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RESEARCH METHODOLOGY-I

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BLOCK : 1
INTRODUCTION TO RESEARCH METHODS

Unit - 1

Introduction to Research: Definition and Objectives of Research

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Unit Structure:

1.1 Introduction

We conduct research to know or understand a phenomenon in a better way. Research is a way of acquiring knowledge. The pursuit of knowledge contributed to the development of human civilisation. Every civilization, from the earliest prehistoric tribes to the most technologically sophisticated modern cultures, has depended on its capacity to understand and control its environment. During the early phases of human history, learning was mostly based on experience, observation, and the basic process of trial and error. As civilizations developed and people's desire for knowledge increased, a new approach— 'Research', a methodological investigation has emerged.Nowadays, Research is the lifeblood of any institute of higher learning. Research is more than a set of specific skills; it is a way of thinking and it critically examines the various aspects of any professional work.It is a structured enquiry that utilizes the acceptable scientific methodology to solve problems and create new knowledge that is generally applicable. The enquiry is aimed at understanding a thing or phenomenon or solving a problem. This unit attempts to introduce you to the meaning and characteristics of research as well as social science research.

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1.2 Objectives

This is an introductory chapter to research and its objectives. After reading this unit, you will be able to:

- Discuss the meaning of the research
- Know about the Purpose of research
- Discuss about social science research
- Examine the difference between social science research and natural science research
- Importance of social science research
- Understand the Considerations in conducting social science research
- List the characteristics of social science research

1.3 Meaning of Research

The term research comprises two words: 're' and 'search'. Generally, 're' means again and 'search' means to find out. Thus, research can be defined as seeking out for truth. In the wordsof Wernher von Braun (a German philosopher), "Research is what I'm doing when Idon't know what I'm doing." It is the search for truth/facts. According to the Advanced Learner's Dictionary, 'Research is a careful investigation or inquiry, especially to search for new facts in any branch of knowledge'. Thus, research can be defined as a scientific understanding of existing knowledgeand deriving new knowledge to be applied for the betterment of mankind.

Webster's Third International Dictionary of the English Language defines research as"Studious inquiry or examination, especially critical and exhaustive investigation or experimentation, having for its aim the discovery of new facts, and their correct interpretation, the revision of accepted conclusions, theories, or laws in the light of newly discovered facts, or practical applications of new or revised conclusions, theories, or laws."

According to Clifford Woody, "Research comprises of defining and redefining problems, formulating thehypothesis for suggested solutions, collecting, organizing and evaluating data, makingdeductions and reaching conclusion and further testing the conclusion whether they fitinto formulating the hypothesis."

Cook has beautifully outlined research as an honest, exhaustive, intelligent search for facts and their meanings or implications, concerning a problem. To him, research is an acronym of the following that defines its essence.

R = Rational way of thinking

E = Expert and exhaustive treatment

S = Search and solution

E = Exactness

A = Analysis

R = Relationship of facts

C = Critical observation, careful planning, constructive attitude and condensed generalization H = Honesty and hard-working.

From these definitions, it can be said that research is a systematic methodological process of enquiry and investigation that aims to contribute to expanding knowledge. Research embodies a profound intellectual pursuit characterized by rigorous investigation into various phenomena, events, and activities. It is a systematic endeavour aimed at uncovering empirical data and facts, with the overarching objective of formulating new theories or refining existing ones. Integral to the research process is the dissemination of findings for peer scrutiny, where acceptance or rejection determines their integration into the corpus of knowledge. Research is like undertaking a journey and one must know about its destination and which route to take. The sequence of steps during the journey is not absolute. At every step, there is a multiplicity of methods, approaches and procedures. Here, the experience of a guide comes in handy to guide our actions to achieve our objectives.

Stop to Consider

Research and Other Sources of Knowledge:

Research, Mythology, Experience, Common sense, News all are sources of knowledge. There is a difference between knowledge gained from other sources and research. Many times, other forms of knowledge can mislead us as these are affected by our values or lackof proper methods to collect data. Many times, news were used

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to propagate certain ideologies. Compared to other sources of knowledge, research follows a rigorous methodology to collect data and analyse it. It tries to avoid biases. Thus, research is the only source of genuine and authentic knowledge. However, there is no such concept as final knowledge which we can get from research. Research is a pursuit of knowledge that is unique. It has certain structures, methods techniques and philosophical assumptions under which research is operated. It must be a systematic study.

Check Your Progress

Q. Define Research.

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1.3.1 Objective of Research

The main purpose of research is to discover answers to questions through the application of scientific procedures.The major objectives of the research are to find out a hiddenand undiscovered truth of nature/society. There are various objectives behind undertaking research by individuals as well as various organizations/universities.

Academics conduct social research when they encounter gaps in the literature, inconsistencies, or unresolved issues in modern social life. These situations serve as springboards for research, and can also arise from societal developments. In social science research, social scientistsuse theories to understand the social world. Theories significantly influence the investigated topicsand the interpretation of research findings. For example, a researcher studying the impact of mobile phone text messaging on sociability would likely consider prevailing theories about technology usage and its impacts. Social research is informed and influenced by theory, contributing to the knowledge base related to the theory.

The objectives of research can be grouped intoseveral categories:

Hypothesis Testing and Relationship Establishment: Research aims to propose and test hypotheses of phenomena. It can also seek to establish relationships between variables and understand phenomena. For example, people can do research to find the relationship between income and expenditure. One can hypothesise that a change in income leads to change in expenditure of a person.

Description and Explanation: Research can be conducted to accurately describe characteristics of situations or phenomena and explain previously unexplored knowledge. As you all know, 2024 Lok Sabha election was recently held. One can do research to explain the voting behaviour of youths. One can seek answers to know the factors of voting behaviour among youths in a particular place.

Familiarity and Review: Research seeks to gain familiarity with new phenomena, review existing knowledge, and investigate existing situations or problems. For example, online teaching and learning was not popularised before Covid. After Covid, there was a change in teaching, learning methods through the inclusion of digital tools. One can do research to familiarise with these changes in teaching-learning environment.

Solution Offering and General Exploration: Research may offer solutions to problems, explore general issues, and construct or create new procedures or systems. Internal Displacement issue is one of the serious issues in our country. India does not have a proper displacement policy. One can do research on displacement to seek solution to these displacement problems. Policy research mostly conducted to offer a solution to a existing policy problem.

Knowledge Generation: Ultimately, research endeavours to generate new knowledge across various fields. To know about changes in our surrounding or social world, research can be a reliable method. To produce systematic knowledge about impact of covid 19, online teaching-learning environment, research can be a useful tool.

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The actual research may encompass one or a combination of these objectives. The main objective of the research is to develop new perceptions, understand phenomena, and test reported findings on new and previously reported data.Failure is an unavoidable aspect of the research process but can serve as a stepping stone to success. Essential attributes for successful research completion include creativity, effective written and verbal communication skills, and a profound understanding of ubjectt matter. Researchers must possess a solid foundational knowledge of their chosen field and maintain a questioning attitude throughout the research process. This inquisitive approach is fundamental to the essence of research and innovation.Practical intelligence involves the ability to adapt to everyday challenges, while creativity often manifests through traits such as persistence, tenacity, and unwavering dedication.

Stop to Consider

Good Researcher:

Doing research is not an easy task. It requires lots of patience and qualities. Important ingredients for a good researcher are:

- **Dedication and Commitment:** Research often requires long hours of focused work, perseverance in the face of challenges, and a strong commitment to the research goals. Dedication involves being willing to put in the effort and time required to conduct thorough and high-quality research.
- **Consistency and Patience:** Research progress can be slow and unpredictable, requiring consistent effort over an extended period. Patience is essential when dealing with setbacks, failures, or delays in the research process. Consistency involves maintaining a steady pace of work and making progress incrementally.
- **Good Communication:** Effective communication of research findings is crucial for sharing knowledge with peers, contributing to the academic community, and making an impact in the field. Good written communication skills enable researchers to articulate their ideas clearly, organize complex information

coherently, and compellingly present their findings. Good verbal communication skills are also important for researchers. This includes the abilityto articulate ideas effectively during presentations, discussions, and collaborations with colleagues. Clear and concise communication fosters collaboration, facilitates knowledge exchange, and enhances the impact of research.

- **Domain knowledge:** A strong understanding of the subject matter or domain being researched is fundamental for conducting meaningful research. Domain knowledge allows researchers to ask insightful questions, design appropriate methodologies, interpret data accurately, and contextualize their findings within existing literature.
- **Creativity:** Research often involves exploring new ideas, solving complex problems, and generating innovative solutions. Creativity allows researchers to think outside the box, approach challenges from different perspectives, and devise novel research methodologies or theoretical frameworks. Creativity is essential for pushing the boundaries of knowledge and making original contributions to the field.These ingredients collectively contribute to the success of a researcher by fostering a combination of skills, qualities, and attitudes necessary for conducting rigorous, impactful, and meaningful research.

Check Your Progress

Q. Why do people conduct research?

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Q. How to be a good Researcher?

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1.3.2 Importance of Research

Philosophers and intellectuals view research as a channel for exploring new concepts and fostering innovative styles. The importance of research cannot be limited to acquiring a research degree along with its consequential benefits. Intellectual satisfaction from doing some innovative work or a desire to enhance their social status might motivate people to do research. The main purpose of research is to contribute to the existing knowledge system. Thus, research is essential for the evolution of humankind. People evolve through various stages, experiences and methods. Research is one of the systematic and reliable methods through which a human being can seek answers for truth.

Research can generate new knowledge. There are lots of phenomena around us, that we were not able to understand. Through research, one can uncover unknown things. As research can describe and explain phenomena as well as produce law-likestatements, it helps us to better understand the world. For example, gravitational force was always there onEarth. But it is Newton through his research who explains to us how this gravitational force works and generates new knowledge to our understanding of the natural world.

Research often starts with a problem and ends with a new problem. Research aims to uncover the root cause of problems surrounding us and gives us a better understanding of it. Through research, one can seek to solve the issues of our daily lives. For example, Covid19 has shaken the world some years ago. It is through research or one can say continuous experiments of scientists that helped mankind to find a cure. It is through researchthat researchers are exploring various impacts of COVID-19 on humankind. News reports can also cover various stories, even empirical evidence of these impacts. However, the systematic, rigorous procedure and methods of research make it more valid and reliable to us.

Stop to Consider

The main steps for conducting the research involve:

Defining the problem and formulating a set of key research questions;step involves identifying and clearly defining the problem

or topic of interest. Researchers formulate a set of key research questions that they seek to answer through their investigation. These questions serve as a guide for the research process and help focus the study.

Gathering information to answer the questions: Once the research questions are defined, the next step is to gather relevant information or data to address these questions. This may involve conducting literature reviews, collecting primary data through surveys, experiments, or observations, or utilizing existing datasets.

Arriving at an explanation for the problem: After collecting the necessary data, researchers analyse it to draw conclusions and arrive at an explanation for the problem or phenomenon under investigation. This involves applying appropriate analytical techniques to interpret the data and identify patterns, trends, or relationships.

Interpreting the data: Once the data has been analysed, researchers interpret the findings in the context of the research questions and the problem being studied. This step involves drawing meaningful insights from the data, discussing the implications of the findings, and considering any limitations or alternative explanations.

Disseminating the results to other members of the social science community.The final step in the research process is to disseminate the results to other members of the social science community and relevant stakeholders. This can be done through academic publications, presentations at conferences, reports, or other forms of communication. Sharing the findings allows other researchers to learn from the study, validate the results, and build upon the research in their work.These steps provide a structured framework for conducting research and are essential for producing credible and valuable contributions to the body of knowledge in the social sciences.However, steps in research might be varied depending on the approaches. For e.g. Qualitative research begins with particular arguments and ends with generalisation. On the other hand, Quantitative Research begins with a theory or hypothesis and ends with testifying it.

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Check Your Progress

Q. What is the importance of Research?

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1.4 Social Science Research

As we all know, social sciences study human interactions and the universe, while natural sciences study the natural world and the universe. Social science research, including Sociology, History, Geography, Psychology, Political Science, and Economics, helps understand society's functions and human influence. It deals with social phenomena and attitudes, aiding in the formulation of legislation, policies, and schemes on socio-economic issues. Social science research is crucial for governments and the people.

Globusz Publishers defines social science research as a systematic approach to understanding human behaviour and social life, aiming to provide explanations for unexplained phenomena and correct misconceived facts. Thus, social science research is a method of enquiry to gain further knowledge or enhance existing knowledge to understand issues of the social world.Although research is not an arbitrary activity, but follows certain rules and procedures. Social science research involves studying experiences, events, and facts in social reality. It helps answer questions about the social world and may change our understanding of the world. Social science differs from casual observation, common sense reasoning, and other methods of evaluating evidence. As we all know history is not mythology, cultural anthropology is not a travelogue, sociology is not journalism, and political science is not an election speech. This does not mean that mythology and travelogue, or journalism and election speeches are domains of falsehood. the point is, that the knowledge gained from mythology, assumptions cannot be as reliable as research. Research is qualitatively different from other fields like mythology, folk tales, epics, travelogues and literature. Compared to them, research is a formal, structured body of knowledge having distinctive

ways of collecting data and arriving at generalizations. Social scientists are objective and value-neutral, relying on empirical facts and are not ideological, subjective, or condemning of social reality. Understanding this methodology is often seen as akin to comprehending the philosophy of modern science that gave an identity to social science.

Social science research yields valuable information and expands our understanding, but it is not 100 percent foolproof. It does not guarantee perfect results every time or offer "absolute truth." This may be why some people distrust research-based knowledge or why some people, including a few media commentators, even ridicule professional researchers and study results. Despite some derision, in a head-to-head comparison with the alternative ways we can learn about the world and make decisions, research readily wins hands-down. This is why professionals, educated people, and responsible leaders consistently turn to the methods, principles, and findings of social research when they want to learn more or make important decisions.

Stop to Consider

Social Science Research and Natural Science Research:
There are differences and similarities between studying in the social sciences and the natural sciences. The strategies and techniques applied in social science research are very different from those in natural science research.Natural science research is purely experimental. For example, the study of atoms and molecules, the study of the solar system, or the reaction of a particular gas with another gas or solution is research based on experimentation.Many natural science research studies take several years to complete, while many take much less time. The nature of natural science research is mainly scientific and such research often involves huge costs as well. Natural science research is mostly conducted in artificial settings, like labs. The methodology of social science research is generally not as complicated as the methodology used in natural science research. Social science research is based on surveys, interviews, focus group discussions, etc., unlike natural science research, which is based on experimentation. It is widely acknowledged that social scientists conduct their research in a different way than their counterparts in

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the natural sciences. There are several circumstances where research from the social sciences and natural sciences overlaps, and it is not always easy to distinguish between the two. Research methodology is a major area of distinction between social science and natural science studies. There is a lot of discussion about this, some of which concentrates on the issue of methodology. On the one hand, some social scientists contend that to conduct successful research projects, we should incorporate techniques, methodologies, and procedures that are frequently employed in the natural sciences, such as experiments. Others would argue that the social world is different from the natural world, and if it is to be investigated effectively, Social Science research needs to design its approaches, designs and methods that are more relevant and fit for the purpose.Both kinds of research have investigative techniques used to expand one's understanding of a subject. Both need methods to carry out that investigation. Both increase understanding of various facets of life. Both contribute significant value to the body of knowledge already known about specific facets of life. Research of both types is beneficial and essential. Time and money are involved in both. Both are being practised in various ways and in various places of the world. For the creation of laws, policies, plans, and programmes, both are helpful.

Check Your Progress

Q. What is social science Research?

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Q. Explain how social science research differs from natural science research.

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1.4.1 Importance of Social Science Research

Social research aims at widen the horizon of knowledge regarding the function of society. The main subject of social science research is the social world. As we all are the part of this social world, the importance of social science research cannot be ignored. The aim of social science research is interlinked with its importance to humankind. These are as follows,

- Social science research aims to understand the functioning of the society. It can help to better understand the social world.
- It aims to understand the behaviour of the individual as a member of the society.
- It studies the social problems and their consequences.
- It aims at developing general theories about the social world.

Social science research is a crucial aspect of our daily life, influencing various aspects such as law, public safety, education, healthcare, and personal relationships. It is widely used in various fields, including business, education, and healthcare. The findings of social science research are used by various individuals, including teachers, parents, and healthcare professionals, to raise children, reduce crime, manage health concerns, and make daily decisions. Despite criticism, social science research remains relevant for understanding social life and making informed decisions. Its findings are widely accessible on various platforms, including news programs, magazines, newspapers, and websites.Social science research focuses on building knowledge by describing methods for obtaining results, setting up an inquiry process to examine evidence from all perspectives, and generalizing knowledge beyond specific instances, making research a potential method for knowledge generation.

Check Your Progress

Q. Why do we need social science research?

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1.4.2 Consideration in Social ScienceResearch

In any research, the researcher has certain considerations. Although one cannot limit the consideration to certain numbers, the following considerations can help a researcher get into the research process.

- **Review of Literature:** Social research relies heavily on existing knowledge about the researcher's area of interest. To conduct effective research, it is crucial to be familiar with the literature on the topic, allowing for the development of new research and avoiding overlap with existing knowledge. You have to be acquainted with what is already known about the research area in which you are interested so that you can build on it and not risk covering the same ground as others.
- **Relation between theory and Research:** The relationship between theory and research is influenced by the researcher's perspective. Some view theory as a starting point, involving theoretical reflections and hypothesis formulation and testing, which is known as the Deductive approach. Others view theory as an outcome of the research process, arriving after the research has been conducted, which is known as the Inductive approach. This differs in the research approach, as the first approach suggests that theoretical ideas drive data collection and analysis, while the second suggests an open-ended strategy where theoretical ideas emerge from data. This contrasting view of theory's role in research highlights the varying perspectives on this relationship.
- **Epistemological and Ontological Consideration:** Research assumptions and views influence the process, often leading to a scientific approach where a hypothesis is formulated and tested using precise techniques. However, this view is not universally shared. Epistemological considerations raise questions about how the social world should be studied and whether a scientific approach is the right stance. Some researchers advocate for an approach that is sensitive to the unique qualities of people and their social institutions, rejecting the scientific model. The research process is influenced by assumptions about the nature of social phenomena.

Some view the social world as external, influencing behaviour, beliefs, and values, while others view it as a constant process of reformulation and reassessment. Ontological considerations suggest that social phenomena are inert and beyond our control, or they are a product of social interaction. The researcher's stance on epistemological issues has implications for the way social research is conducted. This allows us to consider the nature of social phenomena and their impact on our understanding of the world.

- **Ethical Consideration:**The research community's values significantly impact researchers, particularly in terms of ethical issues. These issues have become increasingly prominent, making it difficult to conduct certain research without risking the opprobrium of the research community and potential censure from the organizations where researchers are employed. The establishment of an elaborate framework for ethical integrity has made the transgression of ethical principles less likely. Special provisions are required for research involving children or vulnerable adults. The values of the research community can also influence researchers in certain fields, such as social policy, where the users of services should be involved in the research process. While these views are not universally held, they form a consideration for researchers when considering certain types of investigation.
- **Purpose of Research:**Research in social sciences is often viewed as academic, adding knowledge to the social world. However, many social scientists believe that research should also have practical purposes, making a difference in the world. This means focusing on topics and issues that have practical implications. For social policy researchers, this is more common than in other disciplines. Some research approaches, like evaluation and action research, are specifically designed to explore issues that have everyday implications. However, not all social scientists prioritize practice. Social research is influenced by political factors, with government funding often reflecting current government orientation. This can lead to certain research issues receiving more financial support.

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For UK social science research, the Economic and Social Research Council (ESRC) requires applicants to demonstrate how potential users will be involved if funded. This concept can be interpreted differently, but it is more straightforward for researchers with a more applied focus, giving a slight advantage to those focusing on practice.

- **Keeping an Open Mind:** The training and personal values of a researcher significantly influence the research area, questions, and methods used in social research. Our experiences and interests often influence the issues we research, as they often connect to the wider disciplines of the social sciences. Social researchers often develop attachments to certain research methods and approaches due to their training and personal preferences. Practising and prospective researchers need to be familiar with a diversity of methods and how to implement them. While methodological preferences can lead to a narrower understanding of the subject, they often emerge and have implications for the conduct of research.

Check Your Progress

Q. What thing should be considered in conducting research?

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1.5 Characteristics of Research

Research is characterized by several key features that distinguish it as a systematic and rigorous process aimed at generating new knowledge or understanding. There are certain common desirable characteristics in the research process. However, there is a word of caution, that there is an overlapping in the meaning and scope of these characteristics. They ensure that research is free of biases, prejudices and subjective errors.

- **Objectivity**: Objectivity in research is crucial for ensuring results are not influenced by researchers' presence, behaviour, or attitude. To achieve objectivity, researchers can adopt procedural safeguards,

such as keeping complete records of observations and data analyses, using uniform procedures in data collection, and operationalizing concepts. These safeguards help maintain consistency and openness to criticism. Standardization also ensures uniform procedures throughout data collection. Operationalization of concepts defines the meaning of concepts based on measurement or operations. Lastly, avoiding bias is essential to prevent external influences, personal beliefs, and human expectations from distorting data. Research follows a scientific approach, but finding the truth may be affected by biases. Therefore, the challenge in research is to remain objective and free from biases, as various biases can distort people's perceptions of collected data.

- **Reliability**: Reliability in research refers to the consistency of results produced by an investigation, also known as verifiability. If research consistently yields similar results, it is considered reliable. For example, if a study on the effects of watching television on children's class performance shows low grades, another sample with the same procedure would also show the same results. The more similar the results, the more reliable the research. The reliability coefficient is also a key factor in determining reliability.

- **Validity**: Validity in research refers to the accuracy of procedures, instruments, and tests, ensuring they measure what they intended to measure. It requires research to be unbiased and free from systematic errors, as without validity, the research may go in the wrong direction.

- **Accuracy**: Accuracy is closely linked to validity and measures the relationship between research processes, instruments, and tools. It evaluates whether the chosen tools and procedures are suitable for the research problem. Rigorous scientific methods and procedures are adopted, and selecting the best data collection tool enhances research accuracy.

- **Credibility**: Credibility in research involves using the best sources of information and procedures. Secondary data saves time and

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reduces costs, but excessive reliance on secondary data can reduce research credibility. A trade-off between primary and secondary data is necessary, with accurate references enhancing credibility and fake ones decreasing it.

- **Generalizability**: Generalizability, closely linked to validity, ensures research findings can be applied to a larger population, as the sample considered should represent the entire population. However, it must be noted that not all research can be generalizable.
- **Empirical research**: It is based on real-life experiences, observations, or direct experiences, ensuring external validity by examining concrete data related to real situations and addressing aspects of a specific situation.
- **Systematic**:A systematic research approach is crucial for effective research, as each step must follow a set of tested procedures. This approach ensures that each research follows a definite procedure, ensuring a structured and well-structured study.
- **Controlled Factors:** Controlled factors in research involve minimizing the effects of other factors on the relationship between two variables. In physical sciences, controlling these factors is easier due to laboratory experiments, while in social sciences, controlling factors is difficult due to research on societal issues. The level of control varies significantly between disciplines, making it crucial to carefully manage these factors to minimize the impact of other factors on the relationship.
- **Cyclical**: Research is a cyclical process that starts with a problem and ends with a problem. It begins with identifying a knowledge gapand then investigates through literature, data collection, and experiments. The goal is to find solutions, develop theories, and propose interventions. These solutions are tested in real-world settings, validating their effectiveness. After implementation, researchers evaluate the outcomes and reflect on the process. This cyclical nature ensures that research is dynamic, iterative, and

responsive to evolving challenges and opportunities, driving the advancement of knowledge in a particular field.

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Check Your Progress

Q. Discuss some important features of research.

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1.6 Summing Up

This unit provides you an understanding of research and social science research. Research is a source of acquiring knowledge that is more authentic and reliable than other forms of knowledge. The main difference between social science research and natural science research is the subject matter it studies. Whereas the natural science research studies the natural world, the social science studies the social world. Research is part of our daily life activities. We all directly or indirectly benefit from research. Research is not an easy task. Personally, it requires lots of passion, care, dedication, honesty and integrity. Intellectually, it requires proper knowledge on methodology, the relationship between theory and practice, and epistemological and ontological consideration. The characteristics of research give glimpses of important things that research should take care of. Without these characteristics, research can not become a reliable source of knowledge. In short, this unit gives you an overall understanding of meaning and objectives of research.

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Unit-2

Emergence of Positivism and Scientific Methods

Unit Structure:

2.1 Introduction

To pursue research, one must understand social phenomena. While there is consensus on acquiring scientific knowledge about natural phenomena, the question of gaining knowledge of the social world remains unresolved. The debate centres on whether existing methods for acquiring knowledge of the natural world can be applied to produce reliable and objective knowledge.One of the approaches that influenced the growth, development, and popularity of the social sciences is Positivism, which uses methods similar to natural sciences to understand society. Positivism is a prominent school of thought embedded in the social sciences and utilises methods akin to those inherent in the natural sciences as a tool for a deeper understanding of society. Social science research borrows methods of natural sciences and uses empirical methods to explain the causality of events. In this unit, we will discuss about Positivism, which emphasizes knowledge and positive sensory experiences. This chapter also coversthe scientific way to gather knowledge. In the process, we will learn about science, the history of scientific thought and the scientific method.

2.2 Objective

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After reading this chapter, we will able to:

- Understand the emergence of positivism.
- Discuss positivism.
- Know about Logical Positivism.
- Learn what science is.
- Know about the history of the scientific method.
- Discuss the scientific method.

2.3 Emergence of Positivism

The roots of modernity can be found in the Enlightenment agenda, which was progressive. Modernity believes in linear/historical progress and dynamism in knowledge exploration, innovation, and experimentation. Enlightenment period saw conflicts between empiricism and rationalism, leading to the development of natural philosophy and idealism. Immanuel Kant sought a convergence between rationalism and empiricism by highlighting the subjective nature of experiences, which led to the development of various methods of interpreting phenomena. Kant believed that it is wise to understand the subjective nature of experiences and analyse them based on pure reason. His idea gave rise to idealism, a philosophical school of thought that later led to the development of diverse methods of interpreting phenomena such as hermeneutics and phenomenology. Another attempt to blend the two scientific approaches of rationalism and empiricism was made by French philosopher Auguste Comte with positivism who believes that reality could be observed. Comte suggested that the relationship between theory and observations is cyclical as one depends on the other. He posited that though theories are a product of sound reasoning, they can only be authenticated through observation. According to Comte, human society has experienced three phases in the course of its search for the truth. Society first developed religions, a system of thought that offered a guide to making sense of the world. Following this theological phase or stage, it then expanded its belief in things that cannot be observed, for instance, in its development of metaphysics. Comte had argued, that now it had entered into a final 'positive' stage in which the search for truth is

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characterized by the systematic collection of observed facts. AugustComte's position led to the universal dogma of positivism, which views knowledge as a consequence of sensory experience refined through observation and experimentation.Therefore, positivist believes that the social world could be explained using similar methods to those used to explain natural phenomena.

