the relationship between hypothesis and theory.

Extended Response Questions

1. Formulate a directional hypothesis about the impact of air pollution on respiratory diseases in Lahore. Justify your hypothesis with existing theories or observations.
2. Critically evaluate the hypothesis: *"Social media use reduces academic performance among university students in the United States."* Discuss its testability and potential variables.
3. Explain how a researcher in Pakistan might derive a hypothesis about gender disparities in STEM education. Include examples of sources (theories, observations, etc.).
4. Compare and contrast null and alternative hypotheses. Use examples from agricultural research in Pakistan and healthcare studies in the West.
5. "A hypothesis must be grounded in existing knowledge." Discuss this statement regarding studies on climate change in the West and water scarcity in Pakistan.

6. How does hypothesis formulation contribute to the scientific research process?
7. Compare and contrast different types of hypotheses with examples.
8. Describe the process of testing and validating hypotheses in social research.
9. Explain how literature review helps in formulating a strong hypothesis.
10. Discuss the role of hypothesis in shaping research methodology and data analysis.

Further Readings

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Unit: 8

POPULATION AND SAMPLING

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INTRODUCTION

Population and sampling are fundamental concepts in research methodology. A **population** refers to the entire group of individuals or items that a researcher is interested in studying, while a **sample** is a subset of the population that is selected for the actual study. Sampling is crucial because it allows researchers to conclude the population without studying every individual, saving time and resources. The selection of an appropriate sample from a population ensures that research findings are generalizable and valid. Sampling methods help researchers efficiently collect data while maintaining accuracy and reliability. This unit explores the definition of key terms, the importance of randomisation, sample size considerations, and different types of sampling techniques used in social research.

OBJECTIVES

By the end of this unit, students will be able to:

- Define key terms such as sample, sampling population, and randomisation.
- Understand the importance of sample size and sampling frames.
- Identify and differentiate between various types of sampling methods.
- Apply appropriate sampling techniques to research problems.
- Evaluate the strengths and limitations of different sampling methods.

Major Topics

- Definition: Sample, Sampling Population, Randomisation
- Sample Size and Sampling Frame
- Types of Sampling

8.1 Definition: Sample, Sampling Population, Randomisation

Before describing sampling procedures, we need to define a few key terms. The term population means all members that meet a set of specifications or a specified criterion. For example, the population of the United States is defined as all people residing in the United States. The population of New Orleans includes all people living within the city's limits or boundaries. A population of inanimate objects can also exist, such as all automobiles manufactured in Michigan in the year 2003. A single member of any given population is referred to as an element. When only some elements are selected from a population, we refer to that as a sample; when all elements are included, we call it a census. Let's look at a few examples that will clarify these terms.

Two research psychologists were concerned about the different kinds of training that graduate students in clinical psychology were receiving. They knew that different programs emphasised different things, but they did not know which clinical orientations were most popular. Therefore, they prepared a list of all doctoral programs in clinical psychology (in the United States) and sent each of them a questionnaire regarding aspects of their program. The response to the survey was excellent; nearly 95% of the directors of these programs returned the completed questionnaire. The researchers then began analysing their data and also classifying schools into different clinical orientations: psychoanalytic, behavioristic, humanistic, Rogerian, and so on. When the task was complete, they reported the percentage of schools having these different orientations and described the most popular, which were next, and so on. They also described other aspects of their data. The study was written up and submitted for publication to one of the professional journals dealing with matters of clinical psychology. The editor of the journal read the report and then returned it with a letter rejecting the manuscript for publication. In part, the letter noted that the manuscript was not publishable at this time because the proper statistical analyses had not been performed. The editor wanted to know whether the differences in orientation found among the different schools were significant or if they were due to chance.

The researchers were unhappy, and rightly so. They wrote back to the editor, pointing out that their findings were not estimates based on a sample. They had

surveyed all training programs (that is, the population). In other words, they had obtained a census rather than a sample. Therefore, their data were exhaustive; they included all programs and described what existed in the real world. The editor would be correct only if they had sampled some schools and then wanted to generalise to all schools. The researchers were not asking whether a sample represented the population; they were dealing with the population.

A comparable example would be to count all students (the population) enrolled in a particular university and then report the number of male and female students. If we found that 60% of the students were female and 40% male, it would be improper and irrelevant to ask whether this percentage difference is significantly different from chance. The fact is that the percentages that exist in the school population are parameters. They are not estimates derived from a sample. Had we taken a small sample of students and found this 60/40 split, it would then be appropriate to ask whether differences this large could have occurred by chance alone. Data derived from a sample is treated statistically. Using sample data, we calculate various statistics, such as the mean and standard deviation. These sample statistics summarise (describe) aspects of the sample data. These data, when treated with other statistical procedures, allow us to make certain inferences. From the sample statistics, we make corresponding estimates of the population. Thus, from the sample mean, we estimate the population mean; from the sample standard deviation, we estimate the population standard deviation. The above examples illustrate a problem that can occur when the terms population and sample are confused. The accuracy of our estimates depends on the extent to which the sample is representative of the population to which we wish to generalise.

So, now we can say that a **population** refers to the entire group of individuals, objects, or events that a researcher is interested in studying. A **sample** is a subset of the population selected for research. **Sampling** is the process of selecting a portion of the population to represent the whole, ensuring that findings can be generalised. A **sample** is a subset of a population that is selected for a research study and represents the larger population and is used to draw inferences about the population as a whole. For example, if a researcher in Pakistan wants to study the academic performance of university students, they might select a sample of 500 students from a population of 50,000.

Example from Pakistan: A study on the impact of microfinance on small businesses in rural Punjab might select a sample of 200 businesses from a population of 2,000.
Example from the West: A survey on voter preferences in the United States might select a sample of 1,000 voters from a population of 100 million.

The **sampling population** refers to the specific group from which the sample is drawn. In this case, the sampling population would be all university students in Pakistan. It is the entire set of individuals or items that the researcher is interested in studying. For example, if a researcher is studying the prevalence of diabetes in Pakistan, the sampling population might include all adults aged 18 and above in the country. It is important to clearly define the sampling population to ensure that the sample is representative.

Example from Pakistan: A study on the effectiveness of polio vaccination campaigns might define its sampling population as all children under the age of five in Khyber Pakhtunkhwa.

Example from the West: A study on workplace satisfaction in the United States might define its sampling population as all employees working in Fortune 500 companies.

Randomisation is a process used to ensure that every individual in the population has an equal chance of being selected for the sample. This is a key principle in probability sampling methods, as it helps eliminate bias and ensures that the sample is representative of the population. For instance, in a study on voter preferences in the United States, randomisation ensures that every voter has an equal chance of being included in the sample, regardless of their demographic or geographic location (Creswell & Creswell, 2023). Randomisation can be achieved through techniques such as random number generators or lottery methods.

Example from Pakistan: In a study on the impact of teacher training programs in Sindh, randomisation ensures that every teacher in the province has an equal chance of being selected for the sample.

Example from the West: In a clinical trial for a new drug in the United States, randomisation ensures that every patient has an equal chance of being assigned to the treatment or control group.

8.2 Sample Size and Sampling Frame

Sampling is the statistical process of selecting a subset (called a "sample") of a population of interest for purposes of making observations and statistical inferences about that population. Social science research is generally about inferring patterns of behaviour within specific populations. We cannot study entire populations because of feasibility and cost constraints, and hence, we must select a representative sample from the population of interest for observation and analysis. It is extremely important to choose a sample that is truly representative of the population so that the inferences derived from the sample can be generalised back to the population of interest. Improper and biased sampling is the primary reason for often divergent and erroneous inferences reported in opinion polls and exit polls conducted by different polling groups such as CNN/Gallup Poll, ABC, and CBS, before every U.S. Presidential election.

The Sampling Process

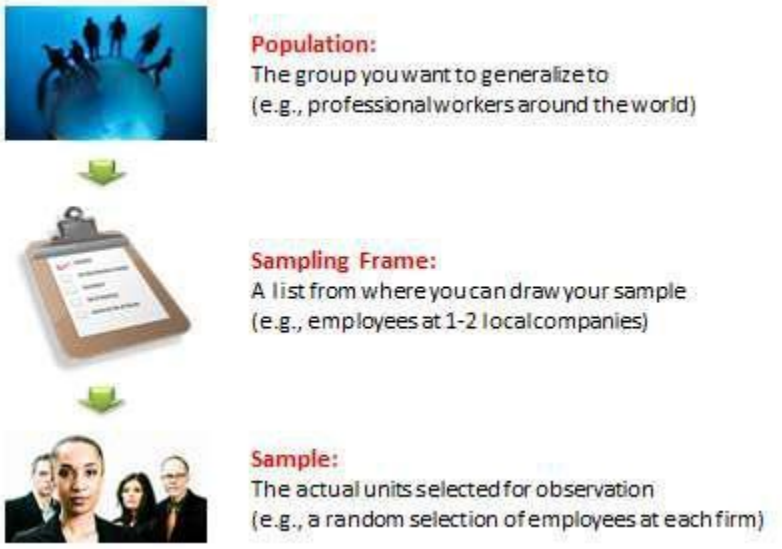


Figure 8.1. The sampling process

The sampling process comprises several stages. The first stage is defining the target population. A population can be defined as all people or items (unit of analysis) with the characteristics that one wishes to study. The unit of analysis may be a person, group, organisation, country, object, or any other entity that you wish to draw scientific inferences about. Sometimes the population is obvious. For example, if a manufacturer wants to determine whether finished goods manufactured at a production line meet certain quality requirements or must be scrapped and reworked, then the population consists of the entire set of finished goods manufactured at that production facility. At other times, the target population may be a little harder to understand. If you wish to identify the primary drivers of academic learning among high school students, then what is your target population: high school students, their teachers, school principals, or parents? The right answer in this case is high school students, because you are interested in their performance, not the performance of their teachers, parents, or schools. Likewise, if you wish to analyse the behaviour of roulette wheels to identify biased wheels, your population of interest is not different observations from a single roulette wheel, but different roulette wheels (i.e., their behaviour over an infinite set of wheels).

The second step in the sampling process is to choose a sampling frame. This is an accessible section of the target population (usually a list with contact information) from which a sample can be drawn. If your target population is professional employees at work, because you cannot access all professional employees around the world, a more realistic sampling frame will be employee lists of one or two

local companies that are willing to participate in your study. If your target population is organisations, then the Fortune 500 list of firms or the Standard & Poor's (S&P) list of firms registered with the New York Stock Exchange may be acceptable sampling frames.

Note that sampling frames may not entirely be representative of the population at large, and if so, inferences derived from such a sample may not be generalizable to the population. For instance, if your target population is organizational employees at large (e.g., you wish to study employee self-esteem in this population) and your sampling frame is employees at automotive companies in the American Midwest, findings from such groups may not even be generalizable to the American workforce at large, let alone the global workplace. This is because the American auto industry has been under severe competitive pressures for the last 50 years and has seen numerous episodes of reorganisation and downsizing, possibly resulting in low employee morale and self-esteem. Furthermore, the majority of the American workforce is employed in service industries or in small businesses, and not in the automotive industry. Hence, a sample of American auto industry employees is not particularly representative of the American workforce. Likewise, the Fortune 500 list includes the 500 largest American enterprises, which is not representative of all American firms in general, most of which are medium and small-sized firms rather than large firms, and is therefore a biased sampling frame.

In contrast, the S&P list will allow you to select large, medium, and/or small companies, depending on whether you use the S&P large-cap, mid-cap, or small-cap lists, but includes publicly traded firms (and not private firms) and hence still biased. Also note that the population from which a sample is drawn may not necessarily be the same as the population about which we want information. For example, if a researcher wants to determine the success rate of a new "quit smoking" program, then the target population is the universe of smokers who had access to this program, which may be an unknown population. Hence, the researcher may sample patients arriving at a local medical facility for smoking cessation treatment, some of whom may not have had exposure to this particular "quit smoking" program, in which case, the sampling frame does not correspond to the population of interest.

The last step in sampling is choosing a sample from the sampling frame using a well-defined sampling technique. The **sample size** refers to the number of individuals or items included in the sample. Determining the appropriate sample size is crucial for the validity and reliability of research findings. A sample that is too small may not accurately represent the population, while a sample that is too large may be unnecessarily costly and time-consuming. For example, a study on

the impact of microfinance on small businesses in Pakistan might require a sample size of 300 businesses to ensure statistically significant results (Bryman & Bell, 2022). The sample size depends on factors such as the research design, the level of precision required, and the variability within the population.

8.2.1 Sample Size Definition

"Sample size" is a term used in market research to define the number of subjects included in a sample for a study. This sample is selected from the general population and is considered representative of the population for that specific study.

For example, if we want to predict how the population in a specific age group will react to a new product, we can first test it on a sample size that is representative of the targeted population.

In this case, the sample size refers to the number of individuals from that age group who will be surveyed.

Example from Pakistan: A study on the impact of climate change on wheat yields in Punjab might require a sample size of 300 farmers to ensure statistically significant results.

Example from the West: A survey on consumer preferences for electric vehicles in Germany might require a sample size of 1,000 respondents to achieve a margin of error of ±3%.

8.2.2 How to Calculate a Sample Size

Determining the appropriate sample size involves using statistical formulas that begin with choosing a significant benchmark based on the expected outcomes of the qualitative research. Researchers typically have two main approaches to choose from:

1. **Variable-Based Sampling**: Researchers can monitor the measurement of variables and determine specific indicators that express their evolution. For example, to understand consumer behaviour, a researcher might track the frequency of visits to a retail store and use the weekly average frequency of visits as an indicator. In specialised literature, this method is referred to as sampling to the variables investigated.

2. **Attribute-Based Sampling:** This method may be aimed at evaluating specific attributes of the investigated marketing phenomenon. For instance, a researcher might examine consumer preferences regarding the interior layout of a retail space, assessing various attributes significant to interior design. This approach is known in the specialised literature as sampling with the investigated characteristics.

8.2.3 Sample Size Formula

To apply these concepts practically, researchers use formulas that consider the expected effect size, the desired power of the test (commonly set at 80% or higher), and the acceptable level of significance (usually at 5%). These calculations help ensure that the sample size is neither too small to detect a real effect nor too large that it becomes inefficient.

One commonly used formula is:

N = population size • e = Margin of error (percentage in decimal form) • z = z-score

Another sample size formula is:

n = N*X / (X + N – 1),

Where,

- X = Zα/22 *p*(1-p) / MOE2,
- Zα/2 is the critical value of the Normal distribution at α/2 (for a confidence level of 95%, α is 0.05, and the critical value is 1.96).
- MOE is the margin of error.
- p is the sample proportion.
- N is the population size.

Note that a Finite Population Correction has been applied to the sample size formula.

Sample Size Calculation Example:

Suppose a researcher wants to survey to estimate the proportion of smartphone users in a city with a population size of 500,000. The researcher aims for a 95% confidence level and a margin of error of 5%. Using the formula:

X = ((1.96)^2 * 0.5(1-0.5)) / (0.05)^2

X = (3.8416 * 0.25) / 0.0025

X = 0.9604 / 0.0025

X = 384.16

After calculating X, the researcher then uses it in the sample size formula to determine the required sample size:

n = (500,000 * 384.16) / (384.16 + 500,000 – 1)

n ≈ 192,080,000 / 499,383

n ≈ 384.59

Thus, the researcher would need a sample size of approximately 385 respondents to achieve the desired level of confidence with a margin of error of 5%.

8.2.4 Sample Size Process

The sampling size process involves several specific activities, namely:

- **Define the population that is the object of the research:** Defining the target population must be done with great care to avoid either the tendency

to choose an unjustified large population or the inclination to select an unjustifiably narrow population. For example, for companies that produce cars, the total population can be represented by the people of the whole country, including children of different ages. But, the relevant population, which will be the subject of the research, will be made up only of the population over 18 years old.