Positivism aims to establish a sound basis for social scientific inquiry, which is crucial in political science research. Researchers wanted to offer credible answers to important questions and ensure that their research practices and methods enabled them to do so. Positivism offers one approach to resolving this issue. It believes that researchers can arrive at factual, reliable, and objective answers to questions about the social world using the methods used in the natural sciences. Behaviouralism, the term used for applying positivist tenets to political research, focuses on studying and explaining the observable behaviour of individuals or aggregates of individuals. This approach propelled political science in new directions. Some of these new directions moved the field towards a further realization of positivist and behaviouralist goals, such as the trend in political research towards 'positive political theory' or rational choice theory. Later on,the post-behaviouralist revolution set in motion trends that moved the field in a non-positivist direction. The behavioural revolution opened up discussions and debates about the desirability and possibility of using scientific methods to attain reliable, empirical, causal knowledge about political life. Behaviouralism established an emphasis on research based on empirical observation, testing involving systematic evidence, and falsifiable and causal explanations. It made researchers more precise about what they wanted to know, what explanation they were advancing, and how they intended to demonstrate it.

Self-Assessment Question

Q. Write a short note on Behaviouralism.

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2.3.1 Positivism

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Approaches in social sciences differ based on their ontological, epistemological, and methodological foundations. Ontology refers to what we study, or the question is the object of inquiry. It relates to the nature of reality while epistemology deals with the nature, sources, and limits of knowledge. Epistemology is primarily concerned with the nature of knowledge. In social sciences, some demand objective evidence, while others believe in the existence of knowledge in other forms.Positivism maintains its foundationalist ontology, defining the existence of the world independent of our knowledge of it. However, it can be applied to methods of inquiry in social sciences with as much success as in the natural sciences. It is a philosophy that views only "factual" knowledge gained through observation as trustworthy. Researchers in positivist studies are objective analysts, distanced from personal values, and research findings are usually observable and quantifiable. Epistemologically, the term "positive" indicates an objective approach to understanding humanity using methods inherent in natural sciences.

Positivism emphasizes the scientific method and empiricism in studying social phenomena. It posits that knowledge must be authentic and derived from positive affirmation of theories through observable, empirical, and measurable data.Positivist philosophy aligns with empiricism, which believes knowledge is derived from individual experiences. It views the world as composed of distinct, observable components that enable consistent observation. The traditional approach in positivism identifies a close relationship between social sciences and other sciences, as the world exists independently of the observer's duty to describe and analyse the practical nature of the world. However, positivism has disadvantages, such as relying on experience as a valid source of knowledge, assuming all processes are variations of actions or relationships, and relying on the status quo, which can lead to descriptive research findings lacking insight into in-depth issues.

Lawrence and Newman summarise Positivism through following points:

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Purpose of Social Science: According to Positivism, the goal of social science is to find universal laws that explain human behaviour, much like how physics aims to discover laws of nature. Researchers seek to uncover these patterns through systematic study.

Essentialist View of Reality: Positivists believe that reality exists independently of our perceptions and can be discovered through observation. They acknowledge that while human perception might be flawed, there is an underlying order to reality that can be understood.

Human Rationality: Positivism views humans as rational and self-interested, who are capable of making decisions based on pleasure and pain. By observing people's behaviour in the real world, rather than their internal thoughts, we can understand their actions. This approach is similar to behaviourism, which focuses on observable actions rather than internal processes.

Deterministic View of Human Agency: Positivism emphasizes that human behaviour is largely shaped by external forces and structures, such as social pressures and environmental conditions, rather than by individual free will or internal motivations. This means that people's actions are often predictable based on these external factors.

Superiority of Scientific Knowledge: Positivism considers scientific knowledge to be the best form of knowledge, superior to other methods like religion, tradition, or personal experience. Science uses systematic, unbiased methods to uncover truths that other ways of knowing cannot achieve.

Nomothetic Explanations: Positivism explains social phenomena by identifying general laws that apply to many specific cases. This deductive approach means that researchers look for broad principles that can explain individual instances, much like finding a general rule in math that applies to specific problems.

Verification Through Replication: For a scientific explanation to be accepted in Positivism, it must be replicable. This means that other

researchers should be able to repeat the study and get the same results. Replication ensures that findings are reliable and not just accidental or biased.

Intersubjectivity in Evidence: Positivism relies on objective, observable facts that can be measured and agreed upon by different people, regardless of their personal beliefs or values. This shared experience of empirical reality allows researchers to separate true knowledge from subjective opinions.

Instrumental Orientation: PSS aims to use scientific knowledge to control and improve the social world. By understanding the laws of human behaviour, researchers attempt to make accurate predictions and implement changes that benefit society. This practical use of knowledge is known as an instrumental approach.

Value-Free and Objective Science: Positivism strives to be objective and free from personal, political, or cultural biases. Researchers are expected to follow strict rational methods and systematic observations to ensure that their findings are unbiased and universally valid. This objectivity is crucial for maintaining the credibility and reliability of scientific knowledge.

Positivism can be summarized into five key principles:—

Unity of Inquiry/Naturalism: Positivism asserts that the logic of inquiry remains consistent across all sciences, whether social or natural. This principle underscores the unity of scientific methodology, suggesting that the processes of inquiry, experimentation, and analysis share fundamental similarities regardless of the specific field of study.Naturalism implies an ontological assumption that the social world possesses a reality akin to the natural world. If the two realms are indistinguishable, then both must comprise a mind-independent, objective reality, existing regardless of human perception. This implies that social phenomena can be studied with the same rigour and methods as natural phenomena.

Explanation and Prediction: Explanation and prediction of phenomena is the main goal of positivist inquiry. Through the identification of fundamental patterns and regularities,positivist

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research aims to explain observable phenomena and forecast future events. The practical value of scientific knowledge in comprehending and managing the world is emphasised by this principle.

Empiricism and Inductive Reasoning: Positivism contends that scientific research must be grounded in empirical observation, accessible through human sensory organs.Positivism upholds empiricism as a means of acquiring knowledge about the world. Empiricism posits that knowledge stems solely from sensory experience; there is no inherent, a priori understanding of reality. Consequently, positivism suggests that understanding social reality is confined to observable phenomena. In social scientific inquiry, this translates to the notion that knowledge of the social world is limited to what can be perceived through the senses.Furthermore, positivist methodology relies on inductive reasoning to formulate hypotheses based on observed patterns and phenomena. The process of induction, beginning with specific observations and culminating in general theories, is central to this endeavour.A pivotal tenet of positivism is the belief that social science aims to elucidate and forecast social phenomena through the discovery of laws, mirroring the structure of natural sciences. Positivism contends that social reality, like the natural world, is systematic, regular, and governed by laws. These laws, similar to those in the natural sciences, allow for the explanation and prediction of social events.

Differentiation from Common Sense: Positivism distinguishes scientific inquiry from common sense. While positivist research requires thorough investigation and analysis to guard against biases inherent in daily perceptions, common sense may provide intuitive insights. This idea emphasises the importance of impartiality and critical analysis to scientific research.

Value Neutrality and Logical Judgment: Positivism holds that scientific investigation must be evaluated exclusively based on logic and free from value judgments. This principle states that results should be reached by rational analysis rather than being affected by personal

preferences or biases, highlighting the impartiality and objectivity of scientific inquiry.Positivism maintains that the goal of social scientific inquiry is to establish causal relationships between events in the social world. While there exist various conceptions of causation, positivism aligns with an empiricist perspective, emphasizing observable regularities rather than underlying causal mechanisms. Furthermore, positivism asserts the possibility of distinguishing between facts and values in the pursuit of objective knowledge. Scientific inquiry, concerned with factual statements confirmed by observation, is demarcated from normative inquiry, which delves into matters of values and ethics.These five principles collectively form the foundation of positivist research philosophy, guiding the conduct of scientific inquiry by advocating for methodological consistency, empirical observation, logical reasoning, and objectivity.

It would be a mistake to equate positivism with science. Philosophers have different views on how to describe scientific practice. Since the 1960s, there has been a shift away from positivist perspectives. Post positivist approaches has posed some serious criticism against the positivist methods. Some scholars oppose using natural science methods to study social issues, but it's often difficult to distinguish whether their criticism is directed at the natural science model in general or at positivism specifically. Despite ongoing debates about the suitability of natural science methods for studying society, the focus of criticism tends to be on positivism.

Check Your Progress

Q. Discuss Positivism as a method of social enquiry.

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2.3.2 Logical Positivism

Logical positivism or Logical empiricism, emerged as an extension of classical positivist thought in the early 20th century. It introduced a new perspective on the acquisition of knowledge, particularly in the realm of social inquiry. While classical positivism emphasized empiricism as the primary source of legitimate knowledge about the social world, logical positivism expanded this notion by advocating for the inclusion of logical reasoning and mathematics as additional sources of knowledge.At the core of logical positivism is the recognition that knowledge about the social world can be attained not only through empirical observation but also through rigorous logical reasoning. This perspective asserts that social inquiry should combine both inductions, rooted in empirical observation, and deduction, in the form of logical reasoning. Induction is the process of drawing generalisations from particular observations or situations, whereas deduction starts with basic theoretical statements, goes to specific observations, and extracts implications for specific phenomena.In practical terms, researchers often employ a blend of both inductive and deductive reasoning in scientific inquiry. This interaction between theory and observation, known as 'retroduction,' constitutes a dynamic process of hypothesis formation and discovery. Through this iterative process, researchers refine their understanding of social phenomena by continuously testing and revising theoretical frameworks in light of empirical evidence.

Logical positivism made significant contributions to positivist thought by advocating for the integration of both induction and deduction in social inquiry. Furthermore, it established 'verification' as a criterion for assessing truth claims, delineating a clear boundary between scientific propositions and metaphysical speculation. However, despite its advancements, both classical positivism and logical positivism faced criticism, notably from philosopher of science, Karl Popper.Popper's critique challenged the foundational principles of positivism, particularly its reliance on verification as a criterion for truth. Instead, Popper argued for the principle of falsifiability, positing that scientific theories should be open to empirical refutation rather than confirmation. This critique precipitated a shift away from positivist perspectives towards alternative approaches in the philosophy of science, marking a significant turning point in the evolution of scientific epistemology.

Check Your Progress

Q. What is the significance of logical positivism to the positivist thought?

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2.4 Science

2.4.1 Scientific Method

Science is a human invention. It is the search for truth through systematic methods. It emerged around 400 years ago during the Age of Reason or Enlightenment period in Western Europe. It incorporated logical reasoning, observation of the material world, belief in human progress, and questioning traditional religious and political doctrines. The Industrial Revolution along with the Renaissance further spread scientific thinking. The advancement of science was influenced by individual researchers' triumphs and struggles, such as Copernicus, Galileoetc., as well as social events like wars, economic depression, government policies, and public support. Science refers to both a system for producing knowledge and the knowledge that results from that system. Science evolved over centuries and continues to slowly evolve. Before scientific reasoning became widespread, people relied on non-scientific methods, such as oracles, mysticism, magic, astrology, and spirits. Science is now generally accepted, but non-scientific methods still exist for studying topics outside the scope of science. Science combines assumptions about the world, accumulated understandings, and specific procedures, techniques, and instruments.

The scientific method has become the universally accepted approach to knowledge acquisition over the past three centuries. It posits that reality is objective and consistent, that humans can accurately perceive reality, and that rational explanations exist for understanding it. The scientific method involves a set of standardized procedures for asking questions, gathering information, and testing the validity, reliability, and consistency of results. It uses various modes of logical reasoning, existing theories, laws, classification,

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and statistical procedures to arrive at 'truth'. Galileo is considered the father of the scientific method.

The Oxford English Dictionary defines the scientific method 'as a method or procedure that has characterised natural science since the 17th century, consisting in systematic observation, measurement and experiment, and the formulation, testing and modification of hypotheses.

The scientific method refers to a body of techniques for investigating a phenomenon, acquiring new knowledge or correcting and integrating previous knowledge. The scientific method is not concerned with individual cases but with classes and groups of objects and events.Scientific knowledge is incremental, with existing theories serving as sources for new hypotheses. The scientific method involves observation, description, hypothesis formulation, prediction, and experimentation.Experimental verification is crucial for the success of this method. Science evolves gradually, building upon existing knowledge. Theories vary in experimental testing, acceptance, and acceptance within the scientific community. It is important to note that, the scientific method doesn't necessarily meanthe positivist method. Positivism is just one of the many scientific methods or philosophies.

Stop to Consider

The main steps or stages of the application of the scientific method can be described as:

1. **Observation and Description of Phenomenon**: The scientific process begins with the careful observation and detailed description of a phenomenon. This involves identifying a natural event or a set of conditions that can be consistently observed. Scientists gather data through their senses or instruments to document the characteristics and behaviours of the phenomenon.
2. **Formulation of a Hypothesis**: Based on the initial observations, scientists propose a hypothesis, which is a tentative explanation for the phenomenon. In classical scientific methods, particularly in fields like physics, the hypothesis often takes the form of a causal mechanism or a mathematical relationship that

attempts to explain how or why the phenomenon occurs. A hypothesis must be specific and testable.

3. **Prediction Using the Hypothesis**: The hypothesis is then used to make predictions about other phenomena or the outcomes of new observations. This step involves logical deduction, where scientists use the hypothesis to foresee the existence of previously unobserved phenomena or to anticipate the results of future experiments. The predictions should be precise and measurable.
4. **Performance of Experiments to Test the Hypothesis**: Experiments are conducted to test the predictions derived from the hypothesis. Multiple independent researchers perform these experiments to ensure reliability and objectivity. The experiments must be carefully designed to isolate variables and control conditions to accurately test the hypothesis.If the experiments consistently produce results that align with the predictions, the hypothesis is supported. When independent researchers obtain the same results, it enhances the credibility of the findings.If the hypothesis is repeatedly validated through experiments and observations, it may be elevated to the status of a theory or law. A theory provides a comprehensive explanation of a phenomenon, while a law describes a consistent, universal relationship observed in nature.In short, the scientific method involves a structured process of observing phenomena, hypothesizing explanations, making predictions, and conducting experiments to validate or refute the hypothesis. When a hypothesis withstands rigorous testing, it contributes to the body of scientific knowledge as a theory or law.

Check Your Progress

Q. What do you Understand by Scientific Method?

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2.4.2 History of ScientificMethod

The roots of the scientific method can be traced back to ancient Egyptian documents, Greek thinkers, and Islamic scholars. In the early phase, science was perceived as a critical component of Philosophy since knowledge was linked to theological laws based on beliefs. This position was contested by the early Greek philosophers who felt that a better way to achieve a more accurate comprehension of the nature of being and the universe is rationalism, defined as a methodical and analytical process. Rationalist believes that "reason" is the root of knowledge and claims that truth is directly linked to intellectual and deductive reasoning emanating from a set of accepted standards.

The development of the scientific method as the principal mode of acquiring knowledge emerged during the Renaissance through the works of pioneering scientists and philosophers like Nicolaus Copernicus, Isaac Newton, Francis Bacon etc. These thinkers advocated for the "scientific temper," which believes in an underlying order in nature that is knowable through reason and that every natural phenomenon has a known cause. In contrast to faith, dogma and tradition embodied in religious belief and superstition, these thinkers advocated what would today be called the 'scientific temper'. The Enlightenment period emphasized the importance of reason and the potential of humans to shape their destiny and create a better world. This criticality allowed humans to break free from closed thinking and revealed a positive relationship between reason, freedom, science, and truth. The Enlightenment did not oppose the ethical or spiritual core of Christianity but opposed its closed nature and provided the foundations for a secular/liberal worldview. The Enlightenment philosophy provided a new direction for human society, arguing that knowledge is objective, universal, and progressive, superior to ideological distortions and religious beliefs.Science is objective, based on facts and requires rational and dispassionate analysis, rather than emotional or sentimental judgment. Francis Bacon and Rene Descartes, two distinguished thinkers, provided the foundations of modern science in the seventeenth century. Francis Bacon's Novum Organum (1620) and Rene Descartes's (1637) Discourse

on Method provided the theoretical foundation of the classical scientific method.

In the 16th century, Francis Bacon introduced a new development in scientific thought, that knowledge is a product of realistic observation of the world. Bacon emphasised that the process of acquiring knowledge is indirectly related to empiricism. Empiricism means that social reality is independent of our mind. We can experience the social world as it is. This popularised inductive reasoning as a fundamental element in scientific studies and led to the scientific method, known at that time as the "Baconian method". Thus, the scientific method was characterised by carrying out observation, measuring the results and experimenting with variables. For Bacon, there are many delusions that he named idols that act as obstacles and divert us from truth. Bacon identified four types of idols: idols of tribe, den, market, and theatre. Idols of tribes' idols are common to humans and stem from their weaknesses, such as the urge to see what we like, the search for regularity, and the obsession with our own beliefs. They distort reality and lead to superstitions and prejudices. Idols of the den are unique to individuals, affecting their ways of seeing and distorting reality. Market idols arise from human interaction and cause linguistic confusion, leading to controversies about words and names. Theatre idols are rooted in peculiar systems of philosophy and are essentially obstacles that must be overcome to see and observe the world without bias. For Bacon, these idols are essentially obstacles and must be overcome. Only then is it possible to see and observe the world without bias. Bacon believes that nature exists out there, and it is only pure empiricism (not contaminated by our feelings and sentiments) that can grasp it. He believes that objective knowledge would enable humans to establish their superiority over nature and that the relationship between the knower and the known should be detached and impersonal. This control over the self of the knower makes the act of knowing a dispassionate exercise.

Francis Bacon laid the foundations for empiricism, emphasizing the importance of sensory experience and observation in acquiring knowledge. On the other hand, René Descartes taught the fundamental lessons of

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rationalism or deductive reasoning. He underscored the significance of mental and intellectual thinking, advocating for clear ideas and pure rationality as the keys to truth and freedom from uncertainties.Descartes believed that the senses could deceive one, leading him to question everything learned through sensory experience. He famously argued that "Man is a thing that thinks," privileging the indivisible mind that engages in thought and separating it from the non-thinking body. According to Descartes, one could know reality through the experience of the mind.His method of systematic doubt aimed to establish a secure foundation for knowledge by doubting everything that could be doubted until finding something indubitable. Through this process, Descartes concluded that even if he were being deceived by an evil demon or if his perceptions of reality were illusory, the act of thinking demonstrated his existence as a thinking thing. Thus, "I think, therefore I am" became a cornerstone of his philosophy.

In Descartes' view, mind/body dualism is significant. He believed that distinctly clear and rational thought emanates from an indivisible, integrated, and coherent mind. This rational thought is pure, abstract, and disembodied, dissociated from sensory experiences, pain, pleasure, feelings, and emotions.Descartes' assertion doesn't necessarily imply the separation between mind and body. While he did argue for a distinction between the mind (res cogitans) and the body (res extensa), he believed they interacted through the pineal gland. Nonetheless, he maintained that the existence of the self is undeniable because the act of thinking presupposes its existence.

These fundamentals, objective empiricism and disembodied rationalism gave momentum to modern science. The Enlightenment in the eighteenth century marked a turning point, celebrating the science of Bacon, Descartes, and Newton as the most cherished and legitimate body of knowledge, which generated a new way of seeing science.The development of modern science was greatly influenced by the principles of objectivity, universalization, and causal explanation. However, there was no absolute agreement on the "unity of method." Despite positivism, which was dominant in the nineteenth and early twentieth century, there were differing views on the "unity of method." Immanuel Kant, a leading Enlightenment philosopher,

proposed two distinct principles: the physical component being enslaved by the senses and the moral component striving for truth, justice, and beauty. This led to the emergence of two aspects of enlightenment. One aspect of the Enlightenment social theory that spoke of human beings, conditioning gave birth to material/structural analysis, and the other mode of enquiry that spoke of human beings freedom gave importance to voluntarism, human agency, creativity and reflexivity.In the early 20th century, the idealist school rejected positivism, arguing that knowledge should be based on suppositions that can be disproven, leading to post-positivism. This rejection was driven by equating positivism with quantitative research methods without recourse to philosophical underpinnings and the belief that qualitative methods can be useful in scientific inquiry. Postpositivist holds that it is impossible to validate truths, though, false beliefs can be rejected.

Check Your Progress

Q. Write a short note on objective empiricism and disembodied rationalism.

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Q. Discuss the history of the scientific method.

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2.4.3 Components of Scientific Methods

The scientific method is a systematic approach used by researchers to build and enhance scientific knowledge. It involves valid observations, interpretation of results, analysis, and generalizability of findings. A scientific method must meet four basic requirements: replicability, precision, falsifiability, and parsimony.

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Replicabilityassumes that if other researchers were to carry out the same study, they should be able to obtain similar, if not identical results. It ensures that similar or identical results can be obtained by other researchers.

Precision defines concepts to make them useful for others in measuring and testing theories.

Falsifiability means that every scientific principle must be presented such that it can be criticised and disproven. Theories cannot be scientific if they cannot be tested, validated or falsified. When theories are stated in sweeping forms in conjunction with concepts that cannot be measured and tested accurately, the resultant knowledge cannot be referred to as scientific.

Falsifiability allows theories to be tested, validated, or falsified.

Parsimony is a process where the simplest and most economical explanation is accepted from multiple explanations of phenomena. It prevents the pursuit of complex, complicated, and eccentric theories.

Any branch of inquiry that does not allow the scientific method to test its basic laws or theories cannot be considered "science." This includes disciplines like arts, literature, theology, humanities, and law.

Objectivity is an ideal pre-requisite of the scientific method, as it is the characteristic of something that is not influenced by changing contextual conditions or the observer. Value neutrality is essential for objectivity. It assumes that social, political, and moral values should not play a role in the search for truth.Quantitative data or numbers are crucial for guaranteeing objectivity. Operational definitions of relevant variables, preferably in quantitative terms, are essential in science. Quantitative data can be subjected to statistical manipulation and represented in tables and graphs, providing a greater level of objectivity than qualitative data or language. The scientific method is a more systematic and refined version of ordinary logical thinking, where researchers guess a possible reason or cause, test their conjecture and repeat the process. Forms of reasoning in scientific research include deductive and inductive inference.

Stop to Consider:

Difficulty in Using Scientific Method in Social Science:

- **Complexity of Social Data**: In social world, everyone has different characteristics and nature. For example, most people will run away from a burning building, but some may stay behind risking their own lives to save others.So, it is difficult to generalise about social phenomena in the form of universal cause-effect relationships.
- **Social Phenomenon is Unpredictable**: Social phenomena is very complex. It is difficult to predict human behaviour and arrive at laws that are universally true under identical circumstances. This is in contrast to the high level of predictability that prevails in the case of physical and chemical phenomena.
- **Plurality of Causes and Intermixture of Effects**: Not only do social phenomena have a range of causes, but it is also difficult to clearly distinguish between cause and effect in the case of social data. For instance, higher rates of crime in a city may be due to unemployment, inflation and/or lax policing. Then, poverty may lead to higher rates of disability in society because more people become disabled due to lack of access to adequate nutrition and healthcare. Still, disability may also lead to poverty in that more disabled persons will find it difficult to get and maintain a job because they are disabled, leading to a higher incidence of poverty among disabled persons.
- **Social Phenomena are Heterogeneous**: Since there are multiple causes and it is difficult to demarcate between causes and effects, the relative homogeneity detected in natural phenomena gives way to a high level of diversity and heterogeneity in the case of social phenomena.
- **Difficulty in measurement and Quantification**: Due to such diversity, it is difficult to quantify and consequently measure social categories. This is unlike the case of mass, weight, gravity, current and other physical and chemical phenomena. For instance, urbanisation, indiscipline, assimilation and other social concepts are difficult to translate in quantitative terms.

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- **Subjectivity of the Researcher and Objectivity of the Research**: Since the subject and object of study, namely human beings, are the same, the experimental method becomes particularly difficult to apply. Then, laboratory experimentation is difficult in the case of human behaviour and social phenomena because it would introduce an artificiality in the research as subjects would be aware that they are being studied challenging the possibility of complete objectivity. Moreover, in the case of social data the issue of bias of the researcher and objectivity of findings also arises.

Check Your Progress

1. What are the components of scientific methods?
2. What do you understand by falsifiability?
3. Who is the father of positivism?
4. Who wrote the book,
5. Who wrote the book,
6. Who says, I think, therefore I am?
7. Who gives the concept of falsifiability?
8. What is the scientific method?
9. Discuss positivism.
10. Discuss some tenets of positivism.
11. How did the Enlightenment period contribute to the rise of the scientific method?
12. Can one apply the Scientific methods to social science?

Self Asking Question

Q. What are the difficulties in using the scientific method in social science?

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2.6 Summing Up

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This chapter begins with the context of the emergence of positivism and discusses the philosophy of positivism. Positivism is a product of enlightenment which believes that knowledge can be gathered through sensory experience. Naturalism,Empiricism, induction, and causal explanation were some of the key principles of positivism. Logical positivism extends it by stating that knowledge can be gathered through empiricism as well as logical reasoning. However, both these philosophies were later criticised by post-positivists. This chapter discussed the meaning of science and the scientific method. The scientific method is the method that is based on Replicability, Precision, Falsification,and Parsimony. We also discussed the history of the scientific method and looked into the thoughts of Bacon and Descartes. Bacon talked about objectivism and Descartes talked about disembodied rationalism. In the end, we discussed on difficulties of scientific methods in social science research.

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Unit-3

Objective Research and Its Problems

Unit Structure:

3.1 Introduction

Objectivity in research strives toavoid bias, and values in research. In this chapter, we are going to question whether is it possible to conduct research objectively. This leads us to the question of ontology as well as the separation between facts and values.The ontology of research refers to the researcher's understanding of the nature of reality, which guides their approach to inquiry. Ontology in research can be divided into objective and subjective/constructionist. Objective perspective posits that an independent reality exists objectively and can be known through empirical observation. Scholars following this perspective adhere to positivism, aiming to establish universal laws using quantitative methods like experiments and surveys.The subjectiveperspective, on the other hand,holds that reality is subjective and influenced by human interpretation. In this Chapter, we are going to look at Objectivity in research as well as objectivist ontology to find out whether is it possible to conduct objective research.