- **Choose the sampling size frame:** The sampling size frame, often derived from existing databases or lists, represents the population from which the sample will be drawn. It's important to recognise that the sampling frame may differ from the target population due to practical constraints or limitations in data availability. For instance, while the target population for car buyers may include adults aged 18 and above, the sampling frame may consist of registered vehicle owners or individuals with active driver's licenses.

- **Choose the sampling size method:** Selecting an appropriate sampling method involves considering the research objectives and characteristics of the target population. Random sampling, for example, ensures each member of the population has an equal chance of being selected, but the sampling frame may not always perfectly align with the target population. Thus, researchers must be mindful of potential biases introduced by the sampling method and take steps to mitigate them.

- **Establish the modalities of the selection of the sample size units:** Defining the criteria and procedures for selecting sample size units helps ensure the sample is representative of the target population. For instance, if surveying car preferences, eligibility criteria might include individuals who have purchased a car within the past five years. This helps ensure that the sample reflects current consumer trends and preferences within the target population.

- **Determine the mother of the sample size:** Understanding the broader context from which the sample is drawn is essential for interpreting research findings accurately. For example, while the target population for car buyers may include individuals aged 18 and above, the "mother of the sample" encompasses all potential car buyers within the specified demographic, including those not captured in the sampling frame.

- **Choose the actual units of the sample size:** Selecting specific individuals or groups for inclusion in the study involves applying the sampling method

and criteria defined earlier. Researchers must ensure that the selected sample is representative of the target population and free from bias introduced by the sampling process. For example, if using random sampling, researchers might randomly select participants from the sampling frame to participate in the study.

- **Conduct field activity:** Implementing data collection procedures according to the research design is the final step in the sample size process. This may involve conducting surveys, interviews, or observations to gather relevant data from selected participants. Researchers must ensure that data collection activities adhere to ethical standards and minimise potential sources of bias or error.

The establishment of the sample implies the establishment of the sampling unit. The sampling unit is represented by a distinct element or a group of different elements within the investigated population, which can be selected to form the sample. The sampling unit may be a person, a family, a household, a company, a locality, etc. It is necessary to specify that the sampling unit is not always identical to the unit of analysis. For example, in the study of family expenses, the sampling unit may be the home or the household, and the unit of analysis may be a person or a family.

8.2.5 The Sampling Frame

The **sampling frame** is a list or representation of all the individuals or items in the population from which the sample is drawn. A well-defined sampling frame is essential for ensuring that the sample is representative of the population. For instance, if a researcher in the West is studying the prevalence of diabetes, the sampling frame might include a list of all patients registered at a specific hospital. Without a proper sampling frame, the sample may be biased or incomplete, leading to inaccurate conclusions (Trochim & Donnelly, 2020).

Example from Pakistan: A study on the prevalence of hypertension in Karachi might use a sampling frame that includes all patients registered at public hospitals in the city.

Example from the West: A study on the impact of remote work on productivity in the United States might use a sampling frame that includes all employees listed in the HR database of a specific company.

8.3 Types of Sampling

Sampling techniques can be grouped into two broad categories: probability (random) sampling and non-probability sampling. Probability sampling is ideal if the generalizability of results is important for your study, but there may be unique circumstances where non-probability sampling can also be justified.

8.3.1 Probability Sampling

Probability sampling is a technique in which every unit in the population has a chance (non-zero probability) of being selected in the sample, and this chance can be accurately determined. Sample statistics thus produced, such as sample mean or standard deviation, are unbiased estimates of population parameters, as long as the sampled units are weighted according to their probability of selection. All probability sampling have two attributes in common: (1) every unit in the population has a known non-zero probability of being sampled, and (2) the sampling procedure involves random selection at some point. The different types of probability sampling techniques include:

1. **Simple random sampling**. In this technique, all possible subsets of a population (more accurately, of a sampling frame) are given an equal probability of being selected. The probability of selecting any set of n units out of a total of N units in a sampling frame is N C n . Hence, sample statistics are unbiased estimates of population parameters, without any weighting. Simple random sampling involves randomly selecting respondents from a sampling frame, but with large sampling frames, usually a table of random numbers or a computerised random number generator is used. For instance, if you wish to select 200 firms to survey from a list of 1000 firms, if this list is entered into a spreadsheet like Excel, you can use Excel's RAND() function to generate random numbers for each of the 1000 clients on that list. Next, you sort the list in increasing order of their corresponding random number, and select the first 200 clients on that sorted list. This is the simplest of all probability sampling techniques; however, the simplicity is also the strength of this technique. Because the sampling frame is not subdivided or partitioned, the sample is unbiased, and the inferences are most generalizable amongst all probability sampling techniques.

2. **Systematic sampling**. In this technique, the sampling frame is ordered according to some criteria and elements are selected at regular intervals through that ordered list. Systematic sampling involves a random start and then proceeds with the selection of every k elements from that point onwards, where k = N / n , where k is the ratio of sampling frame size N and the desired sample size n , and is formally called the sampling ratio. It is important that the starting point is not automatically the first in the list, but is instead randomly chosen from within the first k elements on the list. In our previous example of selecting 200 firms from a list of 1000 firms, you can sort the 1000 firms in increasing (or decreasing) order of their size (i.e., employee count or annual revenues), randomly select one of the first five firms on the sorted list, and then select every fifth firm on the list. This process will ensure that there is no

overrepresentation of large or small firms in your sample, but rather that firms of all sizes are generally uniformly represented, as is in your sampling frame. In other words, the sample is representative of the population, at least on the basis of the sorting criterion.

3. **Stratified sampling.** In stratified sampling, the sampling frame is divided into homogeneous and non-overlapping subgroups (called "strata"), and a simple random sample is drawn within each subgroup. In the previous example of selecting 200 firms from a list of 1000 firms, you can start by categorising the firms based on their size as large (more than 500 employees), medium (between 50 and 500 employees), and small (fewer than 50 employees). You can then randomly select 67 firms from each subgroup to make up your sample of 200 firms. However, since there are many more small firms in a sampling frame than large firms, having an equal number of small, medium, and large firms will make the sample less representative of the population (i.e., biased in favour of large firms that are fewer in number in the target population). This is called non-proportional stratified sampling because the proportion of the sample within each subgroup does not reflect the proportions in the sampling frame (or the population of interest), and the smaller subgroup (large-sized firms) is over-sampled. An alternative technique will be to select subgroup samples in proportion to their size in the population. For instance, if there are 100 large firms, 300 mid-sized firms, and 600 small firms, you can sample 20 firms from the "large" group, 60 from the "medium" group and 120 from the "small" group. In this case, the proportional distribution of firms in the population is retained in the sample, and hence this technique is called proportional stratified sampling. Note that the non-proportional approach is particularly effective in representing small subgroups, such as large-sized firms, and is not necessarily less representative of the population compared to the proportional approach, as long as the findings of the non-proportional approach are weighted in accordance with a subgroup's proportion in the overall population.

4. **Cluster sampling.** If you have a population dispersed over a wide geographic region, it may not be feasible to conduct a simple random sampling of the entire population. In such a case, it may be reasonable to divide the population into "clusters" (usually along geographic boundaries), randomly sample a few clusters, and measure all units within that cluster. For instance, if you wish to sample city governments in the state of New York, rather than travel all over the state to interview key city officials (as you may have to do with a simple random sample), you can cluster these governments based on their counties, randomly select a set of three counties, and then interview officials from every official in those counties. However, depending on between-cluster differences,

the variability of sample estimates in a cluster sample will generally be higher than that of a simple random sample, and hence the results are less generalizable to the population than those obtained from simple random samples.

5. **Matched-pairs sampling.** Sometimes, researchers may want to compare two subgroups within one population based on a specific criterion. For instance, why are some firms consistently more profitable than others firms? To conduct such a study, you would have to categorise a sampling frame of firms into "high profitable" firms and "low profitable firms" based on gross margins, earnings per share, or some other measure of profitability. You would then select a simple random sample of firms in one subgroup and match each firm in this group with a firm in the second subgroup, based on its size, industry segment, and/or other matching criteria. Now, you have two matched samples of high-profitability and low-profitability firms that you can study in greater detail. Such a matched-pairs sampling technique is often an ideal way of understanding bipolar differences between different subgroups within a given population.

6. **Multi-stage sampling.** The probability sampling techniques described previously are all examples of single-stage sampling techniques. Depending on your sampling needs, you may combine these single-stage techniques to conduct multi-stage sampling. For instance, you can stratify a list of businesses based on firm size, and then conduct systematic sampling within each stratum. This is a two-stage combination of stratified and systematic sampling. Likewise, you can start with a cluster of school districts in the state of New York, and within each cluster, select a simple random sample of schools; within each school, select a simple random sample of grade levels; and within each grade level, select a simple random sample of students for study. In this case, you have a four-stage sampling process consisting of cluster and simple random sampling.

8.3.2 Non-Probability Sampling

Nonprobability sampling is a sampling technique in which some units of the population have zero chance of selection or where the probability of selection cannot be accurately determined. Typically, units are selected based on certain non-random criteria, such as quota or convenience. Because selection is non-random, nonprobability sampling does not allow the estimation of sampling errors, and may be subject to a sampling bias. Therefore, information from a sample cannot be generalised back to the population. Types of non-probability sampling techniques include:

1. **Convenience sampling.** Also called accidental or opportunity sampling, this is a technique in which a sample is drawn from that part of the population that is

close at hand, readily available, or convenient. For instance, if you stand outside a shopping centre and hand out questionnaire surveys to people or interview them as they walk in, the sample of respondents you will obtain will be a convenience sample. This is a non-probability sample because you are systematically excluding all people who shop at other shopping centres. The opinions that you would get from your chosen sample may reflect the unique characteristics of this shopping centre such as the nature of its stores (e.g., high end-stores will attract a more affluent demographic), the demographic profile of its patrons, or its location (e.g., a shopping centre close to a university will attract primarily university students with unique purchase habits), and therefore may not be representative of the opinions of the shopper population at large. Hence, the scientific generalizability of such observations will be very limited. Other examples of convenience sampling are sampling students registered in a certain class or sampling patients arriving at a certain medical clinic. This type of sampling is most useful for pilot testing, where the goal is instrument testing or measurement validation rather than obtaining generalizable inferences.

2. **Quota sampling.** In this technique, the population is segmented into mutually exclusive subgroups (just as in stratified sampling), and then a non-random set of observations is chosen from each subgroup to meet a predefined quota. In proportional quota sampling, the proportion of respondents in each subgroup should match that of the population. For instance, if the American population consists of 70% Caucasians, 15% Hispanic-Americans, and 13% African-Americans, and you wish to understand their voting preferences in a sample of 98 people, you can stand outside a shopping centre and ask people their voting preferences. But you will have to stop asking Hispanic-looking people when you have 15 responses from that subgroup (or African-Americans when you have 13 responses), even as you continue sampling other ethnic groups, so that the ethnic composition of your sample matches that of the general American population. Non-proportional quota sampling is less restrictive in that you don't have to achieve a proportional representation, but perhaps meet a minimum size in each subgroup. In this case, you may decide to have 50 respondents from each of the three ethnic subgroups (Caucasians, Hispanic-Americans, and African-Americans), and stop when your quota for each subgroup is reached. Neither type of quota sampling will be representative of the American population, since, depending on whether your study was conducted in a shopping centre in New York or Kansas, your results may be entirely different. The non-proportional technique is even less representative of the population, but may be useful in that it allows capturing the opinions of small and underrepresented groups through oversampling.

3. **Expert sampling.** This is a technique where respondents are chosen in a non-random manner based on their expertise on the phenomenon being studied. For instance, in order to understand the impacts of a new governmental policy such as the Sarbanes-Oxley Act, you can sample a group of corporate accountants who are familiar with this act. The advantage of this approach is that since experts tend to be more familiar with the subject matter than non-experts, opinions from a sample of experts are more credible than a sample that includes both experts and non-experts, although the findings are still not generalizable to the overall population at large.

4. **Snowball sampling.** In snowball sampling, you start by identifying a few respondents who match the criteria for inclusion in your study, and then ask them to recommend others they know who also meet your selection criteria. For instance, if you wish to survey computer network administrators and you know of only one or two such people, you can start with them and ask them to recommend others who also do network administration. Although this method hardly leads to representative samples, it may sometimes be the only way to reach hard-to-reach populations or when no sampling frame is available.
   So in a nutshell, we can say that sampling methods can be broadly categorised into two types: **probability sampling** and **non-probability sampling**.

   1. **Probability Sampling:**
      In probability sampling, every individual in the population has a known and non-zero chance of being selected. This method is preferred when the goal is to generalise findings to the entire population. Common types of probability sampling include:
      - **Simple Random Sampling**: Every individual has an equal chance of being selected. For example, selecting 100 students randomly from a list of 1,000 university students in Pakistan.
      - **Stratified Sampling**: The population is divided into subgroups (strata), and samples are drawn from each stratum. For instance, dividing a population of employees in a Western company into strata based on job roles (e.g., managers, engineers, support staff) and sampling from each group.
      - **Cluster Sampling**: The population is divided into clusters, and entire clusters are randomly selected. For example, selecting 10 schools out of 100 in a district of Pakistan and studying all students in those schools.
      - **Systematic Sampling**: Selecting every nth individual from a list. For example, selecting every 10th patient from a hospital registry in the West.

2. **Non-Probability Sampling**:
   In non-probability sampling, individuals are selected based on non-random criteria, and not every individual has a chance of being included. This method is often used in exploratory research or when probability sampling is not feasible. Common types of non-probability sampling include:
   - **Convenience Sampling**: Selecting individuals who are easily accessible. For example, surveying students in a single university in Pakistan.
   - **Purposive Sampling**: Selecting individuals based on specific characteristics or criteria. For instance, interviewing only female entrepreneurs in the West for a study on gender and business success.
   - **Snowball Sampling**: Existing participants recruit others for the study. This is often used in studies involving hard-to-reach populations, such as migrant workers in Pakistan.
   - **Quota Sampling**: The population is divided into subgroups, and a predetermined number of individuals are sampled from each subgroup. For example, ensuring that a sample of 200 respondents includes 100 men and 100 women in a Western study.

Self-Assessment Questions

Multiple Choice Questions (MCQs)

(Select the correct answer.)

1. **What is a sample?**
   a) The entire group of individuals in a study
   b) **A subset of the population selected for a study**
   c) A list of all individuals in a population
   d) A method of data collection
   Correct Answer: b

2. **Which sampling method ensures that every individual has an equal chance of being selected?**
   a) Convenience sampling
   b) **Simple random sampling**
   c) Purposive sampling
   d) Snowball sampling
   Correct Answer: b

3. **What is a sampling frame?**
   a) The number of individuals in a sample

b) **A list of all individuals in the population**
c) A method of data analysis
d) A type of non-probability sampling
Correct Answer: b

4. **Which sampling method is used for hard-to-reach populations?**
   a) Stratified sampling
   b) Cluster sampling
   c) **Snowball sampling**
   d) Systematic sampling
   Correct Answer: c
5. **What is the main advantage of probability sampling?**
   a) It is quick and easy
   b) **It allows for generalisation to the population**
   c) It requires no sampling frame
   d) It is suitable for small populations
   Correct Answer: b

Restricted Response Questions

1. Define "sampling population" and provide an example from Pakistan.
2. What is the importance of randomisation in sampling?
3. Differentiate between stratified sampling and cluster sampling.
4. Why is a sampling frame important in research?
5. Identify the error in this statement: *"Convenience sampling is the best method for generalising findings to the population."*
6. Define the concept of population and sampling.
7. Explain the role of randomisation in research.
8. Differentiate between stratified and cluster sampling.
9. What factors influence the selection of a sample size?
10. Discuss the advantages and disadvantages of non-probability sampling.