3.2 Objective

Through this chapter, readers can understand about objective research and problems associated with objectivity. In this chapter youcan-

- Learn the meaning of objectivity in research
- Know about empirical and normative research
- Be introduced to intellectual endeavours of fact value separation in social science research
- Discuss the problems of objectivity in research and its factors
- Learn to conduct objective research

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3.3 Objectivity in Research

Objectivity is consideredthe standard that guides research inquiry. It emphasizes the necessity for researchers to be precise, unbiased, open, honest, and receptive to criticism. Objectivity entails examining evidence without personal biases, ensuring that conclusions are based solely on facts. It requires that both data and the conclusions drawn from them remain free from personal prejudices. This ideal presupposes the existence of an independent reality that can be comprehended. Without such a reality, the concept of objectivity becomes irrelevant. Objectivity is rooted in the belief that there is a stable, historical framework to which we can refer to determine rationality, knowledge, truth, and other fundamental concepts.

Objectivity, a concept with origins as old as science itself, relates to metaphysics, methods, and morality. Historically, it has been used in philosophical discussions to understand the relationship between the human mind and nature. The term derived from Latin and was introduced by scholastic philosophers in the 14th century. Over time, its meaning evolved with contributions from philosophers like Immanuel Kant. Objectivity has varied meanings in different contexts, often reflecting an attitude towards the conditions under which hypotheses are tested and validated.

- Green defines objectivity as the willingness and ability to examine evidence dispassionately.

- Carr describes the objectivity of truth as the existence of a reality independent of individual beliefs, hopes, or fears, discovered through observation rather than intuition or speculation.

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Objectivity involves making judgments based on observable phenomena, free from emotions or personal biases. It requires the ability to examine evidence impartially, meaning the reality of a phenomenon is independent of personal beliefs, hopesor fears and is discovered through actual observations.In research, objectivity means that conclusions are drawn independently of the investigator's race, color, creed, occupation, nationality, religion, moral preferences, and political predispositions. True objectivity in research is free from any subjective elements or personal desires.In the natural sciences, objectivity has two main aspects. First, it requires agreement among observers about their observations, which must be based on a standard method, be replicable, and yield consistent results regardless of who performed the experiment or where.In the social sciences, achieving objective knowledge is contentious, where some arguing it is possible and others not. Arguments against objectivity in sociology include the influence of personal experiences, the context-dependence of language, the social origins of theories, the theory-laden nature of observations, and the impact of sociologists' values on their work. The principles of objectivity or value neutrality in social science suggest that research should focus on what is, rather than what ought to be, and exclude subjective views, personal biases, and value judgments, which are better left to politicians.

Objectivity in social sciences, while challenging, remains a crucial ideal guiding researchers towards more reliable, valid, and ethical inquiry. It necessitates a balanced approach that recognizes the influence of human subjectivity while striving for systematic and transparent research practices.

Stop to Consider

Importance of Objectivity in Research

Objectivity is essential in social science research as it enhances the credibility and validity of the knowledge produced. It enables researchers to offer insights about the social world that transcend personal opinions and prejudices. By maintaining objectivity, research can effectively substantiate, refute, organize, or generate theories, and produce evidence that can challenge both personal and societal beliefs.

Foundation for Scientific Inquiry: Striving for objectivity, even if complete objectivity is unattainable, is crucial for conducting meaningful and reliable scientific research.

Fosters Constructive Criticism: Viewing inquiry as objective encourages critical evaluation, which is essential for advancing knowledge and improving research quality.

Encourages Rational Debate: Emphasizing objectivity promotes rational debate, enriching the scientific discourse and fostering intellectual growth.

Affirms Intellectual Unity: Upholding objectivity supports the intellectual and rational unity of humanity, promoting a shared understanding and preventing irrationalism and elitism.

Check Your Progress

1. What do you mean by objectivity in research?
2. Why is objectivity essential to research?

3.4 Normativism Vs Empiricism

The problems of objectivity in research posed us with the question of whether is it really possible to separate our or the researcher's values, and bias from the research? In this section, we ponder the question of can values and facts be separated.

The study of politics has long been divided between empirical research and normative research. Empirical research deals with observable events and phenomena and seeks to describe and explain social and political phenomena as they occur in the real world, aiming to uncover patterns and regularities through empirical observation and analysis. On the other hand, normative research, which addresses questions of what should or ought to be, evaluates political systems, institutions, and behaviors against ethical or moral standards, seeking to prescribe what actions or outcomes are desirable or just. In short, Empirical research focuses more on facts, whereas normative research focuses more on values. This led to a clear-cut distinction between facts and values. Here again question emerges, is it possible to separate facts and values?The clear-cut division between empirical and

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normative research is increasingly questioned by scholars. While positivists argue for a strict separation between the two to maintain objectivity, critics challenge this dichotomy. Critics of positivism argue that all theory is inherently normative, as researchers inevitably make value judgments throughout the research process. This perspective suggests that separating facts from values is inherently challenging, if not impossible.Scholars like Robert Cox argue that all theory reflects values and normative assumptions, regardless of whether it is explicitly normative or empirical. This blurring of boundaries challenges the notion of a clear separation between empirical and normative inquiries and underscores the intertwined nature of facts and values in social science research.

In practice, researchers often incorporate normative assumptions into their empirical work, and normative theories may draw on empirical evidence to support their claims. This interplay between the empirical and normative highlights the complexity of social inquiry and suggests that attempts to maintain strict objectivity may be futile.Critics of the empirical/normative divide contend that researchers' values influence every aspect of research, from formulating research questions to gathering and interpreting data. Despite this, some scholars maintain that while achieving objectivity in the social sciences is challenging, it remains attainable through rigorous methodology and reflexivity.In sum, the debate surrounding empirical and normative research reflects broader discussions about the nature of social science inquiry and the role of values in shaping research agendas and interpretations. Scholars can acknowledge the intertwined nature of facts and values and engage in more reflexive and transparent research practices, enriching our understanding of complex social and political phenomena.

Check Your Progress

3. What is the difference between Normativism and Empiricism?

3.5 Is it possible to conduct Objective Research?

It is seen that normative and empiricism both playa pivotal role in research. One can't just ignore values in research. but if so, to be objective

how can a researcher avoid values in research? This section introduces you to the intellectual debate surrounding objectivity in research.

Objectivism in social science posits that social structures, like families and educational systems, exist independently of observers and have real, tangible qualities. Georg Simmel, a prominent sociologist, regarded objectivity as a significant achievement in Western cultural history. He advocated for researchers to maintain an unbiased and open-minded approach, ensuring that evidence and facts are scrutinized dispassionately, free from personal beliefs or predispositions. This objective stance presupposes that reality can be understood objectively, making it the ultimate goal of scientific research.Objectivity is regarded as a defining trait of scientific inquiry, setting it apart from unscientific perspectives. It involves eliminating subjectivity and aiming for a value-free approach to research.Researchers, therefore, should uncover these objective features in a value-neutral manner, studying social facts like a physicist studyingnatural phenomena. Positivism, introduced by Auguste Comte used in the social, psychological, and behavioural sciences, applies the methods of natural sciences to the study of social phenomena objectively.However, since the beginning scholars have grappled with the challenge of objectivity in social science research. Unlike the natural sciences, which deal with inert matter, social science focuses on studying human behaviour, which is influenced by subjective interpretations and reactions to external stimuli. This inherent complexity made it difficult for the positivist to establish it as a legitimate science comparable to the natural sciences. Consequently, objectivity became a central concern for all those seeking to legitimize sociology as a scientific discipline.

Durkheim, in his seminal work "The Rules of Sociological Method," emphasized the eradication of preconceptions and the study of social facts. Social facts, he argued, possess an objective reality independent of individual perceptions and exert constraints on human behavior. Durkheim's insistence on studying social phenomena devoid of unscientific layman concepts underscored the necessity of defining sociological phenomena based on their inherent characteristics rather than subjective interpretations.Durkheim's approach aimed to ground sociology in empirical reality from its inception, ensuring that researchers avoided preconceived notions and biases. Durkheim

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believed that Researchers coulddefine sociological phenomena based on their natural attributes, and embark on objective inquiries, free from subjective influences. This commitment to objectivity laid the foundation for rigorous sociological research, emphasizing the importance of unbiased observation, systematic analysis, and logical deduction.However, achieving universal validation in social sciences is challenging due to the dynamic nature of human behaviour, unlike the static nature of objects studied in natural sciences.

Weber acknowledged the challenge of achieving total objectivity but suggested that social scientists could strive for reliability by being transparent about their assumptions and adhering to rigorous methodologies akin to those used in natural sciences. He contended that while absolute objectivity is unattainable, researchers can still provide valuable insights through disciplined and systematic study.Weber believed that Objectivity, while central to scientific methodology, is nuanced and context-dependent, particularly in the social sciences where human variability complicates the pursuit of universal truths. Another scholar, Dilthey argued for recognizing the different forms of knowledge produced by the natural and social sciences, emphasizing the importance of understanding the subjective meanings individuals attach to their actions. However, Weber critiqued Dilthey's this position andadvocated instead for a more objective approach to understanding individual behavior while assessing historical events impartially. Another scholarRickert, on the other hand, focused on the division between the natural and human worlds, proposing that humans formulate concepts to understand reality. However, his emphasis on "value relevance" in selecting research topics led to subjective conceptions of knowledge. Weber acknowledged the unlimited nature of reality but stressed the importance of an objective research process, regardless of researchers' values in choosing topics.Weber's methodological approach prioritized objective sociology, rejecting the inclusion of ethical values in scientific analysis. He emphasized the need for a value-free research process, advocating for the systematic analysis of data using formulated concepts. Rejecting the search for general laws, Weber favoured historical theories and ideal types for interpretative understanding. He argued that Ideal types, mental constructs based on

empirical analysis, help us in understanding historical configurations and causal explanations of phenomena without implying determinism between societal elements.In essence, Weber's methodological orientation aimed to bridge the gap between the natural and social sciences, emphasizing objectivity and systematic analysis while recognizing the complexity of human behaviour and historical events.While Weber acknowledged the inevitability of value influence, he advocated for rigorous self-awareness and adherence to scientific standards to strive for objectivity in social inquiry. This nuanced understanding encourages researchers to critically evaluate their own biases and maintain transparency in their work, contributing to the advancement of knowledge in the field.

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Stop to Consider

Max Weber, presented a nuanced perspective on the relationship between facts and values in social science research. His argument can be distilled into three key points:

Distinction between Facts and Values: Weber asserted that there is a clear distinction between facts and values. Facts pertain to objective descriptions of phenomena, while values are subjective judgments about what is desirable or important. He emphasized that knowing the facts of something does not equate to understanding its value, and vice versa.

Inevitability of Values in Social Science: Despite the distinction between facts and values, Weber argued that achieving value-neutrality in social science is not possible. Values inevitably influence various aspects of the research process, including problem selection, data interpretation, and conclusion formulation. Researchers inherently bring their own values into their work, shaping their perspectives and influencing their choices.

Striving for Value-Neutral Social Science: Nonetheless, Weber advocated for striving toward value-neutral social science. He suggested that researchers can maintain objectivity by adhering to rigorous scientific norms and practices. Transparency about the distinction between factual observations and evaluative statements is

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crucial for achieving objectivity. While acknowledging the inevitability of value influence, Weber believed that researchers can mitigate bias by upholding scientific standards.Many scholars have echoed Weber's views, emphasizing the possibility of objective social inquiry despite the intrusion of personal values. They argue that awareness of biases and a commitment to transparent research practices can help researchers overcome some challenges in separating facts from values. While achieving complete value neutrality may be difficult, it is not insurmountable.

Check Your Progress

4. What is social fact?
5. Discuss Weber's view on Objectivity.

Karl Popper regarded the social sciences as genuine sciences, emphasizing their scientific, objective, and empirical nature. He positioned social science within the social world, which contains physical forces, providing an objective understanding. Unlike the perception in natural sciences, Popper located objectivity in an inter-subjective context, involving communal exchanges like peer review. Objectivity, therefore, arises from critical inter-subjectivity resulting from interactions among communities, groups, and institutions.Karl Popper's critique of classical positivism andsubsequent challenges posed by scholars like Thomas Kuhn shows us the complex relationship between observations (facts) and values (theories) in scientific inquiry. Kuhn and others have offered counterarguments, suggesting that observation is inherently theory-laden and that the process of falsification may not align with the idealized view of scientific practice.

Popper criticizedpositivism on two sides. Popper's first argument centres on the idea that scientific inquiry should utilize deductive reasoning rather than induction. He posits that scientists should start with a general or logical proposition and then test this theory with observations derived from it. This approach contrasts with classical positivism, which relies heavily on inductive reasoning to formulate general laws based on observed patterns. Popper's emphasis on deduction aims to ensure that theories are subjected

to rigorous testing, with observations serving as a means to falsify or confirm hypotheses.However, Kuhn challenges Popper's assertion by highlighting the theory-laden nature of observation. According to Kuhn, observations cannot be divorced from the theoretical frameworks guiding interpretation. Instead, observation is inherently influenced by pre-existing theories and background knowledge, shaping how phenomena are perceived and interpreted. In this view, phenomena are not neutral facts awaiting interpretation but are already imbued with meaning based on theoretical perspectives.

Secondly, Popper's advocacy for falsification as the aim of science encounters scrutiny. While Popper argued that scientists should seek to disprove or falsify theories when confronted with contradictory evidence, critics question whether this is reflective of actual scientific practice. In reality, researchers may exhibit confirmation bias, favouring evidence that supports their theories while dismissing or rationalizing contradictory findings. This challenges the notion of a clear distinction between facts and values in scientific inquiry, as the interpretation and acceptance of evidence are influenced by underlying theoretical frameworks and personal biases.

Thomas Kuhn's critique of Karl Popper's views on scientific inquiry adds another layer to the discussion surrounding observations (facts) and values (theories). While Popper emphasized the importance of rigorous testing and falsification in scientific practice, Kuhn argued that science is not always characterized by such relentless criticism. Instead, Kuhn proposed that scientific communities tend to adhere to shared paradigms, or conceptual frameworks, which shape their understanding of phenomena and guide their research practices.Kuhn's concept of paradigms challenges the notion of a clear distinction between facts and values in scientific inquiry. Within a paradigm, certain theories and methods are privileged, while others may be disregarded or marginalized. This suggests that scientific knowledge is influenced not only by empirical evidence but also by social and cultural factors, such as the prevailing norms and beliefs within a scientific community. The implications of Kuhn's arguments for the objectivity of scientific knowledge are profound. If scientific inquiry is shaped by paradigms and community consensus, then the interpretation and acceptance of evidence

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may be influenced by subjective factors. This challenges the idealized view of scientific objectivity proposed by Popper, highlighting the inherent subjectivity involved in knowledge production. Kuhn's emphasis on the social and cultural dimensions of science invites scholars to critically examine the role of paradigms in shaping scientific knowledge and to consider the implications for objectivity in research.Kuhn's critique of traditional views of scientific objectivity has significant implications for our understanding of the fact-value distinction and the authority of science. Kuhn challenges the idea that scientific knowledge is purely objective and value-free. Instead,emphasizing on the role of paradigms in shaping scientific inquiry, he suggests that scientific inquiry is inherently influenced by the prevailing paradigms and values within scientific communities.

Stop to Consider

Kuhn's Paradigm:

Thomas Kuhn's "The Structure of Scientific Revolutions" had a profound impact on the philosophy of science, challenging conventional ideas about how scientific progress occurs and the nature of scientific knowledge. Kuhn's central thesis is that scientific development is not a straightforward, linear accumulation of knowledge based on objective observations. Instead, he argues that it is shaped by social and cultural factors within scientific communities.Kuhn argues that the context of discovery and context of justification should be considered while validating science. Context of discovery refers to the process of arriving at a certain truth. Context of justification refers to the process of examining the truth in relation to the data and facts of the real world. For logical empiricists, only the context of justification is important. Whereas, Kuhn argues that context of discovery is also important. He argues that there are periods of scientific revolution. To understand the context of discovery, Kuhn introduces the concept of paradigm to research. According to him, a paradigm is a set of assumptions, beliefs, values, outlooks etc. A paradigm is set by revolutionary discoveries of a scientific community in a given period of time. For e.g. Newton's law of gravity introduces a new paradigm

in scientific thinking. Similarly, Copernicus's circular motion of earth has changed the previous belief system and established new understanding about the motion of earth. These paradigms determine the types of questions that are asked, the methods used to investigate them, and the interpretation of results. In essence, paradigms provide the foundation for scientific inquiry by defining the boundaries of what is considered legitimate and meaningful within a given discipline.Kuhn suggests that scientific progress occurs through a process of normal science, where researchers work within the confines of a prevailing paradigm to refine and extend existing knowledge. This involves conducting empirical experiments and theoretical analyses aimed at addressing specific puzzles or anomalies within the paradigm. However, Kuhn argues that paradigms are not static; they can undergo revolutionary shifts when anomalies accumulate and challenge the fundamental assumptions of the reigning paradigm.The concept of paradigm shifts highlights the social and subjective nature of scientific revolutions. These shifts are not merely the result of accumulating evidence or rational argumentation but often involve broader socio-cultural factors such as changes in intellectual trends, shifts in power dynamics within scientific communities, and the emergence of new research methodologies or technologies.

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The debate around observations and values in scientific inquiry underscores the complexity of knowledge production. It raises questions about the objectivity of scientific practice and the extent to which researchers can achieve value neutrality. While Popper's emphasis on deductive reasoning and falsification offers a structured approach to scientific inquiry, Kuhn's insights highlight the inherent subjectivity involved in observation and theory construction. This shows the importance of critically examining the assumptions underlying scientific practice and acknowledges the challenges inherent in achieving objectivity. Now you get to know that it is not easy to disassociate research from our values. We may say that our knowledge is objective, but it is not true. Knowledge is always subjective. However, one can minimize the influence of value structure from knowledge.

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While studying social science, the tendency of not using value structures and judgement is also a kind of value. The tendency to come away from the values has made social science relevant as well as questionable. For e,g, till the 1950s, political theory was declining as it was overburdened by values and historicism. The emergence of positivist methods such as, behaviouralism has contributed to the revival of political theory. But at a later period, the value-free attitude of behaviouralismbecame a problem for political theory, which later led to the emergence of post behaviouralism. The 1950-1970 period, known as the golden age of qualitative research, saw new methodologies like grounded theory and ethnography, which emphasized participant observation and data coding. These developments raised questions about objectivity in social research and led to various qualitative perspectives such as hermeneutics, structuralism, phenomenology, and feminism, which further questioned the applicability of positivist methods to the study of human behavior

Check Your Progress

6. Is it possible to separate values and facts and conduct research objectively? Bring your arguments.
7. Discuss Popper and Kuhn's view on objectivity in research.
8. What do you mean by a paradigm? Discuss Kuhn's concept of paradigm.

3.6 Problems of Objectivity in Social Research

Problems of objectivity can be seen in various areas, which can be discussed as follows,

Researcher Subjectivity: Social scientists are part of the society they study, so their judgments are often influenced by their own experiences and perspectives.

Personal involvement in the chosen research topic due to emotional connections and experiences can hinder objectivity.Researchers may struggle to remain impartial when studying topics closely related to their own identity

or background.While objectivity is difficult to achieve in social research, researchers should strive to minimize bias and subjectivity.

Researcher's Cultural Beliefs and Values can influence researchers' perspectives and interpretations, impacting the objectivity of their studies.Epistemological relativism challenges the idea of scientific values as objective, suggesting that researchers are inevitably influenced by their cultural backgrounds.Prejudices stemming from ideological convictions and economic interests can distort social realities and research outcomes.

Complex Subject Matter: Social phenomena are complex and context-specific, making it difficult to achieve objectivity in social science research.

Unlike natural sciences, there is no singular method for conducting social research, leading to debates and variations in methodologies.The heterogeneous nature of social science subjects further complicates efforts to achieve objectivity.

Tainted or insufficient evidence undermines the reliability and objectivity of social research findings.Subjective biases and societal influences can distort researchers' perceptions of evidence, leading to flawed conclusions.

Assessing evidence in social research is subjective and lacks neutral standards, leading to varying interpretations and conclusions.The dynamic nature of research requires continual reassessment and improvement, challenging the notion of absolute truth and objectivity.

Influence of Personal Values of Researcher: Researchers' values can unconsciously influence their work, affecting the objectivity of their findings.

Researcher's Compassion and Consideration of the Observing Communitycan impede objectivity, particularly when studying marginalized groups or sensitive topics.Feminist approaches to science aim to empower underrepresented voices, but their emphasis on subjective experiences may raise questions about objectivity.

The researcher's Observation and interpretation are influenced by personal traits and cultural backgrounds, which has the potential to biasresearch

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findings. While scientific observation aims for objectivity, researchers' cultural contexts may shape their perceptions and interpretations.

Challenges with Respondents: Respondents' human nature can introduce problems like refusal to participate, misunderstandings, and reluctance, leading to biases and potentially invalidating research results.

Ethnocentrism and cultural biases affect both researchers and the communities they study, posing challenges to objectivity. Social scientists must transcend their ethnocentric biases to maintain objectivity, although this can be difficult when studying subjective social issues.

While researchers strive for objectivity, these inherent challenges highlight the hurdlesto achieving complete neutrality in social research. Objectivity is not a fixed truth but a continuous process of minimizing bias and subjectivity to enhance the reliability and validity of research outcomes.

Stop to Consider

Factors Affecting Objectivity in Social Science Research

Achieving objectivity in social science research is challenging due to several factors:

Personal Prejudices and Biases: Researchers may have personal biases influenced by various factors such as selfishness, ambition, relationships, caste, community, religion, nationalism, politics, and other personal or group affiliations. These biases can distort research findings.

Value Judgments: Researchers' values, shaped by their social context, can affect their attitudes toward socio-economic issues. While objectivity requires researchers to set aside their subjective judgments, it is difficult as everyone has a set of values.

Ethical Dilemmas: Relationships with sponsors, data sources, and research subjects can create ethical issues, complicating the pursuit of objectivity.

Complexity of Social Phenomena: Social phenomena are very dynamic and complex. This inherent complexity of social phenomena makes it difficult to maintain objectivity.

Self Asking Question

Q1. Explain the problems associated with conducting research objectively.

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3.7 Objectivity as a Procedure

Objectivity, both in social and natural sciences, is considered more as a procedure than an absolute truth. It involves a set of techniques aimed at minimizing subjectivity and ensuring research studies are rational and neutral. Longino (1990) suggests that objectivity in science has two senses: one related to truth and scientific realism, and the other to the mode or procedure of inquiry. While achieving complete objectivity in social sciences may be challenging due to the inherently subjective nature of human behaviour, researchers can still strive to make their inquiries objective to some extent.

Social sciences differ from natural sciences not only in empirical subject matter but also in methodological approaches. Therefore, social researchers are encouraged to adopt aprocedural understanding of objectivity, which helps them distance themselves from personal biases, values, and emotions during research. While complete objectivity may be unattainable, adhering to established research methods can lead to more neutral and acceptable results.

Objectivity can be manifested in three primary ways:

Scientific Experimentation and Human Interactions: One can on processes like scientific experimentation aimed at revealing the intrinsic properties of objects. This approach seeks to minimize human bias by relying on empirical evidence and reproducible results.

Processes of Thought or Reasoning: Objective reasoning involves using clear, rational arguments free from personal prejudices or emotional

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influences.Thus, one should emphasize logical reasoning and systematic analysis.

Social Processes: One should examine how epistemic communities reach consensus. This mode considers the social dimensions of knowledge production, including peer review, replication studies, and collaborative research.

In practice, striving for objectivity in social sciences involves:

Methodological Rigor: Employing systematic research methods, clear operational definitions, and transparent reporting of procedures and findings.

Reflexivity: Researchers must be aware of their own biases and the potential impact on their research, continuously reflecting on and addressing these influences.

Triangulation: Using multiple methods or sources of data to cross-verify findings, enhancing the robustness and credibility of research conclusions.

Collaborative Research: Engaging with diverse research teams and communities to incorporate multiple perspectives and reduce individual biases.

Authors recommend several strategies for promoting objectivity in social research:

1. Researchers should clearly state their value preferences in their research projects to maintain transparency.
2. Results obtained from one method should be cross-checked with those from other methods to ensure reliability.
3. Field limitations should be openly acknowledged in research projects to provide context for the findings

Stop to Consider

Researchers have developed lots of ways to maintain objectivity in research. followings are some Steps to Ensure Objectivity:
Consider both normative and empirical aspects: Addressing both actual conditions and ideal scenarios can help mitigate objectivity

issues. This means that a researcher should be aware of 'what is' and 'what ought to be' in research.

Training for Social Scientists: Proper training can equip researchers with the skills to recognize and counteract biases.

Transparency and Openness: Conducting research transparently and inviting critique can enhance objectivity.

Avoid Advocacy: Researchers should refrain from advocating for particular values to maintain objectivity

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While objectivity is a highly valued goal in social sciences, it is not the sole criterion for evaluating research. Balancing objectivity with other values is essential to preserve the unique contributions of social sciences. Thus, objectivity should play a significant role but not be the only standard in judging social science research.

Check Your Progress

9. How to conduct objective research?
10. Discuss the factors that affect objectivity in social science research.

3.8 Summing Up

Complete objectivity remains challenging to achieve in social sciences, but researchers can address this issue by acknowledging and addressing various problems that hinder objectivity. The intellectual debate regarding fact value separation in research shows us that, objectivity is not an absolute truth in social science. But it is to be noted that, objectivity is an essential part of research. Therefore, rather than viewing objectivity as an absolute truth, researchers should consider it as a set of techniques to minimize subjectivity and enhance the objectivity of their results.Social researchers should apply reflexivity throughout the research process and protocol to strive for objectivity to the best of their abilities. While complete objectivity may be unattainable, these efforts can help enhance the objectivity of social research outcomes.