Extended Response Questions

1. Explain the concept of sample size and its importance in research. Provide examples from Pakistan and the West.
2. Compare and contrast probability and non-probability sampling methods. Discuss their strengths and limitations.
3. A researcher wants to study the impact of climate change on farmers in rural Pakistan. Which sampling method would be most appropriate, and why?
4. Critically evaluate the use of purposive sampling in qualitative research. Provide examples from the West.

5. "A well-defined sampling frame is essential for accurate research." Discuss this statement to studies on healthcare access in Pakistan and the West.
6. Compare and contrast probability and non-probability sampling methods.
7. Discuss how sampling bias can affect research outcomes.
8. Explain the importance of an appropriate sampling frame in research.
9. Evaluate different methods of determining an appropriate sample size.
10. Describe a research scenario where systematic sampling would be most suitable.

Further Readings

Books:

- Creswell, J. W., & Creswell, J. D. (2023). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6th ed.). Sage Publications.
- Bryman, A., & Bell, E. (2022). *Business Research Methods* (5th ed.). Oxford University Press.

Journal Articles:

- Trochim, W. M. K., & Donnelly, J. P. (2020). *The Research Methods Knowledge Base* (4th ed.). Cengage Learning.
- Field, A. (2021). *Discovering Statistics Using IBM SPSS Statistics* (6th ed.). Sage Publications.

Online Resources:

- SAGE Research Methods: https://www.sagepub.com/researchmethods
- JSTOR: https://www.jstor.org
- ProQuest Social Sciences: https://www.proquest.com
- Google Scholar: https://scholar.google.com

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- Babbie, E. (2021). *The Basics of Social Research* (8th ed.). Cengage Learning.
- Bryman, A., & Bell, E. (2022). *Business Research Methods* (5th ed.). Oxford University Press.
- Creswell, J. W., & Creswell, J. D. (2023). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6th ed.). Sage Publications.
- Field, A. (2021). *Discovering Statistics Using IBM SPSS Statistics* (6th ed.). Sage Publications.
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Unit: 9

STUDY DESIGN

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INTRODUCTION

A well-structured research design is essential for ensuring the validity, reliability, and overall success of a study. Research design provides a framework for data collection, analysis, and interpretation, helping researchers systematically approach their inquiries. Different research designs are employed depending on the nature of the study, objectives, and methodological preferences. Study design is the backbone of any research project, providing a structured framework for collecting, analysing, and interpreting data. It ensures that the research is systematic, logical, and capable of addressing the research questions or hypotheses effectively. A well-designed study enhances the validity, reliability, and generalizability of the findings, making it easier to draw meaningful conclusions. This unit will explore the definition of research design, its types, and specific methods such as focus group discussions, participatory rural appraisal (PRA), and case studies, with examples from Pakistan and the West.

OBJECTIVES

By the end of this unit, students will be able to:

- Define research design and explain its importance in research.
- Identify and differentiate between various types of research designs.
- Understand the purpose and process of focus group discussions.
- Explain the principles and applications of participatory rural appraisal (PRA).
- Analyse the use of case studies in research.

Major Topics

- Defining Research Design
- Types of Research Design
- Focus Group Discussion
- Participatory Rural Appraisal (PRA)
- Case Studies

9.1 Defining Research Design

Research design is the blueprint for conducting a study. It outlines the methods and procedures for data collection and analysis, ensuring that the research objectives are met efficiently. A well-structured research design minimises biases and enhances the validity of results. It also determines whether the study follows a qualitative, quantitative, or mixed-methods approach. For example, a study on the impact of online education on student performance may use an experimental design, whereas an ethnographic study may focus on qualitative observations.

A **research design** is a comprehensive plan that outlines how a study will be conducted to answer the research questions or test hypotheses. It includes decisions about the type of data to be collected, the methods of data collection, the sampling strategy, and the approach to data analysis. A well-defined research design ensures that the study is logically structured, minimises bias, and maximises the validity and reliability of the findings (Creswell & Creswell, 2023).

Research designs can be broadly categorised into **quantitative**, **qualitative**, and **mixed-methods** approaches. Quantitative designs focus on numerical data and statistical analysis, while qualitative designs emphasise understanding phenomena through non-numerical data such as interviews and observations. Mixed-methods designs combine both approaches to provide a more comprehensive understanding of the research problem (Bryman & Bell, 2022).

Example from Pakistan: A study on the impact of microfinance on women entrepreneurs in rural Sindh might use a mixed-methods research design, combining surveys to collect quantitative data and interviews to gather qualitative insights.

Example from the West: A study on the effectiveness of online learning platforms in the United States might use an experimental design, comparing the performance of students using the platform with a control group.
Sociologists examine the world, see a problem or interesting pattern, and set out to study it. They use research methods to design a study, perhaps a positivist, quantitative method for conducting research and obtaining data, or perhaps an ethnographic study utilising an interpretive framework. Planning the **research design** is a key step in any sociological study. When entering a particular social environment, a researcher must be careful. There are times to remain anonymous and times to be overt. There are times to conduct interviews and times to simply observe. Some participants need to be thoroughly informed; others should not know they are being observed. A researcher would not stroll into a crime-ridden neighbourhood at midnight, calling out, "Any gang members around?" And if a researcher walked into a coffee shop and told the employees they would be observed as part of a study on work efficiency, the self-conscious, intimidated baristas might not behave naturally.

In the 1920s, leaders of a Chicago factory called Hawthorne Works commissioned a study to determine whether or not changing certain aspects of working conditions could increase or decrease worker productivity. Sociologists were surprised when the productivity of a test group increased when the lighting of their workspace was improved. They were even more surprised when productivity improved when the lighting of the workspace was dimmed. Almost every change of independent variable—lighting, breaks, work hours—resulted in an improvement of productivity. But when the study was over, productivity dropped again.

Why did this happen? In 1953, Henry A. Landsberger analysed the study results to answer this question. He realised that employees' productivity increased because sociologists were paying attention to them. The sociologists' presence influenced the study results. Worker behaviours were altered not by the lighting but by the study itself. From this, sociologists learned the importance of carefully planning their roles as part of their research design (Franke and Kaul 1978). Landsberger called the workers' response the **Hawthorne effect**—people changing their behaviour because they know they are being watched as part of a study.

The Hawthorne effect is unavoidable in some research. In many cases, sociologists have to make the purpose of the study known for ethical reasons. Subjects must be aware that they are being observed, and a certain amount of artificiality may result (Sonnenfeld 1985). Making sociologists' presence invisible is not always realistic for other reasons. That option is not available to a researcher studying prison behaviours, early education, or the Ku Klux Klan. Researchers cannot just stroll into prisons, kindergarten classrooms, or Ku Klux Klan meetings and unobtrusively observe behaviours. In situations like these, other methods are needed. All studies shape the research design, while research design simultaneously shapes the study. Researchers choose methods that best suit their study topic and that fit with their overall goal for the research.

In planning a study's design, sociologists generally choose from four widely used methods of social investigation: survey, experiment, field research, and textual or **secondary data analysis** (or use of existing sources). Every research method comes with pluses and minuses, and the topic of study strongly influences which method or methods are put to use.

9.1.1 Selecting Research Designs

Generally speaking, researchers tend to select those research designs that they are most comfortable with and feel most competent to handle, but ideally, the choice should depend on the nature of the research phenomenon being studied. In the preliminary phases of research, when the research problem is unclear and the researcher wants to scope out the nature and extent of a certain research problem, a focus group (for individual unit of analysis) or a case study (for organisational unit of analysis) is an ideal strategy for exploratory research. As one delves further into the research domain but finds that there are no good theories to explain the phenomenon of interest, and wants to build a theory to fill in the unmet gap in that area, interpretive designs such as case research or ethnography may be useful. If competing theories exist and the researcher wishes to test these different theories or integrate them into a larger theory, positivist designs such as experimental design, survey research, or secondary data analysis are more appropriate.