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Unit - 4

Constructionism in Social Research

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Unit Structure:

4.1 Introduction

There is a debate about the nature of our social world. While the natural world is objective, the social world differsfrom that. Here comes the epistemological debate about the nature of knowledge and the ontological debate around social reality.Ontologically, Constructionism is the opposite of Objectivism. Constructionismstates that our social world is not external andindependent of us, but it is within us. Constructionism believes that individuals are meaning imposing agents. Different social practices bear different meanings for the members. These do not have independent meanings, but members impose meanings. Those, who do not believe in a particular practice, for them that practice has no meaning. To understand social practices, one must know the meaning of those practices in the social context, where they exist. This unit introduces you to social constructionism through which you will learn how the social reality is created.

4.2 Objectives

Constructionism is an important philosophy of research. after reading this chapter, you will able to

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- Discuss about the Constructionism
- Know about basic assumptions of Constructionism
- Learn how social reality is constructed
- Know about the implications of constructionism in research
- Learn about interpretivism and its methods

4.3 Constructionism

Constructionism, also known as Constructivism is a broad theoretical framework that asserts that our understanding of the world is shaped by our social interactions and shared ideas. According to constructivist thought, the social world we experience is a product of these collective constructions. It is a significant ontological perspective in social sciences that emphasises the continuous creation and revision of social phenomena and their meanings by social actors. Constructionism asserts that social reality is not a fixed entity but an ongoing accomplishment of individuals engaging with one another. This means that categories such as "organization" or "culture" are not external constructs imposed on people but are continually shaped and reshaped by their actions and interactions. Consequently, these categories do not possess intrinsic essences; their meanings are fluid, context-dependent, and constructed through social processes.The constructionist stance is antithetical to both objectivism and realism. While objectivism suggests that social categories exist independently of human perception, constructionism argues that these categories are products of social interaction. Similarly, it opposes realism by denying the existence of a single, unchanging reality. Instead, it views reality as multiple and constructed through social processes. Constructionism invites us to reconsider the nature of social reality and knowledge. It highlights the active role of individuals in creating and sustaining social phenomena, the fluid and context-dependent nature of social categories, and the constructed nature of all knowledge, including that produced by researchers. Thus, Constructivism provides a dynamic and interactive framework for understanding the social world, emphasizing the importance of language, interaction, and the continuous negotiation of meanings.Constructionism is particularly concerned with the role of values, customs, language, and interactions in constructing social

reality. It posits that the way we think,interact and actabout the world fundamentally shapes our understanding of it. For instance, the concept of "masculinity" is not seen as a fixed trait but as a socially constructed idea that varies across different times and places.

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Check Your Progress

1. Write on Constructionism.

4.4 Philosophy of Constructionism

The philosophy of constructivism finds its roots in the epistemological ideas introduced by Immanuel Kant. Kant argued that knowledge is influenced by the consciousness of the observer, meaning that our understanding of the world is shaped by our mental processes. This idea paved the way for a constructivist turn in epistemology, emphasizing that knowledge is not merely a passive reflection of reality but is actively constructed by the mind.Building on Kant's ideas, Neo-Kantians in the late nineteenth and early twentieth centuries further developed this perspective. They introduced the concept of "objective hermeneutics," which highlighted the importance of understanding human consciousness. They argued that human sciences—such as history, literature, law, and politics—require different methodologies from those used in natural sciences. Prominent figures like Wilhelm Dilthey, Edmund Husserl, Max Weber, and Friedrich Nietzsche made significant contributions to this philosophical shift.

Wilhelm Dilthey asserted that the human sciences focus on the "human mind," which manifests in languages, actions, and institutions. To understand the human mind, one must examine cultural and historical contexts. Edmund Husserl introduced phenomenology, a method for analyzing and describing consciousness. Max Weber contributed the method of "verstehen" to understand and explain the meanings behind human motivations and actions. Friedrich Nietzsche challenged the notions of objectivity and value neutrality, arguing that knowledge is inherently subjective, shaped by the scientist's assumptions and convictions.Austrian philosopher Alfred Schutz further advanced constructivist ideas by suggesting that we constantly categorize and typify people and things to make sense of

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them. Our knowledge is profoundly influenced by our perceptions and interactions. Inspired by Schutz, American sociologists Peter Berger and Thomas Luckmann introduced the concept of the "social construction of reality." They argued that societal interactions develop concepts about human behaviour that become habitual and institutionalized. Thus, our understanding of reality is constructed through social interactions and interpretations based on our experiences.

Michel Foucault's postmodernism explored the power of discourse in shaping societal practices. He argued that discourse—defined as "language-in-action"—influences societal rules and norms, determining what is acceptable and what is not. Foucault believed that language and practice hold power in constructing social realities.Jacques Derrida's poststructuralism sought to deconstruct dominant interpretations of reality, challenging established meanings and revealing underlying assumptions.In summary, the philosophy of constructivism emphasizes that knowledge and reality are not objective truths but are constructed through our consciousness, social interactions, and shared understandings. This perspective has significantly influenced various fields, particularly in understanding the complexities of human sciences and international relations.

Check Your Progress

2. Write how the thoughts of different scholars have contributed to Constructionism.

4.5 Major Assumptions of Constructionism

Every philosophical paradigm has its own assumptions. The main assumptions of Constructionism can be discussed as follows :

Social Construction of Reality

The social construction of reality involves the beliefs and principles that members of society live by, which have evolved and shifted across generations. The construction of reality refers to the process through which individuals and societies perceive, interpret, and understand the world around them. This process is not static; rather, it is dynamic and constantly evolving.

It involves various factors such as cultural beliefs, social norms, economic conditions, and historical context. Constructivists argue that reality is continuously being constructed and shaped by our interactions and interpretations, rather than being a fixed entity. Natural phenomena such as gravity and, the motion of the earth operate under objective laws unaffected by human understanding. But social reality is formed through shared knowledge and interpretations. This inter-subjective knowledge emerges from interactions between people.Social reality is constructed by our shared values, norms and customs.

For example, an office can be like any other room or building. Based on our shared understanding of the office, through the rules and customs, we identify an office different from any other room.

Alexander Wendt's article "Anarchy is what States Make of it: The Social Construction of Power Politics" illustrates this concept with the story of two characters, Alter and Ego, who meet without preconceived notions about each other. Through their interactions, they learn whether the other is friendly or hostile. Without interaction between them, they are just two individuals. But based on their behaviour, and interaction they can identify each otheras friends or enemies. Similarly, in international relations, interactions among nation-states shape their perceptions of each other as friends or enemies.Constructivists believe that these perceptions can change over time through ongoing interactions and reinterpretations, potentially transforming enmity into friendship and vice versa.

Society plays a crucial role in shaping and perpetuating this constructed reality. Throughthe processes of socialization and education, individuals are socialized to internalize societal norms and values, guiding their behaviour and perceptions. This socialization instils a sense of responsibility to uphold and perpetuate the established reality within the community. There are differing perspectives among social scientists regarding the nature of human thought and its relationship to ideology and societal context. Some argue that individuals have a degree of agency in shaping their ideas and actions within the framework provided by society. Others contend that human thought is inherently influenced by ideology and the prevailing intellectual climate. Temporal structure also plays a significant

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role in shaping social reality. Consciousness interacts at various levels, contributing to the intricate temporal patterns of daily life. These temporal structures define the situation for members of society, influencing their attitudes and behaviours. Language serves as another critical aspect of social reality. Across societies, languages have their own grammar and syntax, serving as fundamental sign systems. Language not only facilitates communication but also contributes to the collective knowledge and understanding of society. Through linguistic processes such as the expansion and contraction of vocabulary, societies continuously update their pool of knowledge and ideas. This dynamic process involves the incorporation of new words and concepts into the language, as well as the removal of outdated terms. While there are overarching similarities in social reality, each society also has its own distinct rules and norms that shape the experiences of its members. Moreover, social reality is influenced and bounded by these rules, reflecting the interplay between individual consciousness and collective social structures. Through careful examination and analysis, we can gain deeper insights into the intricate dynamics of everyday social life. In examining social reality, it becomes evident that society comprises both subjective and objective dimensions. Therefore, Constructionist study of social reality involves investigating the processes by which social life is created, sustained, and perpetuated. Understanding the construction of social reality offers valuable insights into the dynamics of society and informs further inquiries into the complexities of human social interaction and organization. The acquisition of knowledge is a gradual and ongoing process. Individuals continually receive new information and insights from various sources, including media, educational institutions, family, and the workplace. This accumulation of knowledge contributes to the formation and refinement of individual and collective understandings of reality.

Stop to Consider

Berger and Luckmann'sSocial Constructionof Reality

Peter Ludwig Berger and Thomas Luckmann(Peter L. Berger, 1966), American sociologists, introduced the concept of the 'social

construction of reality' in their seminal book, "The Social Construction of Reality: A Treatise in the Sociology of Knowledge,". They proposed that through interactions within society, people develop concepts about human behaviour, which become ingrained and eventually institutionalized. According to their theory, our understanding of society, people, and reality itself is constructed through our interactions and interpretations based on our experiences within these interactions.

Berger and Luckmann shed light on how society exists as both an objective reality, governed by institutional mechanisms, and a subjective reality, shaped by individual perceptions and interpretations. Their analysis involves the processes of externalization, objectification, and internalization, which weave together to form the fabric of social reality.

Externalization serves as the starting point, where individuals' actions, behaviours, and expressions reflect societal norms and values onto their surroundings. These external representations of society norms then influence people's perceptions and interactions with their surroundings. This phase essentially sets the stage for the emergence of societal structures and institutions, as these externalized norms gradually take tangible forms.

When externalised reality gets institutionalised in society, objectification takes place. This means that the norms and values projected outwardly by individuals become solidified within enduring institutions such as family units, educational systems, religious organizations, and legal frameworks. These institutions serve as the backbone of societal order, providing a framework within which social interactions and behaviors are regulated and guided.

Through the Internalization process, individuals absorb and internalize societal norms and values as their own. This internalized reality becomes deeply ingrained within their consciousness, shaping their thoughts, beliefs, attitudes, and actions. It's through this internalization that society exerts its influence over individuals, molding them into functioning members of the collective whole.

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Berger and Luckmann also emphasize the temporal sequence of socialization, highlighting the gradual progression from primary to secondary socialization. Primary socialization occurs within immediate social circles such as family and close communities, laying down the fundamental roles and norms necessary for integration into society. Secondary socialization then builds upon this foundation, exposing individuals to the broader institutional frameworks and specialized roles within society. While primary socialization tends to be deeply ingrained and enduring, secondary socialization may lack the same level of resilience and can be more susceptible to disruptions and challenges.To ensure the continuity and coherence of social reality, society employs various control mechanisms, including mass media and contact programs, to reinforce societal norms and mitigate deviance. These mechanisms help maintain the integrity of social structures and institutions across generations, ensuring that shared beliefs and values persist over time.

Check Your Progress

3. Write on "Social Construction of Reality".

Influence of Ideational Factors

Constructivists emphasize that to fully understand social reality, we must examine both ideational factors (such as identity, culture, and norms) and material factors. These ideational factors significantly influence how different entities and actions are perceived and interpreted.Alexander Wend provides a good example regarding nuclear weapons. Materially, a North Korean nuclear weapon is similar to a UK nuclear weapon in its attributes and potential for destruction. However, the United States views North Korea's nuclear weapon as a significant threat, while it does not see the UK's nuclear weapon in the same light. This difference arises from the ideational factor of identity. The USA considers France an ally and North Korea an enemy. This identity plays a crucial role in this perception. It is tied to the binary concept of "we" and "other." This binary is shaped by

history, culture, political processes, and social interactions. For example, the shared history, liberal values, mutual understanding, and cordial relations between the USA and the UK contribute to their perception of each other as friends. In contrast, the lack of these shared elements leads the USA to view North Korea as the "other." Constructivists argue that identities are not inherent or fixed but are socially constructed through interactions. This social construction of identity affects how states perceive threats and allies, demonstrating that ideational factors are as crucial as material ones in shaping social reality.

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Mutual Constitution of Agents and Structure

The concept of mutual constitution of agents and structure in constructivism draws heavily on Anthony Giddens' structuration theory. He argued that structures and agents are not independent entities but are mutually constitutive—they shape and are shaped by each other.Constructivists like Nicholas Onuf posited that "people and societies construct, or constitute, each other," emphasizing the interactive process through which social realities are built. The social world depends on our values, views, beliefs and perspectives. It is our construction, through our constant interactions with each other, we understand the social reality. We create and recreate the social reality. It is dynamic. Social reality in turn influences our role and behaviour. Once the social world is constructed, it gets certain autonomy that cannot be easily changed. For example, norms, and customs of a society. Wendt further developed this idea to challenge the Neorealist perspective of Kenneth Waltz. Wendt argued that nation-states (agents) and the international system's structure are mutually constitutive. This means that the actions and interactions of nation-states shape the structure of the international system, and in turn, this structure influences the behaviour and identities of the nation-states. Wendt's perspective asserts that the relationship between agents and structure is dynamic and reciprocal. The international system is not a static backdrop but a fluid construct continually influenced by the actions and perceptions of the states within it. This mutual constitution underscores the constructivist belief that both material and ideational factors play crucial roles in shaping social reality.

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Check Your Progress

4. Write on Major Assumptions of Constructionism.

4.6 Implication of Constructionists Philosophyin Research Practice

Constructionism works as a philosophy of research. Adopting Constructionist philosophy in research refers to certain implications in research, which can be discussed as follows :

Adherence to Qualitative method: Constructivist adopts the Qualitative method. Researchers focus on understanding the unique, subjective experiences of their research participants.Therefore, in terms of data collection, constructivist researchers often favour qualitative methods such as interviews, focus groups, and observations. These methods allow participants to express and demonstrate their experiences in their own words and actions. For example, a researcher might interview adolescent girls to explore their reactions to a gamified math lesson, asking whether they found it motivating, threatening, or something else entirely. The resulting data is typically rich in detail, featuring direct quotations and thorough descriptions of interactions, from which researchers identify recurring themes and organize them into categories. Unlike Positivist researchers who start with a specific theory and hypothesis, constructivists begin with broad questions and let the participants shape the direction of the study. While they do value established theories, they use them primarily to interpret the data they collect rather than to frame their initial research questions or hypotheses.

Views knowledge as the result of social and personal processes of meaning-making.: Constructivists openly acknowledge their subjectivity and its influence on the research process. They aim to co-create understanding with their participants, recognizing that their backgrounds and perspectives can affect their interpretations. For instance, a white, female researcher interviewing African adolescent girls would consider how her own experiences as a former adolescent girl might provide some common ground, but she would also be aware of differences due to ethnicity, generational gaps, and her position of authority, which might impact the participants' responses. Constructivist researchers strive to anticipate and acknowledge these issues in their reporting.

Explores local rather than universal meanings and practices.: Constructivist research does not aim for broad generalizability. The knowledge produced is seen as emerging within a specific context, and researchers do not claim that their findings apply universally. For example, the experiences of a particular group of Latina adolescent girls in one school might not reflect those of other girls in different schools or cities. This lack of generalizability is not considered a flaw but rather a reflection of the belief that truth and knowledge are constructed within specific contexts.

The strength of constructivist philosophy in research lies in its detailed focus on individual experiences and the processes they undergo over time. However, its limitation is that it cannot provide generalizable conclusions applicable to larger populations. For instance, constructivist research on a gamified algebra lesson cannot determine the best way to implement such a lesson to improve learning or math confidence among all adolescent girls.This approach emphasizes understanding the specific, contextual, and pragmatic aspects of human experiences and the meanings they construct, rather than seeking universally valid conclusions.

Self Asking Question

5. What does Constructionism in Research mean? Discuss.

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4.7 Interpretivism

When phenomena and things have aconstructionist, dependent existence, the method of acquiring knowledge (epistemology) will be different from acquiring knowledge of those events and phenomena which have an independent existence. There is a discrepancy between the nature of the social world and methods of natural science. There is nothing readymade

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about the phenomena in the social world. To understand the social world, we should apply the method of interpretivism. We have to look at the world from the point of view of a particular community to understand the society. More than data collection, the ability to interpret is more important.

The epistemological complement of constructionism is interpretivism. Interpretivism stands as an alternative to positivism, offering a contrasting approach to understanding the social world. It encompasses the perspectives of scholars critical of applying the scientific model to social study. In interpretivism, social phenomena are seen as subjectively created, and shaped by the meanings, beliefs, and ideas that individuals attribute to them. Rather than seeking to explain social phenomena through laws, interpretivists aim to understand human behaviour by interpreting the meanings behind people's actions. Influenced by various intellectual traditions, interpretivists share the belief that the subject matter of social sciences are people and their institutions. Thus, they argue for a research logic that acknowledges the unique characteristics of human behaviour and social structures. Interpretivism emphasizes understanding the meaning that social behavior holds for individuals, recognizing that humans act based on what things mean to them. This understanding requires grasping the meanings, intentions, values, and interpretations that individuals attribute to their environment and social interactions. While interpretivism and positivism have distinct ontological and epistemological commitments, they share similar methodological conventions. Despite their differences, researchers in both traditions can understand and appreciate each other's work, suggesting that they are not entirely separate "grand traditions" but rather complementary approaches to social inquiry. Interpretivism primarily originated from the ideas of Max Weber and Wilhelm Dilthey.

Newman and Lawrence (Neuman, 2014)discussed interpretivism as follows:

Purpose of Social Science:

Interpretive social scientists aim to understand the meaning behind people's actions within their social context.They seek to know what is important to the people they study and how these people experience daily life.This involves

getting deeply familiar with a particular social setting and seeing it from the perspective of its participants. Researchers focus on social actions, which are actions to which people attach subjective meaning, rather than just observable behaviors.

Reality is Socially Constructed:

Interpretivism holds that social reality is created by people through their interactions and perceptions.Unlike positivism, which views social life as an objective reality to be discovered, interpretivism sees reality as fluid and shaped by ongoing communication and negotiation among people.Social reality exists as people experience and assign meaning to it, making it fragile and constantly evolving.

Humans Create Shared Meaning:

Through social interaction, people create systems of meaning that help them make sense of their world.These meanings are not fixed but evolve as people interact.Interpretive researchers aim to discover what people believe to be true, what they find relevant, and how they define their actions. Understanding the meanings behind actions is crucial, rather than relying solely on abstract theories.

Human Agency:

Interpretivism emphasizes the ability of individuals to make conscious choices and exercise free will (human agency).While social settings and subjective viewpoints shape choices, people can also change these settings and develop new perspectives.Researchers focus on individual decision-making processes, subjective feelings, and personal interpretations of events.

Values Common Sense:

Interpretivism values common sense as much as scientific knowledge, viewing them as distinct but equally valid ways of understanding the world.Common sense is the everyday knowledge that people use to navigate daily life, while scientific knowledge follows formal methods and theories.Both are necessary: common sense for practical, everyday decisions and scientific knowledge for systematic understanding.

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Idiographic Explanations:

Interpretivism provides detailed descriptions of how people live their lives, often resembling a story or biography.This approach focuses on specific, context-rich descriptions rather than broad, abstract theories.The aim is to offer a deep, nuanced understanding of social reality from the perspective of those being studied.

Verification Through Adequacy:

A theory is considered valid if it makes sense to the people being studied and allows others to understand their reality. The accuracy of a theory is judged by how well it captures the way others reason, feel, and perceive events. Interpretivism values explanations that document the actor's point of view and translate it into a form that others can understand.

Context-Specific Evidence:

Interpretivism emphasises the importance of context and the meanings assigned by social actors to understand social action.Facts are seen as context-dependent and part of a meaning system, not neutral or objective. Researchers aim to understand how people navigate ambiguities in social life and assign meaning to their actions.

Practical Orientation:

Interpretive researchers aim to understand how people manage their everyday lives and view social knowledge as a practical accomplishment.They adopt a transcendent perspective, seeking to go beyond surface-level observations to understand people's inner experiences.This approach emphasizes the importance of understanding the social context and the processes by which people construct and transform their social realities.

Value Relativism:

Interpretivism recognises that research is infused with values and that it is impossible to be completely value-free.Researchers should reflect on and incorporate their own values and the values of those they study into their research. This approach adopts relativism, acknowledging that no single set of values is inherently superior and that different value systems should be understood and respected.

Check Your Progress

6. Broadly discuss on Interpretivism.

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4.8 Methods of Interpretivism

Interpretivism highlights the importance of interpretation and meaning in social research. It draws from phenomenology, Verstehen, and symbolic interactionism to offer a perspective that emphasises understanding social phenomena from the perspective of those involved, rather than relying solely on external observations.

Hermeneutics: Interpretivism is closely related to hermeneutics, a theory of meaning in the text that emerged in the nineteenth century. Hermeneutics, applied in fields like philosophy and literary criticism, involves deeply analysing texts (including conversations and pictures) to gain a profound understanding. This approach recognizes the significance of interpreting social actions from the perspective of those involved, rather than solely relying on external factors devoid of meaning to individuals. Hermeneuticsfocuses on interpreting social phenomena by understanding the meanings attributed to them in books and literature. Unlike empiricist methods, which treat social reality as solely consisting of observable facts, hermeneutics emphasises the deeper meanings and intentions behind using of words, language, and discourse in a text.

Phenomenology: Another method of Interpretivism is phenomenology, which focuses on how individuals make sense of their surroundings and emphasizes the need for researchers to approach the world without preconceptions. Alfred Schutz is credited with introducing phenomenological ideas to the social sciences, particularly emphasizing the importance of understanding human action from the perspective of those involved. He asserts that social reality has meaning for individuals, and human actions are driven by the meanings they attribute to their actions and the actions of others. Phenomenology's emphasis on understanding human behaviour from the actors' point of view aligns with Max Weber's concept of Verstehen, or empathetic understanding. Weber highlighted the need to interpret social actions in terms of their meanings to the actors involved, rather than focusing

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solely on external forces. Understanding everyday social reality involves focusingon the intricate fabric of human consciousness and social interaction. A phenomenological analysis offers valuable insights into the social construction of reality. This descriptive method allows us to grasp the multifaceted nature of consciousness, which exists in various dimensions and realities.

Symbolic Interactionism: Another intellectual influence on interpretivism is symbolic interactionism, particularly the work of George Herbert Mead. Symbolic interactionists argue that individuals continually interpret the symbolic meaning of their environment and act accordingly. This interpretive stance emphasises understanding social actions from the perspective of those involved. Herbert Blumer, a key figure in symbolic interactionism, emphasized the importance of interpreting actors' actions and provided a framework for understanding social interactions.

Taking an interpretive stance in research can lead to surprising findings, and challenging external perspectives. However, it's important to recognize that researchers themselves interpret the interpretations of social actors and place them within a social scientific context. This multi-layered interpretation process involves understanding actors' interpretations, interpreting them within a social scientific framework, and further interpreting them in light of existing concepts and theories within the discipline.

Check Your Progress

7. Discuss various methods of Interpretivism.

4.9 Summing Up

In conclusion, it is to be noted that the underlying ontological assumptions of researchers significantly influence how research questions are framed and conducted. Whether one perceives organizations and cultures as objective entities or as socially constructed phenomena shapes the entire research process. When researchers view organisations and cultures as objective entities, they tend to focus on their formal properties or the beliefs

and values of their members. Conversely, when these entities are perceived as socially constructed, researchers emphasize the active role of individuals in shaping reality. These differing perspectives necessitate distinct approaches to research design and data collection. Ultimately, the alignment of ontological commitments with research objectives is crucial for conducting meaningful and relevant social research. A clear understanding of social ontology allows researchers to navigate the complexities of the social world and produce insights that contribute to our understanding of society.

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4.10 References and Suggested Readings

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Unit - 5

Ethics in Research

Unit Structure:

5.1 Introduction

Ethics in research is fundamental to scientific inquiry, guiding researchers to work with integrity, transparency, and respect for both human and animal subjects. These ethical principles ensure that the pursuit of knowledge does not come at the expense of individual rights or societal well-being. In this unit, we will explore the crucial role of ethics in research.

Throughout history, numerous ethical violations have highlighted the need for strict ethical guidelines. Ethical research requires careful planning and extensive review procedures. To make sure research proposals adhere to ethical norms, institutional review boards, or IRBs, are crucial to the evaluation process. Researchers must also be dedicated to continuous ethical reflection throughout their research, changing to meet new obstacles and conclusions as they appear. As research methods and technologies evolve, the ethical frameworks governing them must also adapt. You will learn about the new difficulties in upholding research ethics in this unit. A proactive and dynamic approach is needed to ensure ethical rigour in these changing situations, with ongoing revisions to policies and procedures to handle new ethical conundrums.

5.2 Objectives

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In this unit we are going to, –

- Discuss about Ethics in research
- Know about how ethics comes to research and its importance
- Learn about the key ethical principles for conducting research
- Discuss about the recent ethical issues faced in research

5.3 Ethics in Research

The term "ethics" originates from the Greek word "ethos," which means "character." Ethics refers to moral principles that govern a person's behaviour or the conduct of an activity. It is also a branch of knowledge fundamentally concerned with what is good or bad. In the context of social research, ethics play animportant role in maintaining the moral integrity of the researcher and ensuring the trustworthiness and validity of the research process and findings. Ethics serve as the compass guiding our actions, rooted in the principles and values we hold dear. While laws provide a framework for societal behaviour, ethics transcend legal boundaries, encompassing broader and more informal norms. In research, ethical considerations become paramount, as conflicts between values inevitably arise. For instance, researchers may face dilemmas regarding the trade-off between maintaining confidentiality and ensuring the reproducibility of their findings through open data practices. Each decision made in research involves weighing competing values, with potential implications for participants, colleagues, and society. Despite the difficulties, researchers must seek to minimize risks to participants, colleagues, and society while striving for optimal outcomes. Research ethics provide a framework for reconciling these value conflicts, ensuring that ethical principles guide every aspect of the research process, from inception to dissemination.

Ethical research entails the adherence to a set of principles and guidelines, typically outlined in a code of ethics specific to a profession or research community. These codes establish standards of conduct and provide a framework for ethical decision-making in research practices. Across all professions, certain behaviours are universally deemed unethical, such as causing harm to individuals, breaching confidentiality, manipulating data, or

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introducing bias into research findings. While the primary goal of research is to expand knowledge and deepen understanding, ethical considerations mandate that this pursuit should not come at the expense of ethical principles or the well-being of those involved in the research process. Ethical scrutiny serves as a safeguard to protect the rights and dignity of participants, ensuring that they are treated ethically and respectfully throughout the research endeavour. Furthermore, ethical scrutiny not only safeguards the interests of research participants but also protects the integrity and reputation of the institutions involved in research. Ethically dubious research activities not only pose risks to participants but can also have far-reaching consequences for the institution, including legal liabilities and reputational damage. Public trust and confidence in the research enterprise are therefore maintained through ethical standards, which universities and research institutions use to demonstrate their commitment to responsible conduct and integrity in research practices.

Stop to Consider

The Importance of Ethics in Research:

Research ethics are crucial for conducting scientific inquiry responsibly, effectively, and with integrity. The significance of research ethics can be understood through several key dimensions:

Promoting the Aims of Research: Expanding Knowledge:

The primary aim of research is to expand knowledge and understanding across various fields. Research ethics promote this goal by ensuring that studies are designed and conducted methodologically sound and free from bias. Ethical research practices enhance the reliability and validity of findings, enabling research to contribute meaningfully and credibly to the body of knowledge.

Supporting Collaborative Values: Mutual Respect and Fairness:

Scientific research often involves collaboration among researchers, institutions, and various groups. Ethics support values essential for successful collaborative work, such as mutual respect, fairness, transparency, and accountability. These values foster a cooperative

environment where researchers can share ideas, resources, and findings openly and constructively. Ethical guidelines help prevent conflicts, ensure equitable treatment of all contributors, and promote a culture of respect and inclusivity.

Accountability and Integrity: Holding Researchers Accountable:

Research ethics ensure that researchers can be held accountable for their actions. Ethical guidelines provide a clear framework for acceptable behavior, outlining researchers' responsibilities and the consequences of unethical conduct. This accountability helps prevent misconduct, such as fabrication, falsification, and plagiarism, promoting a culture of honesty and integrity within the research community.

Protecting Participants and Society:

Ethical considerations are fundamental in protecting the rights and well-being of research participants and society at large. Researchers have a duty to ensure that their work does not cause harm and that the benefits of research outweigh any potential risks. By obtaining informed consent, ensuring confidentiality, and minimizing harm, researchers demonstrate their commitment to ethical principles and respect for human dignity.

Enhancing the Credibility of Research: Building Public Trust:

Ethical research practices are essential for building and maintaining public trust in scientific inquiry. When researchers adhere to ethical guidelines, they demonstrate their commitment to conducting research responsibly and with integrity. This trust is crucial for securing funding, gaining access to research sites and participants, and ensuring that findings are accepted and implemented in policy and practice.

Check Your Progress

1. What do you mean by Ethics in Research?
2. Why Ethics is important in Research?

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5.3 Evolution of Ethics in Research

The history of ethics in research is a narrative of progress and lessons learned from past injustices. This evolution has been shaped by significant events and scandals that exposed the dire need for ethical guidelines and oversight. These sombre periods gave rise to important declarations, code and principles that established the framework for contemporary research ethics.

One of the most notorious examples of ethical misconduct in research is the Tuskegee Syphilis Study, conducted by the U.S. Public Health Service starting in 1932. It was conducted without informed consent and exploited a vulnerable population of African American men who were never given a chance to refuse participation. The participants were tricked by the researchers, who neglected to cure their syphilis and instead tracked the illness's development. This egregious violation of trust stemmed from racist attitudes, perpetuating harm rather than advancing knowledge. The study's revelation in the 1970s shocked the world and sparked a crucial revaluation of research ethics.The Tuskegee Study's ethical failures highlighted the urgent need for reform, leading to the development of informed consent as a cornerstone of ethical research. The roots of ethical considerations in medical practice and health research can be traced back to the aftermath of the Nuremberg trials conducted in Nazi Germany in 1946. These trials exposed heinous ethical violations and led to the formulation of the Nuremberg Code, emphasizing the importance of voluntary participation, non-maleficence, and informed consent. Over time, this code has evolved and become an integral part of all medical research. This landmark document laid the foundation for ethical research conduct and highlighted the importance of respecting individual autonomy and dignity.Building upon the principles of the Nuremberg Code, the Declaration of Helsinki, formulated in 1964, provided further guidelines for ethical research. It emphasized the need to weigh the risks and benefits of participation, respect subjects' privacy, and minimize the burdens imposed on them. This declaration represented a global commitment to upholding ethical standards in research and protecting the rights and well-being of research participants. The Belmont Report, which further refined ethical principles. The establishment of codes, guidelines,

and principles for social and behavioral science research gained traction in the late 20th century, as these disciplines expanded globally and embraced diverse cultural contexts.

The establishment of Institutional Review Boards (IRBs) and Institutional Ethics Committees (IECs) became integral to ensuring ethical oversight in research involving human subjects. These bodies review research proposals to ensure that they comply with ethical standards and protect participants' rights and welfare. The Council for International Organizations of Medical Sciences (CIOMS) was established to further promote ethical conduct in research. CIOMS plays a crucial role in ensuring that research is conducted with integrity and respect for human rights. Its guidelines help harmonize ethical standards across different countries and research contexts, promoting a global approach to research ethics.The Indian Council of Medical Research (ICMR) has been at the forefront of formulating ethical guidelines for biomedical research. The "Ethical Guidelines for Biomedical Research on Human Participants" and relevant legal frameworks, such as the Drugs and Cosmetics Act, underscore the importance of ethical considerations in research. India actively participates in global collaborations, aligning its ethical guidelines with international standards. These efforts ensure that research conducted in India adheres to the highest ethical standards, protecting participants and enhancing the credibility of research outcomes.As science and research transcended national boundaries, the need for global ethical standards became evident. While overarching guidelines are applicable across disciplines, discipline-specific codes further refine ethical conduct. For instance, ethical practices in biomedical and health sciences may differ from those governing research involving non-living matter.The history of research ethics reflects a journey of learning from past mistakes and striving for better protection of human rights in research.

Self-Assessment Question

Q. Write a short note on Nuremberg Code and Declaration of Helenski.

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5.4 Major Assumptions of Ethics in Research

Major approaches to research ethics can be divided into three categories. Each categoryencompasses diverse philosophical perspectives and guiding principles for ethical decision-making.

Deontological approach:The deontological approach advocates for the identification and adherence to a universal code of ethics, emphasizing absolute moral principles that should never be compromised. It holds that infractions of ethical principles are inherently wrong and detrimental to social research integrity. Therefore, it posits that ethical principles should never be compromised, as any deviation could undermine the integrity of social research.

Ethical Scepticism approach: Contrary to deontological ethics, this approach suggests that ethical standards are relative to cultural context and time. Situation ethics, a component of this approach, advocates for evaluating ethical dilemmas case by case. Situation ethics acknowledges the complexities of ethical decision-making, considering factors such as the potential benefits of deception in research or the perceived lack of choice in engaging in ethically questionable practices.Scholars like E. Goode argue for principled relativism, where deception may be justifiable in certain contexts where no alternative methods exist.

Utilitarianism approach: This pragmatic approach evaluates ethical decisions based on a cost-benefit analysis. It considers whether the expected benefits of research outweigh the potential risks. This perspective guides researchers in balancing ethical considerations with the potential outcomes of their work.This approach, often associated with the idea of the end justifying the means, emphasizes maximizing utility while minimizing harm to research participants and society. While some argue for a more flexible stance akin to "anything goes," wherein ethical decision-making allows for a certain amount of flexibility, this perspective remains contentious, with few researchers subscribing to such an approach.

Overall, these major approaches to research ethics provide diverse frameworks for navigating ethical dilemmas in social research, each with its own implications for moral decision-making and research integrity.

Check Your Progress

3. Write on major ethical approaches in Research.

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5.5 Key Ethical Principles in Research

Ethical considerations constitute the moral compass that directs the course of scientific inquiry, ensuring that knowledge is pursued with integrity, transparency, and respect for all involved. Ethical principles underpin responsible research conduct, balancing the pursuit of knowledge with the protection of individuals and the broader societal fabric. These principles can be categorised under three categories,

5.5.1 Ethical scientific inquiry

The research inquiry itself must benefit society. It meant that Researchers and research must contribute to the well-being of society. Social responsibility in research extends beyond individual studies to the broader societal impact of scientific endeavours. Researchers have a responsibility to consider the potential consequences of their work on communities, cultures, and the environment, promoting positive societal outcomes and addressing ethical concerns related to the applications of their research. The Bhopal Gas Tragedy serves as a poignant example of the societal consequences of inadequate research ethics. Researchers should emphasise fairness and equity in the distribution of research benefits and burdens, ensuring the equitable selection of participants and the just distribution of research outcomes.

5.5.2 Ethical conduct and behaviours of researchers:

Researchers should conduct themselves in certain manners, and they are responsible for their knowledge and awareness of ethics and appropriate research methods. Researchers should minimize financial and other influences on their research and on research participants that could bias research results.

Scientific integrity involves the commitment to **honesty**, **transparency**, and **accuracy** in conducting and reporting research. Upholding scientific integrity is fundamental for maintaining the credibility of research findings,

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fostering trust in the scientific community, and ensuring the reliability of knowledge generated through research.

Avoid bias: Introducing bias into research is unethical as it distorts the findings and compromises the validity of the study. Bias can manifest in various forms, including selectively presenting evidence, highlighting certain findings disproportionately, or deliberately concealing information. Researchers must remain vigilant to prevent bias from influencing their research process, as it undermines the credibility and objectivity of their findings.Using biased samples or methods compromises research integrity and is considered unethical.

Avoid Misrepresentation of Data: Using research findings in a manner that adversely affects participants or other stakeholders is unethical.Researchers must ensure that the information gathered during the study is utilized responsibly and ethically, without causing harm or exploitation to individuals or communities involved in the research.

Conflict of interestin research arises when decisions or actions regarding a primary interest, such as the validity and integrity of research, are potentially swayed by a secondary interest. Secondary interests may include financial gain, career advancement, personal relationships, or ideological beliefs. Conflict of Interest can manifest at different stages of the research process and may involve researchers, institutions, funders, and journals.

Publication Ethicsis also a key component of research ethics. It refers to the principles one must abide by at the publication of a research work. It means that, from writing to the publication process must go ethically. There are lots of hurdles in maintaining publication ethics, which are–

Incorrect Reporting: Ethical research requires accurate and unbiased reporting of findings. Any attempt to manipulate or distort research findings to serve personal or external interests is considered unethical. Researchers have a responsibility to report their findings truthfully and transparently, without altering or slanting them to fit a particular narrative or agenda.Falsification of data misrepresents research findings and violates ethical standards.

Plagiarism: Appropriating others' ideas or work without attribution is unethical and violates intellectual property rights. Plagiarism is the unethical act of using someone else's work, ideas, data, concepts, words, methods, images, etc., without proper acknowledgement and presenting them as one's own. It constitutes a serious breach of professional conduct.

Plagiarism can manifest in several forms:

Complete plagiarism or intellectual theft: Submitting work under one's own name that has been created by someone else.

Source-based plagiarism: Incorrectly referencing a source or citing a non-existent source, which can mislead readers. This can also occur when citing only the primary source without acknowledging the secondary source that provided the information.

Verbatim plagiarism: Copying text word-for-word from a source without using quotation marks or citing it properly.

Self-plagiarism: Reusing significant portions of one's own previously published work without giving proper attribution.

Paraphrasing plagiarism: Using someone else's writing with minor changes in the sentences (such as using synonyms) and presenting it as one's own.

Mosaic or patchwork plagiarism: Integrating someone else's phrases or text into one's own work without proper attribution.

Plagiarism is a serious offence with potential legal consequences and can severely damage an author's credibility and reputation. In academic publishing, it may result in the retraction of published work and loss of academic positions or employment opportunities.Authors can utilize plagiarism detection tools like Turnitin, Drillbit etc., to help prevent text plagiarism. However, it's important to note that not all plagiarism checkers offer the same level of accuracy and thoroughness.

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University Grants Commission introducing regulations for the prevention of plagiarism, discussing the "Promotion of Academic Integrity". It describesPlagiarism Levels and Penalties. In a PhD programme, violation of plagiarism has certain consequences, which are as follows,

Level 0 (Up to 10% similarity): No penalty.

Level 1 (Above 10% to 40% similarity):Such a student will be asked to re-submit a revised script within a stipulated period not exceeding six months.

Level 2 (Above 40% to 60% similarity): Such a student shall be banned from submitting the revised script for a duration of one year.

Level 3 (Above 60% similarity):Such student registration for that program shall be cancelled.

Overall, the policy emphasizes rigorous measures to prevent and penalize plagiarism, ensuring academic integrity and compliance across all levels of academic research and submissions within the HEI.

Multiple authorship: Properly crediting all contributors and avoiding improper assignment of credit is essential for maintaining research integrity.

Duplicate and partial publication: Publishing the same data or results in multiple sources without disclosure is unethical. Partial publication may be acceptable in some cases but can be unethical for small, focused studies.

Moreover, ethical considerations extend beyond individual researchers to include the sponsoring organization financing the research. Sponsoring organizations may impose constraints or controls on research designs, methodologies, or dissemination of findings, which can compromise the independence and integrity of the research process. Both the imposition and acceptance of such restrictions are considered unethical as they may influence the

research outcomes to serve the interests of the sponsoring organization rather than pursuing objective inquiry.Researchers and sponsoring organizations alike must adhere to ethical principles to ensure the integrity and credibility of research activities.

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Check Your Progress

4. Broadly discuss on publication ethics.

5.5.3 Ethical Treatment of Research Participants: Ethical Considerations Regarding Participants:

When conducting research, ethical considerations regarding participants are paramount. the participants would include those who participate in a focus group, or who are involved in collecting or providing information relating to the project; those from whom information is collected or those who are studied by a researcher also become participants of the study. Here are the key ethical issues to consider concerning research participants:

Respect for research participants: Respect for persons involves recognizing the inherent dignity and worth of individuals, acknowledging their autonomy, and protecting those with diminished autonomy. Treating individuals with dignity and respect underscores the ethical obligation to safeguard participants' rights. Researchers should have the welfare of the research participant in mind as a goal and strive for the benefits of the research to outweigh the risks. Beneficence requires researchers to maximize potential benefits while minimizing harm to research participants.

Informed Consent: Before involving individuals in a research project, researchers must obtain their informed consent. This involves ensuring participants fully understand the purpose, procedures, potential risks, and benefits of the study, and providing them the opportunity to voluntarily agree to participate without coercion.

Informed consent is a voluntary agreement by individuals to participate in research after receiving comprehensive information about the study's purpose,

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procedures, potential risks, and benefits. Informed consent hinges on the voluntary and uncoerced nature of participants' involvement. This means that individuals must freely choose to participate without feeling pressured or compelled to do so. Researchers must emphasize to prospective participants that their decision to participate is entirely voluntary, and they can withdraw from the study at any point without facing any negative consequences. Informed Consent also required providing comprehensive information to prospective participants. This includes detailing the purpose of the study, the procedures involved, the potential risks and benefits, and how their data will be used. For instance, if the research involves asking sensitive or intrusive questions, participants must be informed beforehand to make an informed decision about their participation. Informed consent necessitates that participants fully understand the potential risks and benefits associated with their participation. Researchers have a responsibility to communicate any foreseeable risks, such as discomfort or breach of confidentiality, as well as the potential benefits, both to the participants themselves and to society at large. Informed consent is essential for respecting participants' rights and fostering a transparent and trusting research environment.

Obtaining informed consent from marginalized or vulnerable populations requires special consideration. These populations may face unique challenges or barriers that could impact their ability to provide informed consent effectively. Researchers must be sensitive to these factors and take steps to ensure that participants from these groups fully understand the nature of the research and the implications of their involvement. This may involve employing culturally appropriate communication methods or providing additional support and resources as needed.

Maintaining Confidentiality: Researchers must protect the confidentiality of participants' personal information. This includes ensuring that data collected from participants are stored securely and anonymized whenever

possible to prevent the identification of individuals. Maintaining confidentiality fosters trust between researchers and participants and protects participants' privacy rights. Privacy safeguards individuals from unwarranted intrusion, while confidentiality protects the sensitive information shared by participants during the research process. Maintaining privacy and confidentiality fosters trust encourages open communication, and prevents the misuse of participants' data.

Participants have a fundamental right to **privacy**, encompassing both the information they disclose and their identity. Respecting this right entails safeguarding the confidentiality of the information shared by participants during the research process. Researchers must ensure that participants' personal details, sensitive disclosures, and any other confidential information remain secure and undisclosed to unauthorized individuals.

Anonymity plays a key role in preserving participants' privacy and confidentiality. Researchers can keep research participants' identities anonymous by employing pseudonyms or anonymizing data. However it's important to understand that pseudonymization alone might not always be enough to ensure participant anonymity, particularly if additional contextual information could be able to identify participants. To reduce the possibility of identification in such circumstances, researchers may choose to anonymize every participant as well as the entire research environment or field location.This includes refraining from sharing identifiable information with third parties for purposes unrelated to the research without explicit consent from participants.

Maintaining confidentiality is not only an ethical imperative but also a legal and professional obligation for researchers. Breaching confidentiality not only violates participants' trust but also undermines the integrity and credibility of the research process. Researchers must prioritize the protection of participants' privacy rights throughout all stages of the research, from data collection to dissemination of findings.

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Avoiding harm: Researchers must take precautions to minimize the risk of physical, emotional, or psychological harm to participants. This involves carefully assessing potential risks associated with the research and implementing measures to mitigate them. Researchers should also be mindful of the potential consequences of their findings on participants and society as a whole, ensuring that the benefits of the research outweigh any potential harms.Non-maleficence, or "no harm," underscores the obligation to avoid causing harm or distress to research participants.

Harm to participants can manifest in diverse ways, including discomfort, anxiety, harassment, invasion of privacy, and procedures that may demean or dehumanize individuals. Researchers must be vigilant in identifying potential sources of harm and take proactive measures to mitigate or minimize these risks throughout the research process.Ethical guidelines stipulate that the risk of harm to participants should be minimal and not exceed the level encountered in their daily lives. Researchers are responsible for assessing and managing potential risks to ensure that participants are not subjected to undue harm or distress as a result of their involvement in the research.

Research activities that pose a significant risk of harm to participants are generally considered unethical and unacceptable. While certain research topics may inherently carry risks, researchers must exercise caution to prevent harm and prioritize the well-being of participants above all else.In some cases, harm to participants may not stem directly from the research activities themselves but rather from the consequences of conducting and disseminating the research. For instance, research on sensitive topics such as racism or criminal behaviour could inadvertently reinforce harmful practices or incite individuals to engage in risky behaviour. Additionally, the publication of research findings may inadvertently expose participants to stigma, discrimination, or retaliation from authorities, jeopardizing their safety and well-being. Therefore, Maintaining the confidentiality and anonymity of participants is crucial for preventing harm, as it ensures that individuals cannot be identified or associated with sensitive information disclosed during the research process.

These key ethical principles, when meticulously adhered to, create a foundation for ethical research conduct, ensuring that scientific inquiry not only advances knowledge but does so with a profound commitment to the well-being, autonomy, and dignity of all involved. As evidenced by historical incidents and ongoing research, the application of these principles is critical for the responsible and humane progression of scientific discovery.

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Stop to Consider

Essential Ethical Principles in Research

Ensuring ethical standards in research is crucial for maintaining integrity, trust, and the advancement of knowledge. Here are some essential elements that various ethical codes and guidelines address:

Honesty: Researchers must report their data, results, methods, procedures, and publication status truthfully and accurately. Misrepresentation can lead to mistrust and harm scientific progress.

Objectivity: Objectivity means voiding bias in experimental design, data analysis, interpretationand peer review. Objectivity ensures that research findings are valid and reliable, contributing to genuine scientific knowledge.

Integrity: Researchers should act with sincerity and strive for consistency in thought and action. Integrity involves adhering to ethical principles even when no one is watching, fostering a culture of honesty and reliability.

Carefulness: Avoiding careless errors and negligence is critical. Proper documentation of all aspects of the research process helps prevent mistakes and ensures that the research can be replicated and verified.

Openness: Sharing data, results, ideas, tools, and resources openly promotes collaboration and innovation. Being open to criticism and new ideas helps improve the quality of research.

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Respect for Intellectual Property: Researchers must honor patents, copyrights, and other forms of intellectual property. This respect ensures that the contributions of others are acknowledged and valued.

Confidentiality: Maintaining confidentiality in communications, personal records, and privacy matters is vital. It protects the privacy of research participants and the integrity of the research process.

Responsible Publication: Researchers should aim to serve society with their publications, avoiding wasteful or duplicative publications. Responsible publication practices ensure that valuable information is disseminated effectively.

Responsible Mentoring: Guiding research students responsibly and ethically is crucial for developing the next generation of scientists. Effective mentoring helps students learn and adhere to ethical research practices.

Respect for Colleagues: Treating colleagues fairly and with respect promotes a positive and productive research environment. Fair treatment fosters collaboration and mutual support.

Social Responsibility: Researchers have a duty to serve society and various stakeholders through their work. This involves conducting research that addresses societal needs and contributes to the public good.

Non-Discrimination: Ensuring that there is no discrimination against colleagues or students based on sex, race, or factors unrelated to scientific competence and integrity is essential for fostering an inclusive and fair research environment.

Legality: Researchers must adhere to relevant laws, institutional policies, and governmental regulations. Ensuring legality throughout the research process helps maintain ethical and legal standards.

Animal Care: Proper experimental designs are crucial when involving animals in research. Ensuring animal welfare and following ethical guidelines for animal research prevent unnecessary suffering and promote humane treatment.These principles and guidelines collectively

help maintain the integrity and trustworthiness of the research process, ensuring that research benefits society and advances scientific knowledge ethically and responsibly.

Check Your Progress

5. Discuss the key ethical principles in research.

5.6 Ethical Issues in Research

In the realm of social research, there's a recognized concept called 'conscious partiality,' notably championed by feminist scholars. They argue that studying women without taking a stand is both impractical and ethically questionable, given the inherent biases of a male-dominated society. Instead, they advocate for a committed approach that not only sheds light on women's challenges but also seeks to address them and deepen our understanding of gender disparities.Researchers, especially those within feminist circles, often find themselves advocating for particular viewpoints, such as highlighting women's struggles in various spheres like family and the workplace. This led to the ethical question of partiality.

In the case of the funding of research, which frequently comes from organizations with vested interests. Consequently, research agendas may align with the priorities and ideologies of funding bodies, shaping the direction and focus of studies. This might impact the research findings. Therefore, transparencyis very important,

Moreover, gaining access to research settings is a political process, mediated by gatekeepers who assess researchers' motives and seek to influence the investigation to align with organizational interests. Negotiating access, navigating internal dynamics, and managing perceptions become crucial aspects of the research endeavour.While the principle of informed consent is paramount, its implementation can pose challenges in practice, particularly in certain research contexts. For example, in ethnographic research conducted in dynamic or everyday settings, it may be difficult to provide every individual with detailed information about the study due to the fluid nature of interactions. Additionally, ensuring informed consent for

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every participant, especially in large-scale studies, may not always be feasible. Despite these challenges, researchers must make every effort to uphold the principles of informed consent to the best of their ability.

Team-based research introduces another layer of complexity, as divergent objectives and perceptions among team members may create tensions and influence the research process. Furthermore, the dissemination and utilization of research findings can be subject to political manoeuvring, shaping public discourse and policy agendas.

Even the methods employed in research are not immune to politics. Sociologists historically staked a claim to expertise in certain methodologies, positioning themselves as legitimate authorities on social inquiry. However, the evolving research landscape challenges this monopoly, with interdisciplinary approaches and new data sources redefining methodological proficiency and challenging established disciplinary boundaries.In essence, the politics of the research process permeates every aspect, from funding allocation to methodological choices, highlighting the intricate interplay between knowledge production and power dynamics.

Additionally, advancements in technology have had a mixed impact on research. On one hand, technology has made research more rigorous and accessible, allowing for more precise data collection, sophisticated analysis, and widespread dissemination of findings. Researchers can now collaborate across the globe, access vast digital libraries, and use advanced tools to enhance the quality of their work. On the other hand, these technological improvements also pose significant challenges. Issues such as plagiarism and the use of AI-generated writing threaten the integrity of research. With the ease of copying and pasting information, and the ability of AI tools to generate text, the potential for academic dishonesty has increased. These problems underscore the importance of maintaining high standards of integrity and honesty in research.Researchers must address these challenges themselves by adhering to ethical principles and fostering a culture of honesty. This involves being vigilant about properly citing sources, using plagiarism detection tools. Through maintaining these standards, researchers can ensure that their work remains credible and trustworthy, despite the complexities introduced by technological advancements.

Check Your Progress

6. Write on emerging Ethical Issues in Research.

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5.7 Summing Up

In this unit, you have learned about ethics in research. Ethical research involves adhering to a set of principles and guidelines, usually outlined in a code of ethics specific to a profession or research community. These codes establish standards of conduct and provide a framework for ethical decision-making in research practices.The development of these ethical standards has been significantly influenced by past events and scandals that highlighted the critical need for ethical guidelines and oversight. Historical episodes, such as the unethical experiments conducted during World War II, led to the creation of the Nuremberg Code. Similarly, the Declaration of Helsinki was established to provide ethical guidance for medical research involving human subjects. These documents and others like them have laid the foundation for contemporary research ethics.Key ethical principles in research include informed consent, honesty and integrity, beneficence (ensuring the research benefits outweigh the risks), non-maleficence (not harm), and managing conflicts of interest. These principles ensure that the pursuit of knowledge does not come at the expense of individual rights or societal well-being.There are three major philosophical approaches to research ethics, each providing a different perspective on what ethical principles should guide research:The deontological approach focuses on adherence to duty or rules. It emphasizes the importance of following ethical principles regardless of the outcome.Relativismsuggests that ethical principles can vary depending on cultural or individual contexts. It emphasizes the importance of understanding and respecting diverse ethical norms.The utilitarianapproach evaluates the ethics of a research practice based on its outcomes, aiming to maximize overall happiness or benefit. As technology advances and new fields of study emerge, new ethical issues in research continually arise. For instance, digital data collection, artificial intelligence, and genomic research present unique ethical challenges that must be addressed. Ensuring ethical rigor in these evolving contexts requires researchers to be proactive and adaptive, continually updating guidelines

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and practices to tackle new ethical dilemmas.Researchers can successfully negotiate the challenges of contemporary research while upholding integrity and defending the rights and welfare of their subjects by comprehending and putting these ethical concepts and methodologies to use.