Regardless of the specific research design chosen, the researcher should strive to collect quantitative and qualitative data using a combination of techniques such as questionnaires, interviews, observations, documents, or secondary data. For

instance, even in a highly structured survey questionnaire, intended to collect quantitative data, the researcher may leave some room for a few open-ended questions to collect qualitative data that may generate unexpected insights not otherwise available from structured quantitative data alone. Likewise, while case research employs mostly face-to-face interviews to collect most qualitative data, the potential and value of collecting quantitative data should not be ignored. As an example, in a study of organizational decision-making processes, the case interviewer can record numeric quantities such as how many months it took to make certain organizational decisions, how many people were involved in that decision process, and how many decision alternatives were considered, which can provide valuable insights not otherwise available from interviewees' narrative responses. Irrespective of the specific research design employed, the goal of the researcher should be to collect as much and as diverse data as possible that can help generate the best possible insights about the phenomenon of interest.

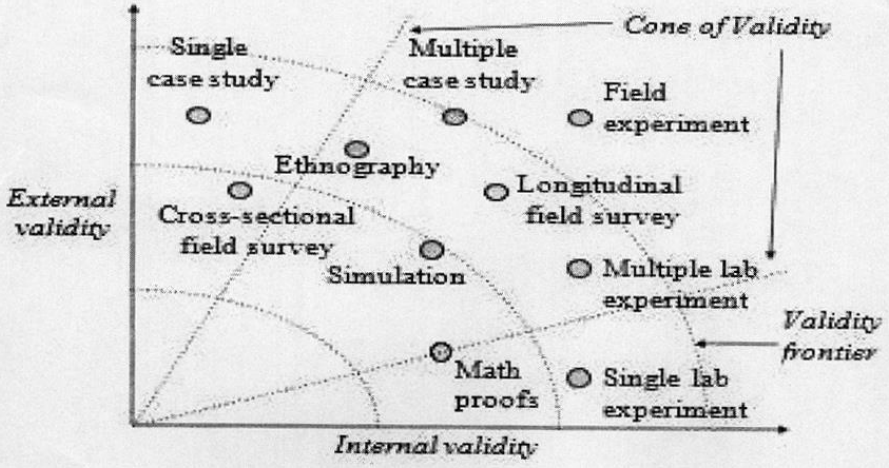
9.1.2 Key Attributes of a Research Design

The quality of research designs can be defined in terms of four key design attributes: internal validity, external validity, construct validity, and statistical conclusion validity.

Internal validity, also called causality, examines whether the observed change in a dependent variable is indeed caused by a corresponding change in hypothesised independent variable, and not by variables extraneous to the research context. Causality requires three conditions: (1) covariation of cause and effect (i.e., if cause happens, then effect also happens; and if cause does not happen, effect does not happen), (2) temporal precedence: cause must precede effect in time, (3) no plausible alternative explanation (or spurious correlation). Certain research designs, such as laboratory experiments, are strong in internal validity by virtue of their ability to manipulate the independent variable (cause) via a treatment and observe the effect (dependent variable) of that treatment after a certain point in time, while controlling for the effects of extraneous variables. Other designs, such as field surveys, are poor in internal validity because of their inability to manipulate the independent variable (cause), and because cause and effect are measured at the same point in time which defeats temporal precedence making it equally likely that the expected effect might have influenced the expected cause rather than the reverse. Although higher in internal validity compared to other methods, laboratory experiments are, by no means, immune to threats of internal validity, and are

susceptible to history, testing, instrumentation, regression, and other threats that are discussed later in the chapter on experimental designs. Nonetheless, different research designs vary considerably in their respective level of internal validity.

External validity or generalizability refers to whether the observed associations can be generalised from the sample to the population (population validity) or to other people, organisations, contexts, or time (ecological validity). For instance, can results drawn from a sample of financial firms in the United States be generalised to the population of financial firms (population validity) or other firms within the United States (ecological validity)? Survey research, where data is sourced from a wide variety of individuals, firms, or other units of analysis, tends to have broader generalizability than laboratory experiments, where artificially contrived treatments and strong control over extraneous variables render the findings less generalizable to real-life settings where treatments and extraneous variables cannot be controlled. The variation in internal and external validity for a wide range of research designs is shown in Figure 9.1.



High Internal Validity	Moderate Validity	High External Validity
Mathematical proofs	Field experiments	Ethnography
Single laboratory experiment	Longitudinal studies	Case study (field)
Multiple laboratory experiments	Mixed-method case studies	Cross-sectional studies
Controlled simulations		Field surveys
		Naturalistic observation

Figure 9.1. Internal and external validity

Some researchers claim that there is a trade-off between internal and external validity: higher external validity can come only at the cost of internal validity and vice versa. But this is not always the case. Research designs such as field experiments, longitudinal field surveys, and multiple case studies have higher degrees of both internal and external validity. I prefer research designs that have reasonable degrees of both internal and external validity, i.e., those that fall within the cone of validity shown in Figure 9.1. But this should not suggest that designs outside this cone are any less useful or valuable. Researchers' choice of designs is

ultimately a matter of their personal preference and competence, and the level of internal and external validity they desire.

Construct validity examines how well a given measurement scale measures the theoretical construct that it is expected to measure. Many constructs used in social science research, such as empathy, resistance to change, and organisational learning are difficult to define, much less measure. For instance, construct validity must assure that a measure of empathy is indeed measuring empathy and not compassion, which may be difficult since these constructs are somewhat similar in meaning. Construct validity is assessed in positivist research based on correlational or factor analysis of pilot test data.

Statistical conclusion validity examines the extent to which conclusions derived using a statistical procedure are valid. For example, it examines whether the right statistical method was used for hypothesis testing, whether the variables used meet the assumptions of that statistical test (such as sample size or distributional requirements), and so forth. Because interpretive research designs do not employ statistical tests, statistical conclusion validity is not applicable for such analysis. The different kinds of validity and where they exist at the theoretical/empirical levels are illustrated in Figure 9.2.

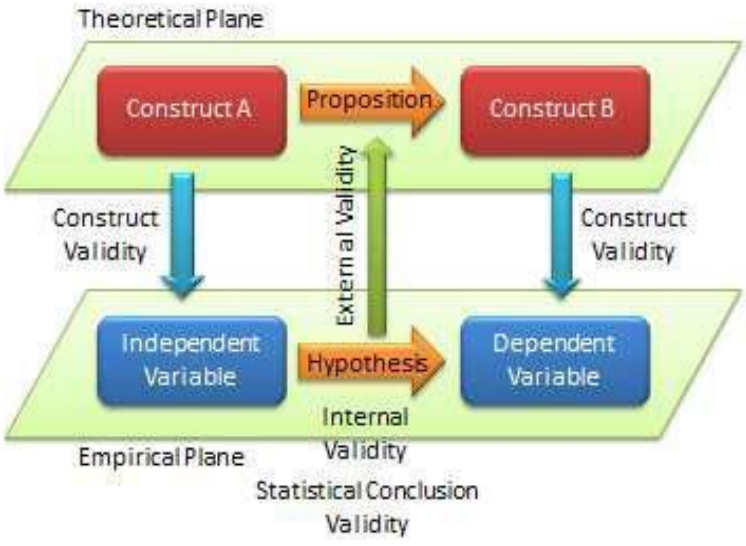


Figure 9.2. Different Types of Validity in Scientific Research

9.1.3 Improving Internal and External Validity

The best research designs are those that can assure high levels of internal and external validity. Such designs would guard against spurious correlations, inspire greater faith in the hypothesis testing, and ensure that the results drawn from a small sample are generalizable to the population at large. Controls are required to assure internal validity (causality) of research designs, and can be accomplished in four ways: (1) manipulation, (2) elimination, (3) inclusion, (4) statistical control, and (5) randomisation.

In manipulation, the researcher manipulates the independent variables in one or more levels (called "treatments"), and compares the effects of the treatments against a control group where subjects do not receive the treatment. Treatments may include a new drug or different dosage of drug (for treating a medical condition), a teaching style (for students), and so forth. This type of control is achieved in experimental or quasi-experimental designs, but not in non-experimental designs such as surveys. Note that if subjects cannot distinguish adequately between different levels of treatment manipulations, their responses across treatments may not be different, and the manipulation would fail.