5.8 References and Suggested Readings

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Unit - 6

Application of Science in Social Research

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Unit Structure:

6.1 Introduction

Social science research basically deals with the problems of the society and therefore it studies human behaviour and human conduct. In this type of research, there is every possibility that the researcher is influenced by his biases and prejudices. Value plays important role in society. However, to make the study scientific it is necessary to obtain objectivity in the study. For that reason, various methods of social science research have been evolved.

This unit makes an attempt to discuss the role of value in social science research. It also discusses the problems in the way of achieving objectivity in social science research. Lastly, this unit gives you an idea about various methods for studying social problems scientifically.

6.2 Objectives

We have already learnt the nature of social science from the previous unit. As we know it is difficult to get accurate results in social science research since it deals with human behaviour and different problems faced by human beings in the society. Therefore, attempts have been made to remove the difficulties faced by social science researchers by adopting certain scientific methods. After reading this unit you will be able to:

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- *examine* the role of value in social science research
- *discuss* the role of objectivity in social science research
- *analyse* the methods of scientific research

6.3 Role of Value in Scientific Social Research

Before discussing the role of value in social science research you must have a clear idea about the meaning of value in social science research. You must have come across this term many times in your life. We often use the terms like value education, moral value, economic value etc. The term 'value' does not have a concrete meaning. It is an abstract generalised principle of behaviour expressed in concrete form in social norms to which the members of a group feel strong commitment (Ahuja.p: 48).

Thus, value stands for certain principles in the society which give direction to the individuals to behave as a member of the society. Values are also related to what is 'good' or 'bad' in the society. Hence, values are based on the norms of the society. From this perspective, it can be said that values are normative and varies from society to society depending upon the norms of the society.

Scientific research aims at presenting the findings without any bias and prejudices. In social science research value plays an important role since it deals with human society and human behaviour. There is every possibility that while doing research the researcher may get influenced by his prejudices and biases. Many scientific methods and techniques have been evolved to make social research scientific and value-free. According to Weber, if a researcher separates his daily life from his professional life, he can be free from biases and his research will be value free. Manheim (1977) on the other hand believes that 'value-free research is a desirable goal towards which social scientist can strive without any necessary expectation of actually attaining it. This becomes possible when the social scientist remains careful in choosing the problem of research and states what he finds, i.e, follows data wherever they lead, regardless of how much the conclusions may please or displease him or the research consumer.'

6.4 Objectivity in Scientific Social Research

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We have discussed in the previous section the role of value in social science research. It is already known to us that in comparison to natural sciences, it is difficult to obtain objectivity in social science research. It is because of the fact that in social science research human behaviour and attitudes are studied and it is difficult to detach individuals from personal views, conceptions, beliefs and their emotional attachments. Moreover, a researcher as a human being is influenced by the social, political, economic conditions and environments around him. Therefore, his attitude and approach can influence his study too.

Hence, we can say that it is difficult to achieve objectivity in social science research. Let us now discuss the reasons for those difficulties.

- *Emotional Values*: Social research studies social problems. As we know society is comprised of human beings who are often guided by emotional values. These emotional values are mainly shaped by cultural factors which are deeprooted. Therefore, it is difficult to detach both the researcher and respondents from their emotional values and biases.
- *Absence of Uniformity*: In natural sciences the subject of study behaves uniformly in the same environment. However, that uniformity is difficult to find in social science. Human behaviour varies from individual to individual. Therefore, even in a similar environment, different individuals may behave differently.
- *Complex Problems*: The problems dealt with by social sciences are complex societal problems. Most of the times, quantification is very difficult as there is no method to measure social beliefs, institutions and values. Thus, because of its qualitative nature, it becomes difficult to obtain objectivity in social science research.
- *Self-Interest*: As already mentioned, research in social sciences is carried on by individuals having some prejudices and values. While opting for a particular subject of study, the researcher is guided by self-interests. So, in certain situations when the results of the research do not suit the interest of the researcher, there is every possibility that he may make some changes or manipulate the data to get the desired result. Again, the respondents may also be hesitant to give proper

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and true information to the researcher because of their self-interests. Thus, self-interest of the researcher as well as the respondents may stand as an obstacle in the way of achieving objectivity in social science research.

- *Hurried Research*: Social science research deals with complex and complicated problems of the society. Moreover, some problems continue for a longer period of time. For example, a social movement may continue for decades and therefore to study that movement and draw a conclusion a researcher may need time. However, he cannot continue study for an indefinite period. In fact, he has to complete his study within a stipulated period. Therefore, the researcher is always in a hurry to finish his work and may miss certain important phases of the topic of study. In such a scenario, while drawing conclusion, there is every possibility that the researcher is guided by his intuitions and prejudices which again make it difficult to achieve objectivity.
- *Social and Moral Values*: The researcher as human being follows certain social norms and moral code of conduct. The social and moral values which are imbibed in him by his surrounding environment and family always guide his behaviour in the society. Therefore, it is difficult for the researcher to detach himself from these values to obtain objectivity and neutrality in research. Again, it is difficult for the researcher to refute the socially established values as well as moral code of conduct. Hence, when a researcher finds that his results are contradicting his values he may twist his research findings. Thus, these values stand as a barrier in the way of objectivity.
- *External Pressures and Vested Interests*: The researcher as a member of the society maintains different relationships. He may belong to different groups and communities at the same time. Sometimes it is difficult for him to refute the values of some influential persons of those groups even if they contradict his research findings. Moreover, some people with vested interests do not want any change in the society. Therefore, they discourage the findings that go against the established norms or disturb the status quo. These people having vested interests want that all research findings should meet their needs

and requirements. Sometimes, the researcher may also be pressurised not to make public his findings or to manipulate the findings. Such direct or indirect external pressures also stand in the way of objectivity.

- *Customs and Prevalent Notions*: Every society has its own customs and all members of the society follow them. Violating those customs implies going against the society. For that reason, it is difficult for a researcher to violate those well-established customs. Again, like customs, there are certain prevalent notions accepted by the larger society. People following/obeying those customs and prevalent notions conform to the norms of the society. Here also, the researcher faces various problems and oppositions from different quarters if he goes against those notions. As a result, social science research tends towards adopting subjectivity instead of objectivity.
- *Prejudices and Bias*: The prejudices and biases of the researcher as a social being stand in the way of obtaining objectivity in social science research. These prejudices and biases are developed in him with the passage of time. In case of quantitative study, these biases and prejudices do not play important role. But, as social science researches very often adopt qualitative approach, here prejudices and biases of the researchers play important role.

Thus, the factors discussed above stand in the way of achieving objectivity in social science research.

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Self Asking Question

Do you think a social science researcher can be free from emotional values, prejudices and biases? Discuss. (60 words)

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6.5 Methods of Scientific Social Research

We have already discussed in the previous unit that it is difficult to draw accurate conclusion and make generalization in social science research. It is because of the fact that social science research deals with human society

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replete with complex social problems and complicated human behaviour. However, efforts have been made to make the study of social sciences scientific by evolving certain methods that help in generalizations. It must be remembered here that all these methods have their merits as well as demerits. Therefore, sometimes more than one method is applied in a study to get proper data and draw almost accurate conclusions. Now in this section let us discuss the methods of scientific social research.

- ***Qualitative Method*:** Most of the times in social science research it becomes necessary to adopt qualitative approach. In social science research both primary and secondary data are collected and analyzed. Then conclusions are drawn and generalizations are made on the basis of factual data. However, in social science research observation method is applied. Hence, besides collecting data with the help of questionnaire and schedule, the observation of the researcher also plays an important role in social science research. Again, mere quantification of the collected data will not lead to conclusion as in social science research, quantification and analysis of collected data may not present the real picture. Therefore, the researcher uses qualitative approach to fill the gaps in the collected data too. However, this method has some serious problems. Adoption of qualitative method may make the research subjective. The researcher while observing the phenomena may be guided by his biases and prejudices. Hence, his analysis adopting qualitative method may not be proper.
- ***Quantitative Method*:** This method mainly takes into account the quantitative data. Therefore it is also known as statistical method. In this method, only the data which can be quantified is collected. This method is widely used since it helps in studying social problems scientifically. Bogardus is of the view that nothing else is important but mathematics applied to human facts. Statistical tool is used both in data collection as well as tabulation of data. Adoption of quantitative method helps in obtaining objectivity in social science research. If necessary and relevant data is collected and analysed properly, almost accurate conclusions can be drawn. However, this method also suffers from limitations. Its main drawback is that it does not take into account

quality of the units studied. Many social problems need to be studied with the help of qualitative approach too. These problems cannot be studied by quantitative methods. Many criticize the method as it deals with numbers only and not with causes.

Some Other Methods of Social Science Research:

- **Field Study Method:** In this method, the researcher goes to the field to investigate the problem. He contacts the people and visits the area to gather first hand knowledge of the problem he has taken up for study. Through the method of observation he collects first hand information from the field. The researcher gets the actual picture when he goes to the field. Therefore, this method helps in drawing accurate conclusions. However, the major difficulty in this method is that very few researchers want to go to the field and collect data. Many times, in studying social problems like riots and communal violence, it is difficult for the researcher to go to the field and collect data even if the researcher is willing to go to the field. Thus, field work becomes difficult when the field is not conducive for work. Moreover, the researchers may have to face various problems to carry out field investigation in unhygienic condition, deserts or jungles. They may even face various threats from different groups while collecting first hand information if the subject of study contradicts their interests.
- **Library Method:** This method was earlier considered as secondary method of research. With the help of this method the researcher gets an idea about the researches done earlier on that subject. It further gives suggestions and directions to the researcher about the work to be done on that very subject. Moreover, this method also helps in formulating theoretical framework on the basis of available theories which can either be refuted or accepted. The major drawback associated with this method is that it cannot suggest new area of study. It simply gives information about the existing studies and hence the researcher can analyses and interprete the already studied subjects only.
- **Experimental Method:** This method helps in studying the subject in a controlled situation. We are aware of the fact that since social sciences deal with the problems of society and human behaviour, it is difficult to

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use experimental method in social science research. This method is widely used in natural science where experiments can be conducted in laboratory too keeping the subject of study under control. But, in case of social science research the researcher cannot control the human conduct and behaviour. However, in certain cases experiments are carried out in social science research too. A researcher may take up a subject that is the result of a particular situation and study that which is not possible otherwise. Therefore, in limited number of cases this method is applied in social science research too. Since study is done in a particular situation, this type of research can give proper idea of that situation and make the study scientific.

- **Survey Method:** This method is one of the widely used methods in social science research. In this method, the researcher goes to the field to conduct a survey relating to his subject of study. On the basis of survey to collect the necessary data from the field, the researcher can draw conclusions. As opposed to experimental method, in this method the situation of study need not be controlled. Therefore, it is easier to adopt survey method to the study of the social problems and phenomena in social science research.
- **Case:** Study Method: In this method usually one case study is undertaken for study. The aim of the researcher opting for this method is to make a comprehensive and indepth study of the problem in all its entirety. According to Young the 'case study method may be defined as an all-inclusive and intensive study of an individual in which the investigator brings to bear all his skill and methods, or as a systematic gathering of enough information about a person to pursue one to understand how he or she functions as a unit of society'. With the help of this method a particular case or social problem can be studied scientifically. However, this method too has certain limitations. The major drawback of this method is that it is difficult to collect some information from the case under study if the information sough for is confidential in nature. The respondent may not feel comfortable to share certain information if he thinks that it may cause problems for him in near future. If the information collected about the case is not correct then the whole study becomes futile.

- **Questionnaire Method:** For studying social problems, the method of questionnaire is widely adopted by the researchers. In this method, a questionnaire having a set of questions is prepared by the researcher asking for information regarding the subject of research. Hence, the questionnaire is prepared in such a way that all aspects of the problem under study are covered in the questionnaire. These questionnaires are sent to respondents who are expected to fill them up. However, this method is also not free from defects. Sometimes questions in the questionnaire may be put in an ambiguous way which creates confusions for the respondents. Secondly, if the respondents do not take the questionnaire seriously, proper information cannot be obtained. Moreover, it may take more time than expected as the respondents may delay in answering the questionnaire. Nevertheless it must be remembered that the questionnaire method is widely adopted in social science research.
- **Schedule Method:** In this method, like questionnaire method, a set of questions are prepared seeking information regarding the subject of study. This method is also one of the widely adopted methods. The basic difference between questionnaire method and schedule method is that while in the case of the former method, the researcher/investigator sends the questionnaire to the respondents and it is filled up in his absence; in schedule method, the researcher/investigator himself is present in collecting the data from the respondents and personally makes the entries. The major drawback associated with this method of research is that the biases and prejudices of the researcher may influence him in filling up the questionnaire. In such situation, the research tends to be more subjective and losses its objectivity.
- **Interview Method:** In this method the researcher personally interviews the respondents seeking information on the subject of research. Hence the data collected with the help of this method is believed to be reliable and valid. Since the researcher himself is present in the interview it is possible for him to ask some probing questions and observe the situation and the mood of the respondent while replying to those questions. F. W. Kerlinger is of the opinion that the interview method is perhaps the most ubiquitous method of obtaining information from the people'. On

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the other hand Goode and Hatt are of the view that interviewing has become important in contemporary research because of reassessment of qualitative research. Thus, this method gives the opportunity to the researcher to observe the situation and verify the facts while taking the interview itself. It helps him in drawing proper conclusion. However, the drawback of this method is that if the researcher cannot establish rapport with the respondent it is difficult for him to collect the required information. Sometimes, the respondent may not take the researcher in confidence and may be hesitant to give correct information. Again, the respondent may not have time to sit for an interview and therefore he may prefer to send the answers in writing. This also creates problems for the researcher adopting interview method.

- **Empirical Method:** In empirical method, social problem is studied with reference to facts and efforts. Hence, efforts are made to find out the factual social order. In this method emphasis is put on the proper formulation of the problem of study as well as the hypotheses. Since, in this method empirical data is collected from the field, the investigator observes the phenomena or event either by direct or indirect participation. The researcher goes to the field and collects the data by adopting observation or interview or schedule method. Thus, the subject of study is empirically investigated in this method.
- **Evolutionary Method:** This method systematically studies the history of the problem undertaken for study. It also takes into account the background factors. This method is based on the presumption that origin of different social events is more or less similar and therefore it is possible to study these events in a systematic manner. Whatever changes are there they take place because of the situations and circumstances. Therefore, under similar circumstances differences may disappear. This method also assumes that if evolution of institutions can be systematically studied many social problems can be successfully analysed and solution can be found.
- **Comparative Method:** This method makes an attempt to compare growth, evolution, functioning as well as the problems of similar institutions of different societies as well as within the same society. After such

comparison it becomes possible to find out the differences in the institutions and causes for the emergence of those differences. With the help of this type of method one gets the picture why same institution contributed to the growth of social institutions in one area whereas it failed in other parts of the country. Comparative method is adopted in social research to identify the problems of different societies and the extent to which these are conducive to the growth of certain institutions or not.

- **Analytical Method:** Durkheim and Simmel first applied this method for studying social problems. While adopting this method it is presumed that certain ideals exist in the society and the duty of the researcher is to strengthen the presumption and disprove that. While studying the social problem, the researcher also studies the cause and effects of social events. This method is criticized on the ground that the social ideals are not uniform throughout the society and vary from society to society. Therefore, for the similar problems two researchers may find two different sets of causes and effects in different societies. Moreover, it is not easy to analyse the cause and effect relationship of every social problem because of their complexities. Again, it is difficult to isolate social causes and effects apart from political, economic or cultural effects since one factor is closely related to the other.
- **Sample Method:** Sampling method is widely used in social science research. Sampling method makes research easier for the researcher as it allows the researcher to take a smaller unit of the whole population. This method reduces the time and cost of research.
- **Verstehen Method:** This method tries to understand real meaning behind each information provided to the researcher. This method is based on the assumption that in society, our actions have some underlying implications or hidden meanings and objectives. Unless these are properly and reasonably followed and understood it is difficult to arrive at correct conclusions. Therefore, it is believed that through this method social problems can be properly analysed. However, it is not always possible to know the motive behind the actions of the individuals. Therefore, all social problems cannot be studied with the help of this method.

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- **Inter-disciplinary Research Method:** In the present time it is observed that it is difficult to study a social problem isolating it from other areas. Hence, no study is all- exclusive. There are close connections among different problems of the society. For a meaningful research it is necessary to have a comprehensive approach to the problem combining different disciplines together.

Check Your Progress

1. Discuss briefly the role of values in scientific social research.
2. What is objectivity? Discuss the factors that stand in the way of obtaining objectivity.
3. Discuss critically different methods of scientific social research.
4. What is qualitative method? How is it different from quantitative method?
5. Discuss the importance of questionnaire, schedule, case- study and analytical method in scientific social research.

6.6 Summing Up

After reading this unit you are now in a position to discuss the role of value in social research. For a scientific study, it is essential to obtain objectivity in the research. However, since social research discusses complex social problems and the researcher himself is a social being influenced and guided by the social customs and norms, it is difficult to obtain objectivity in this type of research. From this unit you have learnt the obstacles in the way of obtaining objectivity. Lastly, from this unit you have got a fair idea about various methods of social research which help in conducting the research scientifically.

6.7 Reference and Suggested Readings

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BLOCK : 2
RESEARCH AND THEORY BUILDING

Unit -1

Types of Research

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Unit Structure:

1.1 Introduction

Research is the process of thoroughly examining a subject or question by using accepted techniques in order to produce understanding about it. It is a pivotal instrument for the development of science as it enables researchers to validate or invalidate theories based on precisely defined conditions, settings and presumptions. This encourages to include ideas to the existing body of knowledge by facilitating the replication and verification of studies. Therefore, planning the study will be made easier with an understanding of the various kinds of research and their respective areas of concentration.

1.2 Objectives

After reading this unit, the student will be able to:

- Explain the different types of research
- Describe the advantages and limitations of different types of research methods
- Delineate these research methods based on its classifications and accordingly apply it in the appropriate manner

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- Develop a comprehensive understanding about the open-ended and close-ended approaches to research.

1.3 Types of Research

Being a systematic process of inquiry, research aims to generate new knowledge, solve problems, or deepen understanding within a particular field of study. It encompasses various approaches and methodologies, each tailored to address specific research questions and objectives. Understanding the different types of research is essential for researchers to select the most appropriate methods of inquiries. Broadly speaking, research can be categorized into several types based on its objectives, outcomes, logic, process, inquiry mode and idea.These approaches are not exclusive, moreover, the research is usually interdisciplinary. Hence depending on the subject area, the research should specialize in any one form of research as all the methods of research have their own advantages and disadvantages.

Types of Research:

SL No	Basis of classification	Types
1.	Objectives	a. Descriptive b. Correlational c. Explanatory d. Exploratory e. Experimental
2.	Outcome	a. Fundamental b. Applied
3.	Logic	a. Deductive b. Inductive
4.	Process	a. Quantitative b. Qualitative
5.	Inquiry Mode	a. Structured b. Unstructured
6.	Idea or concept	a. Conceptual b. Empirical

1.3.1 Based on Objectives

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1.3.1.1 Descriptive Research

The research that describes a situation, an event and an institution is descriptive research. It describes the nature of a situation as it exists at the time of the study. Descriptive research answers the questions who, what, where, when and how. In other words, it is a quantitative research method that describes the phenomenon, observing and drawing conclusions from it. Here the information is collected without changing the environment (nothing is manipulated), meaning that it is a non-experimental study that includes surveys and fact-finding enquiries to provide adequate interpretations. One of the best examples of such type of research is the National Sample Surveys (NSS) and census. Census enables to understand what exists, that was not necessarily known earlier with accuracy, such as population, literacy etc. For example, the study of the socio-economic status of distance education students in India describes the gender composition, rural-urban composition etc. The findings of such studies may reveal differences in the years in which it was conducted, say the study of 2010 might reveal different results from that of the similar study conducted in 2020. Thus, the descriptive research describes 'what exists' with respect to the variables or conditions in a situation. With regard to social science, often the term *Ex Post Facto research* is also used to describe the descriptive research studies.

Advantages of Descriptive Research:

- **Hypothesis Generation:** Descriptive research often serves as a precursor to more in-depth studies by generating hypotheses and research questions. By documenting observations, patterns and associations within the data, researcher can formulate hypotheses about potential causal relationships.
- **Naturalistic Observation:** it allows researchers to study phenomena in naturalistic settings without intervening or

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manipulating variables. Such observation provides valuable insights into real world attitudes and experiences, allowing research to capture the complexity and nuances of human behavior or social phenomena as they occur naturally.

- **Cost Effective:** compared to experimental research designs, descriptive research is often quicker and more cost effective to conduct. Surveys, observations, and archival analysis are relatively straightforward methods for collecting data, requiring fewer resources in terms of time, personnel, and funding. This makes descriptive research accessible to a wide range of researchers, including those with limited resources or time constraints.
- **Baseline Data:** Descriptive research often provides baseline data that serves as a foundation for future research or program evaluation. By establishing a baseline understanding of the current state of affairs, researchers can track changes over time, evaluate the effectiveness of interventions or policies, and monitor trends or progress towards goals. This longitudinal perspective enhances the value and utility of descriptive research findings.

Limitations of Descriptive Research:

- Limited in its ability to establish causal relationships.
- Susceptible to bias or errors in data collection, especially in observational studies.
- Findings may lack generalizability beyond the specific sample or context studied.
- Cannot address complex or dynamic phenomena that require experimental manipulation.

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Ex post facto research, also known as causal-comparative or retrospective research, is a methodological approach used to explore the relationship between variables when manipulation of the

independent variable is not feasible or ethical. This research design is characterized by its retrospective nature, focusing on past events or conditions and examining their potential effects on the dependent variable. While ex post facto research cannot establish causality definitively, it offers valuable insights into potential causal relationships and informs theoretical frameworks or practical interventions. Despite its strengths, ex post facto research has limitations, including challenges in controlling for confounding variables and potential biases in retrospective data collection.

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1.3.1.2 Correlational Research

The purpose of correlational studies is to explore whether there is any relationship or interdependence between two variable or characteristics, and to ascertain the degree of such relationships. One of its primary characteristics is its focus on exploring the extent and direction of relationships between variables, allowing researchers to quantify the strength of associations. Through quantitative analysis using statistical techniques like correlation coefficients and regression analysis, correlational research examines how changes in one variable correspond to changes in another variable. An example of such type of research involves studying the relationship between socioeconomic status and academic achievement among high school students. Researchers may collect data on variables such as family income, parental education level and household resources as indicators of socioeconomic status and measure academic achievements using variables such as GPA, standardized test scores or graduation rates.

Advantages of Correlational Research:

- **Identifying Relationships:** Correlational research allows researchers to identify and quantify relationships between variables, providing insights into patterns, trends and associations in the data.

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- **Exploratory Analysis:** It is exploratory in nature, allowing researchers to generate hypotheses and identify potential areas for further investigation. It serves as a starting point for more in depth research inquiries.
- **Ecological Validity:** correlational research is conducted in naturalistic settings, enhancing the ecological validity of findings.

Limitations of Correlational Research

- **No Causality:** It cannot establish casualty or determine the direction of relationships between variables. Correlations may be influenced by third variables or alternative explanations that are not accounted for in the analysis.
- **Confounding Variables:**Correlational studies are susceptible to confounding variables or extraneous factors that may influence the relationship between variables. Researchers must control for confounds to strengthen the validity of their findings.
- **Restricted Generalizability**: Correlational findings may have limited generalizability beyond the specific sample or context studied. The strength and direction of correlations may vary across different populations or settings.

1.3.1.3 Explanatory Research

Explanatory research is a type of research methodology that is aimed at identifying causal relationship between variables. Unlike the descriptive research, which primarily focuses on describing phenomena or relationships, explanatory research seeks to explain why certain phenomena occur or how variables are related in a cause-and-effect manner. In other words, it aims to determine whether changes in one variable (the independent variable) cause changes in another variable (the dependent variable). Such type of research often employs experimental or quasi-experimental designs to manipulate the independent variable and asses the impact on the

dependent variable. Explanatory research typically involves quantitative data analysis, using statistical techniques to assess the strength and significance of relationships between variable. For example, why examination related stress leads to rote learning? Why and how stress leads to heart disease?

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Advantages of Explanatory Research

- **Causal inference:** Explanatory research allows researchers to establish causal relationships between variables, providing insights into why certain phenomena occur or how variables are related.
- **Theory Development:** Explanatory research contributes to theory development by testing theoretical hypotheses and refining theoretical frameworks.
- **Practical Applications:** Findings from explanatory research have practical applications in various fields, including healthcare, education, business, and public policy, informing decision-making and intervention strategies.

Limitations of Explanatory Research

- **Complexity and resource intensiveness:** Explanatory research designs can be complex and resource-intensive, requiring careful planning, execution, and analysis.
- **Ethical considerations:** Some research questions in explanatory research may raise ethical concerns, particularly when experimental manipulation involves human participants or sensitive topics.
- **External Validity:** Findings from explanatory research may lack external validity or generalizability beyond the specific context or sample studied.

1.3.1.4 Exploratory Research

It is generally done in the beginning of a research that serves as an invaluable avenue for delving into new or underexplored areas within

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a given field. It is a flexible and open-ended approach that is typically conducted using qualitative methods like interviews, focus groups, or observations. Exploratory research allows the researchers to glean rich, nuanced data from participants. Such research involves preliminary analysis of data to identify patterns, themes or trends that may warrant further investigation. This analysis serves as a foundation for developing hypotheses or refining research questions in subsequent studies. While exploratory research may lack the statistical rigor of quantitative designs, its strength lies in the depth of understanding it provides, often serving as a springboard for further investigation. An example of exploratory research would involve studying the impact of emerging technology on workplace dynamics and employee productivity. Researchers might use qualitative methods such as interviews or focus groups to explore employees' perceptions, experiences, and challenges related to the adoption of new technologies in the workplace. Through these discussions, researchers could uncover various factors influencing employees' attitudes towards technology, including training and support, organizational culture and concerns about job security.

Advantages of Exploratory Research

- **Flexibility and adaptability:** Exploratory research allows researchers to adapt their research questions, methods, or approaches based on emerging findings or unexpected insights.
- **Rich, in-depth data:** Qualitative methods used in exploratory research, such as interviews and focus groups, provide rich, in-depth data that capture participants' experiences, perspectives, and beliefs.
- **Hypotheses Generation:** Exploratory research generates hypotheses or research questions for further investigation, laying the groundwork for subsequent research studies.
- **Understanding complex phenomena:** Exploratory research helps researchers gain a deeper understanding of

complex or multifaceted phenomena by exploring diverse viewpoints and uncovering underlying dynamics.

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Limitations of Exploratory Research

- **Limited Generalizability:** Findings from exploratory research may have limited generalizability beyond the specific context or sample studied due to the qualitative nature of the data and the small sample sizes often used.
- **Subjective and bias:** Qualitative methods used in exploratory research, such as interviews and focus groups, are susceptible to subjectivity and bias in data collection and analysis.
- **Time and resource intensive:** Exploratory research can be time and resource-intensive, particularly when using qualitative methods that require extensive data collection and analysis.
- **Validity concerns:** Validity concerns, such as researcher bias or participant response bias, may arise in exploratory research, requiring researchers to use rigorous methodological techniques to enhance the validity of findings.

1.3.1.5 Experimental Research

Experimental research represents a cornerstone in scientific inquiry, offering a rigorous methodological framework for investigating cause and effect relationship between variables. At its core, experimental research involves deliberate manipulation of one or more independent variables while controlling for extraneous factors, with the aim of observing the resultant effects on dependent variables. This manipulation allows the researchers to establish a causal link between the variables under investigation, offering invaluable insights into the underlying mechanisms governing phenomena of interest. Central to the experimental approach is the concept of random assignment, which ensures that participants are assigned to different experimental

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conditions in a manner that minimizes bias and enhances the internal validity of the study. Through systematic data collection and quantitative analysis, experimental research can test hypotheses, assess the significance of observed differences and draw conclusions about the relationship between variables. For example, researcher might test a new teaching method by randomly assigning students to two groups: one taught traditionally, the other with the new method. By comparing their learning outcomes, they can determine of the new method is more effective.

Advantages of Experimental Research

- **Establishing cause and effect relationships:** Experimental research allows researchers to establish cause-and-effect relationships between variables by manipulating the independent variable and controlling for extraneous variables.
- **Controlled conditions:** Experimental research enables researchers to control for confounding variables and isolate the effects of the independent variable on the dependent variable.
- **Replicability:** Experimental studies are often highly replicable, allowing other researchers to reproduce the findings and verify the validity of the results.
- **Qualitative analysis:** Experimental research lends itself to quantitative analysis, providing numerical data that can be analyzed using statistical techniques to test hypotheses rigorously.

Limitations of Experimental Research

- **Ethical constraints:** Some research questions in experimental research may raise ethical concerns, particularly when manipulating variables or using deception with human participants.

- **Resource intensive:** Experimental research can be time-consuming and resource-intensive, requiring careful planning, execution, and analysis.
- **Generalizability:** Findings from experimental research studies may have limited generalizability beyond the specific experimental conditions or sample studied.

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Check Your Progress

Multiple Choice Questions:

1. Fieldwork based research is classified as
   a. Empirical
   b. Historical
   c. Experimental
   d. Descriptive

2. The researcher that applies the laws at the time of field study to draw more and more clear ideas about the problem is
   a. Applied research
   b. Action research
   c. Experimental research
   d. None of the above

3. The strongest evidence for causality comes from which of the following research methods?
   a. Experimental
   b. Causal-comparative
   c. Correlational
   d. Exploratory

4. The study in which investigators attempt to trace an effect is known as
   a. Survey research
   b. Ex post facto research
   c. Historical research
   d. Summative research

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5. Which research approach is the most appropriate to establish a relationship that is causal in nature?
   a. Causal-comparative
   b. Experimental
   c. Correlational
   d. Descriptive

1.3.2 Based on Outcomes

1.3.2.1 Fundamental Research

Basic research, also known as pure or fundamental research, seeks to expand the existing knowledge base by investigating fundamental principles and theories, often conducted in academic settings without immediate practical applications. Hence, it is the discovery and the development of an organized body of scientific knowledge. Here, the scientists engage in theoretical inquiries, mathematical modelling or empirical investigations conducted in controlled laboratory settings. While the outcomes of fundamental research may not have immediate practical applications, they lay the groundwork for future applied research and technological innovations. For example, gender studies examine the social construction of gender roles, identities and inequalities within societies. Basic research may investigate topics such as gender stereotypes, gender socialization, gender discrimination and the intersectionality of gender with other social categories such as race, class and sexuality.

Advantages of Fundamental Research:

- **Interdisciplinary collaboration:** Fundamental research encourages collaboration across disciplines, fostering the exchange of ideas and methodologies between scientists from different fields. This interdisciplinary approach can lead to novel insights and approaches to complex scientific problems.
- **Long term impact:** While the practical applications of fundamental research may not be immediately apparent, its

long-term impact can be profound. Fundamental discoveries have the potential to revolutionize industries, address societal challenges, and improve the quality of life for future generations.

- **Innovation and technological development:** Fundamental research often leads to unexpected discoveries and breakthroughs that have the potential to drive innovation and technological development. These discoveries may inspire new technologies, products, or processes with practical applications in various industries.

Limitations of Fundamental Research:

- **Resource Intensive:** Fundamental research can be resource-intensive, requiring significant investments of time, funding, and expertise. Conducting experiments, collecting data, and analyzing results may require sophisticated equipment and infrastructure.
- **Risk of failure:** Fundamental research involves exploring unknown territory, which inherently carries risks of failure or inconclusive results. Not all research endeavors will yield significant discoveries, and some may fail to produce the desired outcomes despite substantial investments of resources.
- **Ethical considerations:** Certain areas of fundamental research may raise ethical concerns, particularly when experiments involve human participants, animals, or the environment. Researchers must adhere to strict ethical guidelines and regulations to ensure the welfare and rights of all stakeholders involved.

1.3.2.2 Applied Research

In contrast, applied research is directed towards addressing specific practical problems, developing innovations or informing policy and decision making. It is always done according to basic research and can be carried out by academic or industrial institutions. Applied

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research often takes the form of a field investigation aims at collecting the basic data for verifying the applicability of existing theories and models in given situation. For example, applied research in education involves designing and evaluating educational programs, curricula, and teaching strategies to enhance students learning outcomes. Researchers may conduct studies to assess the effectiveness of different instructional methods or interventions for diverse student populations.

Advantages of Applied Research

- **Immediate impact:** Unlike fundamental research, which may have long-term implications, applied research often yields immediate benefits and tangible outcomes. Its findings can be readily implemented to improve processes, products, or services, leading to positive changes in various domains, including healthcare, education, technology, and public policy.
- **Collaboration with stakeholders:**Applied research typically involves close collaboration with stakeholders, such as industry partners, policymakers, and community organizations. This collaboration ensures that research priorities are aligned with the needs and interests of end-users, enhancing the relevance and effectiveness of the research outcomes.
- **Validation of theories:** Applied research provides opportunities to test and validate theories and concepts developed in fundamental research within real-world contexts. By applying theoretical knowledge in practical settings, researchers can evaluate its applicability, effectiveness, and generalizability, contributing to the advancement of scientific understanding.

Limitations of Applied Research

- **Narrow focus:** Applied research tends to have a narrow focus on specific problems or questions, which may limit

its generalizability to broader contexts. While it produces actionable insights for targeted issues, its findings may not be applicable to unrelated situations or populations.

- **Short term orientation:** Applied research often prioritizes short-term outcomes and immediate solutions, which may overlook long-term implications or unintended consequences. Researchers may face pressure to deliver quick results, potentially sacrificing thoroughness or depth of analysis.
- **Resource constraints:** Applied research projects may be constrained by limited resources, including funding, time, and expertise. Researchers must balance the need for rigorous methodology and comprehensive data collection with practical considerations and resource limitations.

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Besides the two research (basic and applied), there is a third type of research called the Action research which is particularly used in schools, healthcare facility, community organizations or workplace. Action research is a dynamic and collaborative approach to inquiry that bridges the gap between theory and practice by actively engaging researchers and practitioners in the process of problem solving and change making. At its core, action research is characterized by participatory approach. Throughout the implementation process, data is collected through various methods, including observations, interviews, surveys and document analysis. Further, action research emphasizes continuous learning, adaptation, and improvement with researchers and practitioners collaboratively refining their interventions based on ongoing feedback and evaluation. In a nutshell, it embodies the spirit of applied inquiry, blending rigorous research methodologies with practical action to address pressing social, educational, healthcare and organizational challenges.

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1.3.3 Based on Logic

1.3.3.1 Inductive Research

Inductive research involves a bottom-up approach to understanding phenomena. In this method, researchers start with specific observations or data points and the seek to identify patterns, themes, or general principles that emerge from the data. Unlike the deductive research, inductive allows for a more exploratory and open-ended approach to a topic. It is particularly useful when studying complex ideas, as it allows the researchers to uncover new insights and generate hypotheses for further investigation. Inductive research often involves qualitative data collection methods such as interviews, observations, or content analysis which provide a source for a rich, detailed information that can be analyzed for commonalities and themes. Once patterns have been identified, researchers can develop new theories to explain the observed phenomena, which can be tested through further research. For example, a team interviews people with chronic pain, discovers themes like mental health impact and health care challenges and builds a framework from these findings to understand chronic pain better, leading to further studies.

Advantages of Inductive Research

- **Exploration and discovery:** It allows researchers to explore complex phenomena without preconceived hypotheses, fostering a deeper understanding of the subject matter.
- **Flexibility:** Inductive research methods are adaptable to various research contexts and can accommodate unexpected findings or change in direction.
- **Theory development:** Inductive research contributes to theory development by generating new hypotheses, concepts, or theoretical frameworks based on empirical observations. It can help refine existing theories or develop new ones to better explain phenomena.

- **Holistic understanding:** Inductive research encourages researchers to consider multiple factors or variables that may influence outcomes, leading to a holistic understanding of complex phenomena.

Limitations of Inductive Research

- **Limited generalizability:** Inductive research often involves small, non-representative samples or specific contexts, which may limit the generalizability of findings to broader populations or settings.
- **Time and resource intensive:** Inductive research can be time-consuming and resource-intensive, particularly when collecting and analyzing qualitative data. Researchers must allocate sufficient time and resources to ensure thorough analysis.
- **Difficulty establishing causality:** Inductive research focuses on describing patterns or relationships in data rather than establishing causality. It may be challenging to determine causality or identify the direction of effects based solely on inductive analysis.

1.3.3.2 Deductive Research

Deductive research represents a structured and theory driven approach to scientific inquiry, characterized by the formulation of specific hypotheses derived from existing theories or theoretical framework. At its core, deductive research follows a top-down trajectory, starting with general theories and narrowing down to specific observations or predictions that can be empirically tested. Researchers begin by formulating hypotheses based on theoretical propositions, which serves as a foundation for designing research studies and collecting empirical data. Through carefully designed experiments, surveys or observational studies, researchers gather data to systematically test these hypotheses, employing quantitative methods to measure variables precisely and analyze data statistically.

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The aim of deductive research is to verify or validate existing theories by confirming the predictions derived from empirical evidence. For example, a researcher might start with the hypothesis that "regular exercise improves mental health." They would the design a study where the participants are randomly assigned to either an exercise group or control group. After a period of time, the researcher would measure participants' mental health using standardized psychological assessments. If the exercise group shows significantly better mental health outcomes compared to the control group, it would provide empirical support for the hypothesis derived from the existing theory that regular exercise improves mental health.

Advantages of Deductive Research

- **Rigorous testing:** Deductive research allows for rigorous testing of hypotheses using systematic observation and empirical evidence.
- **Generalizability:** If hypotheses are supported by empirical evidence, findings from deductive research can be generalized to broader populations or contexts.
- **Contribution to theory:** Deductive research contributes to the advancement of scientific knowledge by validating or refining existing theories and generating new insights.

Limitations of Deductive Research

- **Limited exploration:** Deductive research may limit exploration of new phenomena or alternative explanations, as it starts with preconceived hypotheses derived from existing theories.
- **Potential for confirmation bias:** Researchers may be prone to confirmation bias, favoring data that confirm their hypotheses while disregarding contradictory evidence.
- **Difficulty in theory development:** Deductive research may not be conducive to theory development, as it relies on existing theories rather than allowing for the emergence of new hypotheses from empirical observations.

Check Your Progress:

Multiple Choice Questions

6. Action research is
   a. Applied research
   b. A research carried out to solve immediate problems
   c. A longitudinal research
   d. Simulative research
7. Fundamental research is usually carried out in
   a. Classroom
   b. Field setting
   c. Laboratory conditions
   d. Social setting
8. Fundamental research reflects the ability to
   a. Synthesize new ideas
   b. Expound new principles
   c. Evaluate the existing materials concerning research
   d. Study the existing literature regarding various topics
9. The qualitative research is usually
   a. Deductive in nature
   b. Inductive in nature
   c. Deductive or inductive in nature
   d. None of the above
10. The main difference between basic research and applied research lies in
   a. Basic process
   b. Sample size
   c. Utility
   d. All of the above

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1.3.4 Based on Process

1.3.4.1 Quantitative Research

Quantitative research is a systematic approach to inquiry that focuses on collecting and analyzing numerical data to understand phenomena, establish pattern and test hypotheses. This method

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emphasizes the use of quantifiable measures and statistical analysis to derive empirical evidence and draw conclusions about the relationship between variables. In such type of research, researcher typically start with a clear question and design a study that allows for a systematic collection of data using structured instruments such as surveys, questionnaires or experiments. These instruments are often designed to gather data on predefined variables, which can be measured objectively and analyzed using statistical techniques. Quantitative research often involves large sample size to ensure statistical power and generalizability of findings to the broader population. The findings of quantitative research are often presented in numerical form, such as tables, charts, graphs to facilitate interpretation and communication of results. For example, a researcher might investigate the relationship between study time and exam scores among college students. They would design a survey asking students about their study habits and the collect data on the number of hours they spend studying each week and their exam scores. Using statistical analysis, such as correlation or regression, the researcher could determine if there is a significant relationship between study time and exam scores. This exam demonstrates how quantitative research uses numerical data and statistical analysis to test hypotheses and uncover patterns or relationships between variables.

Advantages of Quantitative Research:

- **Objectivity:** Quantitative research relies on numerical data and statistical analysis, which allows for objective measurement and analysis of variables, reducing the influence of bias or subjectivity.
- **Replicability:** Quantitative research methods are often standardized and replicable, enabling other researchers to replicate the study and verify the findings, thereby increasing the reliability of results.

- **Precision and accuracy:** Quantitative research enables precise measurement of variables and accurate analysis of relationships between variables, allowing researchers to make valid conclusions about cause-and-effect relationships.
- **Statistical analysis:** Quantitative research methods facilitate sophisticated statistical analysis, allowing researchers to test hypotheses, identify patterns, and make predictions with a high degree of confidence.

Limitations of Quantitative Research

- **Limited depth:** Quantitative research often focuses on numerical data and statistical analysis, which may limit the depth of understanding or overlook qualitative aspects of phenomena, such as context or meaning.
- **Potential for oversimplification:**Quantitative research may oversimplify complex phenomena by reducing them to quantifiable variables, potentially overlooking important nuances or complexities.
- **Lack of contextual understanding:** Quantitative research may lack contextual understanding, as it focuses primarily on numerical data and statistical analysis, potentially overlooking the social, cultural, or historical contexts that influence phenomena.

1.3.4.2 Qualitative Research

Qualitative research is a methodological approach that aims to understand and explore complex phenomena through the collection and analysis of non-numerical data. It is characterized by its depth, richness and contextual understanding, seeking to uncover the meanings, experiences and perspectives of individuals or groups within their natural settings. Unlike the quantitative research, which focuses on numerical data and statistical analysis, qualitative research uses qualitative data collection methods such as interviews,

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observations, focus groups to gather information about the event. Researchers may adopt an inductive approach in qualitative research allowing theories to develop from the data rather than testing preconceived hypotheses. Such type of research is particularly suited for exploring complex social, cultural or psychological phenomena, shedding light on the subjective experiences, perspectives and meanings that quantitative methods may overlook. For example, researchers might explore the experiences of cancer survivors through in-depth interviews. They would ask open ended questions about their journeys, emotions and coping mechanisms allowing survivors to share their stories in their own words.

Advantages of Qualitative Research:

- **Flexibility:** Qualitative research methods are flexible and adaptable, allowing researchers to adjust their approach based on emerging findings or unexpected insights, fostering creativity and innovation in the research process.
- **Subjective understanding:** Qualitative research provides a subjective understanding of phenomena, capturing the lived experiences, perspectives, and meanings of individuals or groups within their natural contexts.
- **Holistic perspective:** Qualitative research enables researchers to explore phenomena from multiple perspectives, considering social, cultural, and historical contexts, which contributes to a holistic understanding of the phenomenon under study.

Limitations of Qualitative Research:

- **Subjective and interpretation bias:** Qualitative research relies on researchers' interpretations of qualitative data, which may be influenced by their own perspectives, biases, or preconceptions, potentially leading to interpretation bias.

- **Time and resource intensive:** Qualitative research can be time-consuming and resource-intensive, particularly in data collection and analysis, requiring careful planning, organization, and analysis of qualitative data.
- **Ethical considerations:** Qualitative research may raise ethical considerations, particularly regarding issues such as confidentiality, anonymity, informed consent, and potential harm to participants, requiring careful attention to ethical guidelines and protocols.

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1.3.5 Based on Inquiry Mode

1.3.5.1 Structured Research

Structured research refers to a systematic approach to inquiry characterized by predefined procedures, standardized data collection instruments, and quantitative analysis methods. In structured research, researchers follow a predetermined research design and employ standardized tools such as surveys, questionnaires, or experiments to collect data from participants. These instruments typically consist of closed-ended questions or predetermined response options, allowing for efficient data collection and uniformity across participants. Structured research often prioritizes objectivity, replicability and generalizability, as it aims to produce reliable and comparable data that can be analyzed quantitatively to test hypotheses. The research process is highly organized, with clear steps for sampling, data collection, analysis and interpretation. For example, a survey asking people to rate their satisfaction with a product on a scale of 1 to 5. The researcher then analyzes these ratings to understand overall satisfaction levels and any patterns across different demographics. This structured approach allows for clear and standardized data collection and analysis.

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Advantages of Structured Research:

- **Clarity and consistency:** Structured research provides clear and consistent procedures for data collection and analysis, ensuring uniformity across participants and studies.
- **Efficiency:** With predefined instruments and procedures, structured research allows for efficient data collection and analysis, saving time and resources.
- **Objectivity:** Structured research minimizes the influence of researcher bias or subjectivity by using standardized tools and procedures.
- **Quantitative analysis:** Structured research enables quantitative analysis, allowing researchers to test hypotheses, identify patterns, and make statistical inferences.

Limitations of Structured Research:

- **Oversimplification:** Structured research may oversimplify complex phenomena by reducing them to predefined variables or response options, potentially overlooking important nuances.
- **Limited flexibility:** The structured nature of research protocols may limit flexibility in responding to unexpected insights or adjusting research procedures based on emerging findings.
- **Potential for Biases:** Despite efforts to minimize bias, structured research may still be susceptible to biases introduced by the design of instruments or the interpretation of data.

1.3.5.2 Unstructured Research

Unstructured research refers to an exploratory approach to inquiry that lacks predefined procedures or standardized data collection instruments. In unstructured research, researchers often start with a broad research question or topic of interest and then explore it in an open-ended manner, allowing for flexibility and adaptability

throughout the research process. This approach may involve qualitative data collection methods such as open-ended interviews, observations, or document analysis, where researchers gather rich, detailed information without imposing predetermined categories or response options. Unlike structured research, which follows a rigid protocol, unstructured research allows for a more organic and emergent process, where insights emerge from the data itself. For example, a researcher might conduct open-endedinterviews with community members to explore their experiences with a local environmental issue. Rather than using predefined questions, the researcher allows participants to share their perspectives freely.

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Advantages of Unstructured Research:

- **Flexibility:** Unstructured research allows researchers to adapt their approach based on emerging insights or unexpected findings, providing flexibility to explore complex phenomena in-depth.
- **Richness in data:** By using open-ended methods such as interviews or observations, unstructured research can generate rich, detailed data that captures the complexity and nuances of the phenomenon under study.
- **Exploratory nature:** Unstructured research is well-suited for exploratory inquiries or situations where little is known about the topic, as it allows researchers to uncover new insights and generate hypotheses for further investigation.
- **Contextual understanding:** Unstructured research enables researchers to gain a deep understanding of the context in which the phenomenon occurs, including social, cultural, and environmental factors that may influence it.

Limitations of Unstructured Research:

- **Subjectivity and bias:** Unstructured research may be susceptible to researcher bias or subjectivity, as interpretations of data are influenced by researchers' perspectives, experiences, and preconceptions.

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- **Difficulty in analysis:** The qualitative nature of unstructured data can make analysis challenging, as researchers must navigate large volumes of unstructured data and interpret subjective responses.
- **Resource intensive:** Unstructured research can be time-consuming and resource-intensive, requiring extensive data collection, analysis, and interpretation efforts compared to structured methods.

1.3.6 Based on Idea

1.3.6.1 Conceptual Research

It is a form of inquiry that focuses on exploring theoretical concepts, ideas or constructs without necessarily relying on empirical data collection or experimentation. Conceptual research is primarily concerned with the development, refinement or exploration of theories, models, or framework. Here, the researchers may engage in activities such as literature reviews, theoretical analysis, or conceptual synthesis to deepen the understanding, clarify definitions, or propose new conceptualizations of phenomenon. This type of research often involves critical thinking, theoretical reasoning and intellectual creativity to explore complex ideas and advance theoretical knowledge. Conceptual research is prevalent in fields such as philosophy, sociology, psychology and education, where theoretical frameworks and conceptual models play a central role in understanding human behavior, social phenomena, and organizational dynamics. An example of conceptual research could be a philosophical inquiry into the nature of justice. Rather than conducting experiments or collecting data, the researcher might analyze existing theories, historical texts and philosophical arguments to develop a deeper understanding of the concept of justice, its various interpretations and its implications for society.

Advantages of Conceptual Research:

- **Theoretical Advancement:** Conceptual research contributes to the advancement of theoretical knowledge

by providing insights into complex ideas, constructs, or phenomena.

- **Innovation:** Conceptual research encourages creativity and intellectual exploration, fostering the development of new theoretical frameworks or conceptual models.
- **Depth in analysis:** Conceptual research enables in-depth analysis and synthesis of existing theories, facilitating a deeper understanding of complex concepts or phenomena.

Limitations of Conceptual Research:

- **Lack of Empirical Validation:** Conceptual research does not involve empirical data collection or testing of hypotheses, which may limit its credibility or applicability in practical contexts.
- **Subjectivity:** Conceptual research relies on the interpretation and analysis of existing literature or theories, which may be influenced by researchers' biases or perspectives.
- **Difficulty in measurement:** Conceptual research often deals with abstract or complex concepts that may be difficult to operationalize or measure, limiting the feasibility of empirical testing or validation.
- **Limited generalizability:** Findings from conceptual research may not always be generalizable to real-world situations or diverse populations, as they are based on theoretical constructs rather than empirical evidence.

1.3.6.2 Empirical Research

Empirical research is a systematic and structured approach to inquiry that relies on observation and experimentation to gather data and test hypotheses. It is grounded in the principles of empiricism, which emphasize the importance of evidence derived from sensory experience and observation. In empirical research, researchers seek

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to answer questions or solve problems by collecting and analyzing data from the real world. This often involves designing studies, conducting experiments or administering surveys to gather empirical evidence that cab be systematically analyzed and interpreted. The hallmark of empirical evidence is its reliance on observable, measurable data that can be subjected to rigorous analysis using quantitative or qualitative methods. Quantitative methods involve numerical data analysis, statistical tests and mathematical modelling to test hypotheses and make predictions, while qualitative methods involve the collection and analysis of non-numerical data such as interviews, observations or textual; analysis to explore subjective experience and meanings. Empirical research plays a crucial role in generating knowledge, informing decision- making, and advancing understanding across various fields, including science, social science, healthcare and technology. An example for empirical research could be a study examining the relationship between parental involvement and academic achievement in children. By analyzing the relationship between the two, researchers could determine whether there is a significant correlation between the two variables.

Advantages of Empirical Research:

- **Limited contextual understanding:** Empirical research may prioritize quantifiable data and overlook contextual factors that can influence the phenomena under study.
- **Ethical constraints:** Some research questions may raise ethical concerns, such as those involving human subjects or sensitive topics, limiting the feasibility of empirical research.
- **Time and resource constraints:** Empirical research can be time-consuming and resource-intensive, requiring careful planning, data collection, and analysis.
- **Potential for bias:** Despite efforts to minimize bias, empirical research may still be influenced by factors such as researcher bias, measurement error, or sample selection bias.

Check Your Progress

11. Differentiate between qualitative and quantitative research approach.
12. What are the different types of research based on inquiry.
13. "Empirical research in India in particular creates so many problems for the researchers." State the problems that are usually faced by the researchers in this regard.
14. Mention the various avenues in which deductive and inductive method of research is used.
15. Write a short note on action research.

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1.4 Summing Up

In summary, this chapter explored the various types of research methodologies employed in academic and scientific inquiry. It describes the different types of research methods that are used based on the need to the researchers. While each of these research methods has its own strength and when used appropriately may yield a definitive result, however, they are not devoid of their limitations as well. The chapter is an effort to highlight both the advantages and limitations of such methods so that the students are well equipped with its usage.

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Unit - 2

Various Steps in Research

Unit Structure:

2.1 Introduction

Just as one plans a journey by determining the destination and the route to take, researchers begin by identifying the research question or problem they want to address. This is akin to deciding where you want to go. Once the research question is established, researchers must determine how to go about finding answers. This involves selecting appropriate research methodology, which serves as path to uncovering the answers to the research questions. Much like choosing the best route to reach a destination, researchers must consider which methodology will be most suitable for addressing their research question. Through out this research process, the researchers navigate the steps that aim to find the answers to the research questions. And this each step is similar to the milestone on the journey, bringing researcher closer to their goals and contributing to the body of knowledge in their filed. Hence, the unit will aim to familiarize the important steps that are needed for conducting research.

2.2 Objectives

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After reading the unit, students will be able to:

- Identify the various steps involved in the research process.
- Apply the theoretical knowledge into use for practical applications
- Understand the importance of each step into making a good research paper

2.3 Steps in Research

As the goal of a research is to explore the truth and further deepen the understanding of various phenomena and in order to achieve this goal, researchers employ methods that are characterized by systematic inquiry and rigorous investigation. The research process entails a series of actions and steps that are necessary for conducting effective research. Following these steps, a researcher can ensure that the work is carried smoothly with minimal difficulty. While each step in the research process is crucial for generating reliable and valid findings in order to contribute to the advancement of knowledge in respective fields, however, these steps are not mutually exclusive, nor they are separate and distinct. They do not follow each other in any specific order and the researcher has to anticipate in each step of the research process.