The elimination technique relies on eliminating extraneous variables by holding them constant across treatments, such as by restricting the study to a single gender or a single socio-economic status. In the inclusion technique, the role of extraneous variables is considered by including them in the research design and separately estimating their effects on the dependent variable, such as via factorial designs where one factor is gender (male versus female). Such a technique allows for greater generalizability but also requires substantially larger samples. In statistical control, extraneous variables are measured and used as covariates during the statistical testing process.

Finally, the randomisation technique is aimed at cancelling out the effects of extraneous variables through a process of random sampling, if it can be assured that these effects are of a random (non-systematic) nature. Two types of randomisations are: (1) random selection, where a sample is selected randomly from a population, and (2) random assignment, where subjects selected in a non-random manner are randomly assigned to treatment groups.

Randomisation also assures external validity, allowing inferences drawn from the sample to be generalised to the population from which the sample is drawn. Note that random assignment is mandatory when random selection is not possible because of resource or access constraints. However, generalizability across populations is harder to ascertain since populations may differ on multiple dimensions, and you can only control for a few of those dimensions.

9.2 Types of Research Design

Research design is a comprehensive plan for data collection in an empirical research project. It is a "blueprint" for empirical research aimed at answering specific research questions or testing specific hypotheses and must specify at least three processes: (1) the data collection process, (2) the instrument development process, and (3) the sampling process.

Broadly speaking, data collection methods can be grouped into two categories: positivist and interpretive. Positivist methods, such as laboratory experiments and survey research, are aimed at theory (or hypotheses) testing, while interpretive methods, such as action research and ethnography, are aimed at theory building. Positivist methods employ a deductive research approach, starting with a theory and testing theoretical postulates using empirical data. In contrast, interpretive methods employ an inductive approach that starts with data and tries to derive a theory about the phenomenon of interest from the observed data. Oftentimes, these methods are incorrectly equated with quantitative and qualitative research. Quantitative and qualitative methods refer to the type of data being collected (quantitative data involves numeric scores, metrics, and so on, while qualitative data includes interviews, observations, and so forth) and analysed (i.e., using quantitative techniques such as regression or qualitative techniques such as coding). Positivist research uses predominantly quantitative data but can also use qualitative data. Interpretive research relies heavily on qualitative data but can sometimes benefit from including quantitative data as well. Sometimes, joint use of qualitative and quantitative data may help generate unique insight into a complex social phenomenon that is not available from either type of data alone, and hence, mixed-mode designs that combine qualitative and quantitative data are often highly desirable. Research designs can be categorised into three main types: **exploratory**, **descriptive**, and **causal**. Each type serves a specific purpose and is suited to different research questions.

1. **Exploratory Research Design**:
   This design is used when the research problem is not well understood, and the goal is to explore new ideas or phenomena. It is often qualitative and involves methods such as interviews, focus groups, and literature reviews. Exploratory research is particularly useful for generating hypotheses or identifying key variables for further study (Babbie, 2021).
   Example from Pakistan: A study exploring the challenges faced by small-scale farmers in adopting sustainable farming practices in Punjab.
   Example from the West: A study exploring the factors influencing consumer preferences for electric vehicles in Germany.

2. **Descriptive Research Design**:
   This design is used to describe the characteristics of a population or phenomenon. It involves collecting data through surveys, observations, or secondary data analysis. Descriptive research provides a snapshot of the current situation and is often used to identify trends or patterns (Trochim & Donnelly, 2020).
   Example from Pakistan: A study describing the demographic profile of university students in Karachi.
   Example from the West: A study describing the trends in remote work adoption among employees in the United States.

3. **Causal Research Design**:
   This design is used to determine cause-and-effect relationships between variables. It often involves experiments or quasi-experiments, where researchers manipulate one variable (independent variable) to observe its effect on another variable (dependent variable). Causal research is essential for testing hypotheses and making predictions (Field, 2021).
   Example from Pakistan: A study examining the impact of teacher training programs on student performance in Khyber Pakhtunkhwa.
   Example from the West: A study investigating the effect of a new drug on blood pressure levels in patients in the United Kingdom.

4. **Experimental Research Design**
   Experimental research involves manipulating variables to establish cause-and-effect relationships. It includes control and experimental groups. For

instance, testing the effectiveness of a new drug through clinical trials follows an experimental design.

5. **Correlational Research Design**
   This design examines relationships between variables without establishing causation. Statistical tools such as Pearson's correlation coefficient measure the strength of relationships. For example, studying the relationship between exercise frequency and mental health follows a correlational design.

9.3 Focus Group Discussion

A **focus group discussion (FGD)** is a qualitative research method that involves a small group of participants (usually 6–10) discussing a specific topic under the guidance of a moderator. FGDs are used to gather in-depth insights into participants' attitudes, perceptions, and experiences. They are particularly useful for exploring complex issues, generating new ideas, and understanding group dynamics (Krueger & Casey, 2021).
The process of conducting an FGD involves:

1. **Planning**: Defining the research objectives, selecting participants, and preparing a discussion guide.
2. **Moderation**: Facilitating the discussion, encouraging participation, and managing group dynamics.
3. **Analysis**: Transcribing and analysing the discussion to identify key themes and insights.

Example from Pakistan: An FGD with female entrepreneurs in Lahore to understand the challenges they face in accessing business loans.
Example from the West: An FGD with university students in Canada to explore their experiences with online learning during the COVID-19 pandemic.

9.4 Participatory Rural Appraisal (PRA)

Participatory Rural Appraisal (PRA) is a community-based approach to research that involves active participation from local communities. It is used to gather qualitative data on local issues, needs, and resources. PRA methods include

mapping, ranking, and transect walks, which empower communities to take ownership of the research process (Chambers, 2020).
The key principles of PRA include:

1. **Participation**: Involving community members in all stages of the research process.
2. **Flexibility**: Adapting methods to suit the local context and needs.
3. **Empowerment**: Enabling communities to identify and address their problems.

Example from Pakistan: A PRA was conducted in a rural village in Balochistan to identify the community's water management needs.
Example from the West: A PRA was conducted in a rural community in the United States to assess the impact of climate change on local agriculture.
"Rural development, in general, is used to denote the actions and initiatives taken to improve the standard of living in the non-Urban neighborhood...." Rural development aims at finding ways to improve rural lives with the participation of the rural people themselves so as to meet the needs of the rural area. An outsider may not understand the setting, culture, language, and other things prevalent in the local area. As such, local people themselves have to participate in their sustainable rural development. In the context of many approaches and ideas that have been developed and followed, the bottom-up approaches of Participatory Rural Appraisal (PRA) and Rapid Rural Appraisal (RRA) became very important.
Participatory Rural Appraisal (PRA) is the process of involving local people in the analysis and interpretation of a rural situation. The local people, i.e. the participants, take a leadership role in collecting, analysing, interpreting, and presenting information, and in the process, imparting knowledge and developing insight to the specialists and extension agents. Rapid Rural Appraisal (RRA) consists of a set of guidelines that help people to work in a structured but flexible way in rural communities and a set of tools to aid communication and interaction with those communities. How these guidelines and tools are used depends very much on what users need and want. Participatory Development: Participatory development has been broadly conceived to embrace the idea that all "stakeholders" who are affected by a decision have a right to be involved in the decision-making process. It focuses on the extraction of local knowledge to design programs off-site. Participatory development promotes equity and accepts that the exercise of decision-making power at the local level is as legitimate as it is at the national level.

Participatory Rural Appraisal (PRA) is a short-cut method of data collection for action research, utilising a range of techniques. It emphasises local knowledge and action by involving local people and outsiders from different sectors and disciplines. Outsiders facilitate local people in analysing information, practising critical self-awareness, taking responsibility and sharing their knowledge of life and conditions, and making their appraisals and plans - to plan and to act. Participation is concerned with the organised efforts to increase control over resources and regulate institutions in given social situations on the part of groups and movements of those hitherto excluded from such control. Regarding rural development, participation includes people's involvement in the decision-making process, in implementing programs, their sharing in the benefits of development programs, and their involvement in efforts to evaluate such programs.

Participation can be seen as a process of empowerment of the deprived and the excluded. This view is based on the recognition of differences in political and economic power among different social groups and classes. Participation in this sense necessitates the creation of organisations of the poor that are democratic, independent, and self-reliant. Participatory development stands for partnership, which is built based on dialogue among the various actors, with the agenda jointly set and local views and indigenous knowledge are deliberately sought and respected. This implies negotiation rather than the dominance of an externally set project agenda. The people become actors instead of being the beneficiaries.

Participation is a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them. "a process of equitable and active involvement of all stakeholders in the formulation of development policies and strategies and the analysis, planning, and implementation, monitoring, and evaluation of development activities. To allow for a more equitable development process, disadvantaged stakeholders need to be empowered to increase their level of knowledge, influence, and control over their livelihoods, including development initiatives affecting them." (FAO Informal Group on Participatory Approaches and Methods –IWG). PRA is one of the techniques used for gathering information on community resources and needs for use in literacy and community development programs. The techniques include the use of transect walks, maps, calendars, matrices, and diagrams using locally available materials.

Rapid Rural Appraisal (RRA) Rapid Rural Appraisal consists of a series of techniques for "quick and dirty" research that are claimed to generate results of less apparent precision, but greater evidential value, than classic quantitative survey techniques. The method does not need to be exclusively rural or rapid, but it is economical for the researcher's time. It is essentially extractive as a process: the agenda is still that of the outside researcher. There is no generally accepted definition of RRA. The term RRA is more commonly described as a systematic but semi-structured activity out in the field by a multidisciplinary team and is designed to obtain new information and formulate new hypotheses about rural life. A central characteristic of RRA is that its research teams are multidisciplinary. Rapid Rural Appraisal (RRA) is a relatively new and different approach for conducting action-oriented research in developing countries and is used to help involve villagers and local leaders in all stages of development work, from the identification of needs and decision making to the assessment of completed projects. The term can be used to describe any new methodology which makes use of a multidisciplinary team.

9.5 Case Studies

A **case study** is an in-depth analysis of a single case or a small number of cases. It is used to explore complex phenomena in their real-life context. Case studies can be descriptive, exploratory, or explanatory and often involve multiple data sources, such as interviews, observations, and documents (Yin, 2021).
The process of conducting a case study involves:

1. **Defining the Case**: Selecting a case that is relevant to the research question.
2. **Data Collection**: Gathering data from multiple sources to ensure a comprehensive understanding.
3. **Analysis**: Identifying patterns, themes, and insights that address the research question.

Example from Pakistan: A case study of a successful microfinance program in rural Punjab to identify best practices.
Example from the West: A case study of a tech startup in Silicon Valley to analyse its innovation strategies.
A case study is a time-consuming data collection method. As a result, it might not be the best medium for conducting short-term research. Discrimination and bias

can occur while investigating a social unit because it is a narrow study. Both the participants and the observer are at risk of making memory and judgment errors when using the case study method. Case studies make it difficult to draw firm conclusions about cause and effect. However, the case study method of research entails an in-depth examination of a phenomenon. This method was introduced by an English philosopher named Frederic LePlay, and it was later adopted by social researchers such as Herbert Spencer, Healey, and Mitchell. A case study is a research strategy or empirical inquiry that employs multiple evidence sources rather than a data collection method. It is a technique for condensing a large area of research into a single, easily researched topic. According to Kromrey, a case study entails studying individual cases for a long period of time, often in their natural environment. It employs qualitative research methods and presents a comprehensive account of a phenomenon. The primary goal of the case study method is to examine a single unit's behavioural patterns and their interactions with the environment. A case study investigates, clarifies, and describes a specific situation. It examines the units as a whole, rather than focusing on specific aspects or variables. The case is the centre of investigation in this method. Researchers use various case study methods for various purposes of evaluation, such as Intrinsic Case study, Instrumental Case study, Pilot Case study, Cumulative Case study, Illustrative Case study, Historical Case study, Situational Case study, and so on.

Self-Assessment Questions

Multiple Choice Questions (MCQs)

(Select the correct answer.)

1. **What is a research design?**
   a) A method of data collection
   b) **A systematic plan for conducting research**
   c) A type of data analysis
   d) A sampling technique
   Correct Answer: b

2. **Which research design is used to explore new ideas or phenomena?**
   a) Descriptive
   b) **Exploratory**
   c) Causal
   d) Experimental
   Correct Answer: b

3. **What is the main purpose of a focus group discussion?**
   a) To collect quantitative data
   b) **To gather in-depth insights into participants' attitudes and perceptions**
   c) To test cause-and-effect relationships
   d) To describe the characteristics of a population
   Correct Answer: b

4. **Which method is used in participatory rural appraisal (PRA)?**
   a) Surveys
   b) Experiments
   c) **Mapping and ranking**
   d) Case studies
   Correct Answer: c

5. **What is a case study?**
   a) A method of random sampling
   b) **An in-depth analysis of a single case or a small number of cases**
   c) A type of experimental design

d) A tool for data analysis
Correct Answer: b

Restricted Response Questions

1. Define research design and explain its importance.
2. What is the difference between exploratory and descriptive research designs?
3. Describe the process of conducting a focus group discussion.
4. What are the key principles of participatory rural appraisal (PRA)?
5. Why are case studies useful in research?
6. Define research design and explain its significance.
7. Differentiate between descriptive and experimental research designs.
8. Describe the key features of Focus Group Discussions.
9. What are the main techniques used in Participatory Rural Appraisal (PRA)?
10. Explain the importance of case studies in qualitative research.

Extended Response Questions

1. Compare and contrast exploratory, descriptive, and causal research designs. Provide examples from Pakistan and the West.
2. Discuss the advantages and limitations of focus group discussions in qualitative research.
3. Explain how participatory rural appraisal (PRA) can empower local communities. Provide examples from Pakistan.
4. Critically evaluate the use of case studies in understanding complex phenomena. Provide examples from the West.
5. "A well-designed research study ensures validity and reliability." Discuss this statement to examples from Pakistan and the West.
6. Compare and contrast different types of research designs with examples.
7. Discuss how Focus Group Discussions contribute to qualitative research.
8. Evaluate the role of Participatory Rural Appraisal in community development.
9. How do case studies provide an in-depth understanding of complex social issues?
10. Explain how a well-structured research design impacts the validity of a study.

Further Readings

Books:

- Creswell, J. W., & Creswell, J. D. (2023). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6th ed.). Sage Publications.
- Bryman, A., & Bell, E. (2022). *Business Research Methods* (5th ed.). Oxford University Press.

Journal Articles:

- Trochim, W. M. K., & Donnelly, J. P. (2020). *The Research Methods Knowledge Base* (4th ed.). Cengage Learning.
- Yin, R. K. (2021). *Case Study Research and Applications: Design and Methods* (6th ed.). Sage Publications.

Online Resources:

- SAGE Research Methods: https://www.sagepub.com/researchmethods
- JSTOR: https://www.jstor.org
- ProQuest Social Sciences: https://www.proquest.com
- Google Scholar: https://scholar.google.com

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- Babbie, E. (2021). *The Basics of Social Research* (8th ed.). Cengage Learning.
- Bryman, A., & Bell, E. (2022). *Business Research Methods* (5th ed.). Oxford University Press.
- Chambers, R. (2020). *Participatory Rural Appraisal: Challenges, Potentials, and Paradigms*. World Development.
- Creswell, J. W., & Creswell, J. D. (2023). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6th ed.). Sage Publications.
- Field, A. (2021). *Discovering Statistics Using IBM SPSS Statistics* (6th ed.). Sage Publications.
- Krueger, R. A., & Casey, M. A. (2021). *Focus Groups: A Practical Guide for Applied Research* (6th ed.). Sage Publications.
- Trochim, W. M. K., & Donnelly, J. P. (2020). *The Research Methods Knowledge Base* (4th ed.). Cengage Learning.
- Yin, R. K. (2021). *Case Study Research and Applications: Design and Methods* (6th ed.). Sage Publications.