The various steps involved in the research process are:

1. Formulating the research problem
2. Literature review
3. Developing the hypothesis
4. Preparing research design
5. Determining sample design
6. Collecting the data
7. Analysis of data
8. Hypothesis testing
9. Generalization and interpretation
10. Preparation of report

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2.3.1 Formulating the Research Problem

Formulating a research problem is a crucial initial step in any research endeavor, setting the direction and scope of the study. It involves a systematic process of identifying a specific gap, issue or question within a chosen field of inquiry. At the very outset the problem may be stated in a broad general way and then the ambiguities, if there are any, relating to the problem must be resolved. Therefore, formulation of a general topic into a specific research problem constitutes the first step in a scientific enquiry. Essentially, there are two steps which are followed in formulating the research problem, firstly, one should understand the problem clearly and secondly, rephrase the same problem in a meaningful term for further analysis. A well-defined research problem is characterized by several attributes:

- **Specificity:** The research problem should be clearly and precisely articulated, avoiding ambiguity or vagueness. It should clearly delineate the boundaries of the study and the specific aspect of the topic under investigation.
- **Relevance:** The research problem should be relevant to the field of study and aligned with current theoretical frameworks, debates, or practical concerns. It should address a significant question or issue that has implications for theory, practice, or policy.
- **Feasibility:** The research problem should be feasible to investigate given the resources, time, and constraints of the study. Researchers should consider whether the research problem is realistic and achievable within the scope of the study.
- **Novelty:** While the research problem may build on existing literature and knowledge; it should also contribute something new or innovative to the field. It should offer a fresh perspective, new insights, or novel approaches to addressing the issue.
- **Importance:** The research problem should be of substantive importance, addressing a question or issue that has implications for advancing knowledge, understanding phenomena, or solving practical problems.

In a nutshell, the research problem serves as the driving force behind the research study, guiding the formulation of research questions, hypotheses,

methodology and interpretation of findings. It provides a clear focus and rationale for the study, ensuring that the research contributes meaningfully to the body of knowledge within the chosen field.

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2.3.2 Literature Review

An extensive literature review is an integral component of any research project, serving as a comprehensive synthesis and evaluation of existing scholarly literature relevant to the research topic or question. It involves systematically searching, reviewing and analyzing a wide range of academic sources, including peer-review articles, books, dissertations and conference proceedings. The primary goal of a literature review is to provide context and background for the research, helping researchers understand the current state of knowledge and theoretical perspectives withing their field of study.

Through literature review, researchers cab identifies the gaps, contradictions or areas where further research is needed, which informs the formulation of research questions and hypotheses. Additionally, it also contributes to theory development by synthesizing and critiquing existing theories, concepts and empirical findings. They also guide methodological decisions by highlighting research methods and approaches used in previous studies, allowing researchers to select appropriate methodologies for their own.

Check Your Progress

Indicate whether True or False

1. Literature Review broadens the knowledge about the research problem. T/F
2. The first step of a research is to formulate the research question. F/T
3. A research problem should be specific in its approach T/F
4. Formulating hypothesis is the next step after reviewing the literatures T/F
5. Selecting the method of data collection depends on the type of study T/F

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2.3.3 Developing Hypothesis

Developing a hypothesis involves crafting a clear and testable statement or prediction about the relationship between variables in a research study. This process is fundamental in quantitative research, where hypotheses guide the investigation and allow researchers to make predictions about the outcomes of their study. It begins with identifying the variables of interest, which are the factors or concepts believed to be related to one another. The functions of hypotheses are multifaceted and essential for guiding the research process effectively. It brings focus, clarity and specificity in the research study. It further helps in making the sample designs and facilitate formulation of a theory.

A well formulated hypothesis typically consists of both a null hypothesis (H0), which states that there is no effect or relationship between variables, and an alternative hypothesis (H1), which suggests the presence of an effect or relationship. The directionality of the hypothesis may be specified, indicating whether the researcher expects a positive or negative relationship between variables, or it may remain non-directional, simply predicting that a relationship exists without specifying its direction.

STOP TO CONSIDER

In research, hypotheses are statements or predictions about the relationship between variables. There are typically two types of hypotheses: null hypotheses (H0) and alternative hypotheses (H1).

1. **Null Hypothesis (H0):**It is a statement that there is no effect or relationship between variables being studied. It represents the default position or assumption that any observed differences or associations between variables are due to chance or random variation. The null hypothesis is often denoted as H0 and is typically framed in terms of equality or no difference between groups or conditions. For example, in a study comparing the effectiveness of two teaching methods on student performance, the null hypothesis might state that there is no difference in performance between students who receive Method A and those who receive Method B.

2. **Alternative Hypothesis (H1):** It is a statement that is an effect or relationship between the variables being studied. It represents the researchers' alternative or opposing hypothesis to the null hypothesis, suggesting that any observed differences or associations between variables are not due to chance. The alternative hypothesis is often denoted as H1 and is framed in terms of inequality, difference or relationship between groups or conditions. Using the null hypothesis example, the alternative hypothesis might state that there is a difference in performance between students who receive Method A and those who receive Method B.

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2.3.4 Preparing Research Design

Preparing a research design involves the systematic planning and organization of the entire research process, from defining the research question to collecting and analyzing data. It encompasses a series of decision regarding the overall approach, methodology and procedures that will be employed to address the research question effectively. The research design serves as a blueprint for the study, outlining the steps that will be taken to gather relevant data and test hypotheses or answer research question.

The process of preparing a research design typically begins with a clear articulation of the research question or problem that the study aims to address. Researchers then carefully consider carious factors such as the nature of the research question, the available resources, ethical considerations and practical constraints. Based on these considerations, researchers make decisions about the research design, including the choice of research method (eg. Experimental, correlational, qualitative), sampling strategy, data collection techniques and data analysis procedures.

Additionally, the researchers may develop a detailed timeline or schedule outlining the specific tasks involved in the research process. This helps to ensure that the study progresses smoothly and efficiently, with clear objectives. Throughout the preparation of the research design, researchers may consult the existing literatures and seek feedback in order to order their plans as needed to ensure the validity and rigor of the study. In a

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nutshell, a well-planned research design provides a solid framework for conducting the study, guiding researchers through each stage of research process and facilitating the generation of valid and reliable findings. It endures that the research objectives are clearly defined, the methodology is appropriate for addressing the research question and the study is conducted in a ethical and systematic manner.

2.3.5 Determining Sample Design

Determining the sample design is a critical aspect of research methodology, as it involves selecting a subset of individuals or units from a larger population to participate in the study. this process is essential for ensuring that the sample is representative of the population of interest and the findings can be generalized.

The first step in determining the sample design is defining the target population, which refers to the entire group of individuals or units that the researcher wants to makes inference about. Once the target population is identified, researchers must decide on the sampling frame, which is a list or other representation of the units in the population from which the sample will be selected.

There are several types of sampling methods that researchers can choose from, each with its own strength and limitations:

1. **Probability Sampling**: Probability Sampling methods involve selecting samples in a way that each member of the population has a known and non-zero chance of being included in the sample. Common probability sampling methods include simple random sampling, stratified sampling, cluster sampling and systematic sampling.
2. **Non-Probability Sampling**: Such method of sampling does not involve random selection of samples, and therefore, the samples may not be representative of the population. However, non-probability sampling methods are often more convenient and cost-effective. Some methods within it are convenience sampling, purposive sampling, snowball sampling and quota sampling.

The choice of sampling methods depends on various factors such as research objectives, the characteristics of population, the resources available, and practical considerations such as time and budget constraints. Regardless of the sampling methods used, researcher must ensure that the sample is sufficiently large and diverse to yield meaningful and generalized results. Additionally, researchers should consider potential sources of bias and take steps to minimize or control for them to enhance the validity and reliability of the study findings.

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STOP TO CONSIDER

- Types of Probability Sampling

1. **Simple Random Sampling:**Simple random sampling is a foundational method used in research to select a sample from a population in a way that ensures every member of the population has an equal chance of being included in the sample. The process begins by clearly defining the population of interest and determining the desired sample size.
2. **Stratified Sampling**: Such method is used to ensure that the sample selected for a study is representative of the entire population, particularly when there are distinct subgroups or strata within the population. It involves dividing the population into homogeneous subgroups based on certain characteristics. Each subgroup, or stratum, is then treated as a separate population, and samples are selected independently from each stratum.
3. **Cluster Sampling**: This method is used when population size is comparatively larger. The population is divided into mutually exclusive groups and the researcher draws a sample of the group to interview.

- Types of Non-Probability Sampling:

1. **Convenience Sampling:** Convenience sampling is a non-probabilistic sampling method commonly used in research due to its ease of implementation and accessibility. In convenience sampling, researchers select participants based on their availability and proximity to the researcher or research site, rather

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than using random selection methods. This sampling approach is often employed when time, resources, or logistical constraints limit the feasibility of other sampling methods. Convenience sampling is commonly used in exploratory or preliminary research, pilot studies, or situations where access to the population of interest is challenging.

2. **Judgement or Purposive Sampling:** The researcher uses their judgement to select population members who are likely to provide accurate information. This can used for historical or descriptive research.
3. **Snowball Sampling:** In this kind of sampling, the information may be selected from few individuals and they may identify other people for the purpose of gathering information. Subsequently, they also become part of the sample, thereby creating a network of sample elements.
4. **Quota Sampling:** Here, the researcher finds and interviews a prescribed number of people in each of several categories. The main criteria used by the researcher is the ease to access sample population. For this, the sample is selected from a location that is convenient to them.

Self-Assessment Questions

1. Define research hypothesis. Explain the different types of hypotheses with example.

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   .....

2. What is sampling method? Elaborate the different types of sampling.

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3. What is a research design? How is it formulated and what are its uses?

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   .....

2.3.6 Collecting the Data

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The process of data collection is a fundamental component of research methodology, involving systematic procedures for gather relevant information to address research questions or objectives. It encompasses a series of steps designed to obtain accurate, reliable and valid data that can be analyzed to draw meaningful conclusions. In order to collect the data, the researcher can undertake surveys or questionnaires with the participants, conduct interviews or focus groups, observe behaviors or phenomena, or extract data from existing sources such as databases or archival records. Depending on the research design and objectives, data collection may occur through various modes, including face to face interactions, telephone interviews, online surveys or direct observations.

Data collection can take place in two ways, primary data collection and secondary data collection. In the former, the researcher get the firsthand information by collecting the data oneself, while in the case of the latter, researchers work depends on the secondary sources which includes already existing documents, reports, articles, historical records and others.

Surveys, being a part of the primary data collection method, takes either one of the following forms:

1. Observation
2. Personal interviews
3. Telephonic interviews
4. Questionnaires
5. Schedules

During data collection, researchers must follow the ethical principles and obtain informed consent from the participants, ensuring that their rights and privacy are protected. Further, researchers also need to consider factors such as sampling procedures, sample size, and data quality control measures to minimize bias and maximize the reliability and validity of data collected.

2.3.7 Analysis of Data

Data analysis is a critical phase in the research process, where collected data is transformed into meaningful insights that address research question or objectives. This phase involves systematically examining,

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interpreting and synthesizing the data to identify patterns, relationships and trends that inform research conclusions. It takes place through a series of steps where the first thing is to organize and prepare the data for analysis, which may involve cleaning and formatting the data, checking for missing values and coding variables for statistical analysis. This ensures that the data is accurate, complete and ready for analysis. Further, the researchers select appropriate analytical techniques based in research design and the nature of data collected. For quantitative data, statistical methods such as descriptive statistics, inferential statistics (eg., t-tests, ANOVA, regression analysis), or multivariate techniques (eg., factor analysis, cluster analysis) may be used to explore relationships between variables and test hypotheses. For qualitative data, thematic analysis, content analysis or grounded theory approaches may be employed to identify recurring themes, patterns or categories within the data. Moreover, the researchers interpret the findings in the context of existing literature, theoretical frameworks and practical implications. They draw conclusions, make recommendations and discuss implications of the findings for theory, practice or policy. Research reports, presentations or publications are prepared to communicate the results of the data analysis to relevant stakeholders, contributing to the advancement of knowledge within the field.

In a nutshell, data analysis is a systematic and rigorous process that transforms raw data into meaningful insights, enabling researchers to draw conclusions, make recommendations and contribute to the body of knowledge within the field of study. through careful analysis and interpretation of the data, researchers can generate new insights, validate existing theories and inform decision-making processes.

2.3.8 Hypothesis Testing

After analyzing the data, the researcher is in the position to test the hypothesis that he/she had framed in the initial stages. Hypothesis testing is a foundational statistical method used in research to assess the validity of research hypotheses and draw conclusions about population parameters based on sample data. After formulating the null and alternative hypothesis, researchers select a statistical test based on the research design, data type

and research question. Common statistical tests include t-tests, chi-square tests, ANOVA, regression analysis and correlation analysis among others. The hypothesis may be tested through the use of one or more of these tests depending on its nature and objective of research inquiry. Being a systematic and rigorous method for evaluating research, hypothesis testing results in either accepting or rejecting it, contributing to making of an inference about the sample data. Hence, by following a structured approach to hypothesis testing, researcher can draw valid conclusions and make evidence-based decisions.

Check Your Progress

1. What is the importance of analyzing the research?
2. Explain the various methods of data collection.
3. Explain the idea of hypothesis testing.

2.3.9 Generalization and Interpretation

Once the hypothesis is tested, the next step in the research process is that of generalization and interpretation. It enables the researchers to draw meaningful conclusions and extend their findings to broader population.

Generalization refers to the process of applying the findings of a study to a larger population beyond the sample that was studied. It involves making inferences about the characteristics, behaviors, or relationships observed in the sample and applying them to a broader population. However, the extent to which findings can be generalized depends on several factors, including the representativeness of the sample, the reliability and validity of the measures used, and the similarity between the sample and the population of interest. Hence, the researchers must carefully consider the limitations and potential biases of their study when making generalizations and acknowledge the uncertainty associated with generalizing the findings with other populations or contexts.

Interpretations, on the other hand, involves making sense of the findings of a study and understanding the implications within the broader context of existing knowledge and theory. It requires critically analyzing the data, identifying patterns or relationships and drawing conclusions that are

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consistent with the research objectives and relevant theoretical frameworks. Interpretation also involves considering alternative explanations for the findings, assessing the results and discussing the implications for theory, practice or policy.

Hence, generalization and interpretation, together are essential processes in research that enables researchers to extend their findings beyond the confines of the study and make meaningful contributions to knowledge within their fields.

2.3.10 Preparation of Report

The final step in research is the preparation of a research report which involves communicating the findings, conclusions and implications of the study. This process includes several key steps aimed at organizing, synthesizing and presenting the research findings in a clear, coherent and compelling manner.

It involves a series of steps as well, the researcher must first carefully organize the content of the report, ensuring that it follows a logical structure and addresses all aspects of the research process. This includes an introduction, where the research question, objectives and significance of the study are outlined, followed by a review of relevant literature that provides context for the research findings. The methodology section describes the research design, data collection methods and analytical techniques used, while results section presents the findings of the study in a systematic and comprehensive manner. Lastly, the discussion and conclusion section interpret the findings, discuss their implications and offer recommendations for further research.

After organizing the content, researchers proceed to write the report, where the research methods are accurately and objectively described, avoiding bias and misinterpretations. Graphs, tables, visual aids may be used to enhance the presentation of the data and facilitate understanding by readers. Once the final draft of the report is completed, researchers may choose to disseminate their findings through various channels, such as academic journals, conference presentations or policy briefs. By carefully preparing and effectively communicating their research findings, researchers can contribute to the advancement of knowledge within their field.

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The terms "dissertation" and "thesis" are often used interchangeably, but they have distinct meanings depending on the academic context, scope, purpose and examination process. Both are scholarly documents that demonstrate a student's ability to conduct independent research and contribute to their field of study. However, dissertations are typically associated with doctoral (Ph.D.) programs, while theses are usually associated with master's degree programs. This difference in academic level often translates into variations in scope and length, with dissertations being longer and more comprehensive than theses. Dissertation often involve original data collection and analysis, while theses may focus more on synthesizing existing literature or applying established methodologies to address a research question. Despite the differences, both dissertations and theses serve as important milestone in student's academic journey, showcasing their research skills, critical thinking abilities and contributions to their field of study.

Check Your Progress

1. Elaborate the steps involved in the research process.
2. Delineate the difference between probability and non-probability sampling.
3. Explain the importance of literature review in the research process.
4. How can you minimize biasness in research?
5. Why do we develop hypothesis? Discuss its variants.

2.4 Summing Up

The unit provides an overview of the research process. The steps of research process include identifying the problem, formulating the hypothesis, preparing research design, constructing the devices for observation and surveys, selecting the samples for the study and subsequent data collection, data analysis, interpretation and drawing the conclusions. Once these steps are covered, the last stage is of preparing the appropriate report and publishing it. These are the ten-step covering the entire spectrum of research process. Throughout the research process, researchers must

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adhere to ethical principles, validate their methods and communicate their findings effectively. Hence, by following a systematic approach and employing sound research practices, researchers can generate new insights and contribute to the existing knowledge in the concerned field and thereby address vital challenges that society is facing.

2.5 References and Suggested Readings

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Unit - 3

Research and Theory

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Unit Structure:

3.1 Introduction

Theory is fundamental in research, providing a foundational framework that guides the entire research process. It functions as both a roadmap and a lens through which researchers navigate their inquiries, shaping the formulation of research questions, the design of studies, and the interpretation of results. In the realm of social sciences, theories help define and operationalize key concepts, identify relevant variables, and establish the relationships between them. For instance, a researcher employing the Theory of Planned Behavior can systematically explore how attitudes, subjective norms, and perceived behavioral control influence intentions and actions. This theoretical underpinning ensures that the study is not merely descriptive but also explanatory, offering insights into causal mechanisms. Moreover, the relationship between theory and research is symbiotic: while theories provide the conceptual frameworks that shape research design and data analysis, research, in turn, tests these theories, contributing to their

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refinement or even leading to the development of new theories. Moreover, theory and research advance together- research enriches theoretical knowledge by confirming, refuting or expanding existing theories, and theories guide researchers in producing coherent, meaningful and significant studies. This dynamic interplay ensures continuous progress in understanding complex social phenomena, making theory a cornerstone of rigorous and impactful research.

3.2 Objectives

After reading the unit, students will be able to:

- Describe theory
- Understand the purpose and procedure involved in research
- Analyze the relationship between theory and research

3.3 Theory-Definition

In the context of research methodology, theory is a systematic and coherent set of concepts, definitions, and propositions that explain and predict phenomena by specifying relationships among variables. Acting as conceptual lens, theories shape how researchers perceive and interpret the world. They are integral to the research process, beginning with the formulation of research questions. Theories provide a framework that helps to define what is important to study, ensuring that research questions are precise and relevant.

Additionally, theories guide the choice of methodologies and data collection strategies. They suggest the types of data needed and the nest ways to gather it, whether through surveys, experiments, observations or qualitative interviews. For example, a study rooted in Bandura's Social Cognitive Theory might use observational methods to explore how individuals learn behaviors by watching others. The role of theory extends into data analysis, where it helps researchers make sense of their findings. Theoretical frameworks provide the criteria for categorizing and interpreting data, enabling researchers to discern patterns and relationships that might otherwise be overlooked. When analyzing the impact of educational interventions, for example. A researcher might use Constructivist Theory to interpret how students build knowledge through experiences and interactions.

Theories are also crucial in the interpretation of research findings. They offer a structured way to understand the results, place them in a broader context, and derive meaningful conclusions. Theories not only help explain what has been observed but also predict future occurrences and guide further research. This cyclical relationship between theory and research ensures that scientific enquiry is cumulative, building on existing knowledge to advance understanding continuously. Through this process, theories are tested, refined or even replaced, driving progress in the field and ensuring that research remains meaningful.

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3.3.1 Components of Theories

The components of a theory in research methodology are the fundamental elements that structure and define the theory. These components include concepts, definitions, propositions, assumptions and hypotheses. Each play a crucial role in the formulation, application and evaluation of the theory.

1. **Concepts:**

   Concepts are the basic building blocks of a theory. They are abstract ideas or phenomena that are central to the theory's framework. Concepts must be clearly defined to ensure consistency and clarity in their application and understanding. For instance, in social sciences, concepts like "social capital," "self-efficacy," and "motivation" are frequently used. These concepts represent phenomena that the theory seek to explain or explore.

2. **Definitions:**

   Definitions provide precise explanations of the concepts within the context of the theory. Clear definitions ensure that everyone understands the concepts in the same way, which is crucial for effective communication and application of the theory. Definitions help avoid ambiguity and make it possible to operationalize concepts for empirical investigation. for example, "social capital" might be defined as the networks of relationships among people who live and work in a particular society, enabling that society to function effectively.

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3. **Propositions:**

   Propositions are statements that describe the relationship between concepts. They explain how one concept affects another and form the backbone of the theoretical framework. Propositions can be descriptive, explaining how things are, or normative, suggesting how things should be. For example, a proposition might state that "increased social capital leads to better community health outcomes." This proposition outlines a relationship that can be tested empirically.

4. **Assumptions:**

   Assumptions are the underlying beliefs or conditions that the theory takes for granted. These are often implicit and provide the foundation on which the theory is built. Assumptions need to be acknowledged because they influence how the theory is interpreted and applied. For instance, an assumption in economic theory might be that individuals act rationally to maximize their utility. Assumptions set the stage for how the theory is structured and how its propositions are formulated.

5. **Hypotheses:**

   Hypotheses are specific, testable predictions derived from propositions. They are formulated based on the theory and are used to empirically test the relationships between concepts. Hypotheses provide a way to verify the validity of the theory through research. For example, a hypothesis based on the earlier proposition might be, "Communities with higher level of social capital will have lower rates of heart disease." Hypotheses are crucial for the empirical validation of theoretical propositions.

In short, the components of theory work together to provide a comprehensive and systematic explanation of phenomena. Understanding these components is essential for developing, testing and applying theories effectively in research.

3.3.2 Significance of Theory in Research

The significance of theory in research is profound and multifaceted. Theory serves as the backbone of the research process, providing a coherent

framework that guides every stage, from formulation of research questions to the interpretation of findings.

1. **Guiding Research Questions and Hypotheses**
   a. **Formulating Questions:** Theory helps researchers identify and frame research questions that are meaningful and relevant. By providing a conceptual framework, theory narrows down broad areas of interest into specific questions that can be empirically investigated.
   b. **Generating Hypotheses:** Theories suggest specific, testable hypotheses. These hypotheses are derived from the theoretical propositions and are essential for empirical testing.
2. **Providing a Framework for Data Collection and Analysis**
   a. **Defining Variables:** Theories help identify the key variables that need to be measured and specify how these variables are related. This ensures that the data collected is relevant and comprehensive.
   b. **Choosing Methods:** The theoretical framework influences the choice of research methods. Whether a study employs qualitative, quantitative or mixed methods often depends on the nature of the theory.
   c. **Structuring Data Analysis:** Theories provide a lens for interpreting data, helping researchers to discern patterns and relationships that align with theoretical propositions. This structed approach ensures that data analysis is systematic and coherent, facilitating deeper insights.
3. **Enhancing Interpretation and Understanding**
   a. **Contextualizing Findings:** Theories help place research findings within a broader context, providing explanations for why certain results are obtained. This contextualization is crucial for understanding the implications of the research.
   b. **Predicting Outcomes:** theories offer power, enabling researchers to forecast future occurrences based on current data.

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4. **Facilitating Knowledge Integration and Advancement:**
   a. **Integrating Knowledge:** Theories synthesize existing knowledge, linking various concepts and findings into a coherent whole. This integration helps to build a cumulative understanding of the subject area.
   b. **Driving Scientific Progress:** Research tests and refines theories, contributing to the advancement of scientific knowledge. Empirical studies either support the validity of a theory, or highlights its limitations.
5. **Ensuring Rigor and Coherence**
   a. **Providing Structure:** Theories impose a structured approach to research, ensuring that studies are systematically conducted and logically coherent. This structure is vital for the validity and reliability of research findings.

The significance of theory in research cannot be overstated. Theories provide the essential frameworks that guide the entire research process, from defining and operationalizing variables to interpreting results and integrating findings into a broader knowledge base.

3.3.3 Theorizing

Theorizing is the process of developing, refining and testing theories to explain phenomena. It involves constructing abstract representations of reality to understand and predict relationship between concepts and events. It is an essential aspect of scientific inquiry across various disciplines, including natural sciences, social sciences and humanities. Theorizing is not merely a passive exercise but an active and dynamic engagement with concepts, evidence, and logic to construct abstract frameworks that capture the underlying structures and patterns of reality.

STOP TO CONSIDER

The range of theorizing spans from highly abstract, general theories to specific, narrowly focused ones, encompassing various levels of abstraction and application. This range cab be broadly categorized into grand theories, middle-range theories and micro-theories.

1. **Grand Theories:** These theories are broad, abstract framework that provide comprehensive explanations of phenomena across wide domains. While they provide a broad, unified framework, they often are too abstract to be tested empirically.
2. **Middle-Range Theories:** These theories are more focused than grand theories and address specific aspect of phenomena. They bridge the gap between grad theories and empirical observations, offering testable hypotheses and practical applications. While it provides a balance between generality and specificity, it is at times criticized for not being broad enough to encompass wider contexts.
3. **Micro-Theories:** Micro-Theories are highly specific and narrowly focused theories that explain particular phenomena or behaviors. They are often developed from detailed empirical studies and are closely tied to specific contexts or situations. They are useful for practical applications and interventions; however, they often require integration with other theories to provide a more comprehensive understanding.

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Self-Assessment Questions

1. Define theory. What is its relevance in the field of research?
   .....
   .....
2. Explain the different components of theory with examples.
   .....
   .....
3. Elaborate the range of theorization.
   .....
   .....

3.4 Research-Definition

The idea of research begins with understanding the word itself. The word is made by adding the prefix of 'Re' to the word 'search'. The meaning of the word search is bringing the existing unknown element visible. Therefore,

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in this way, research would literary mean exploring the facts from the known things.

Research is a structured, methodical and organized process aimed at collecting, analyzing and interpreting data to enhance understanding of a specific phenomenon or to address a particular problem. The idea of research has been defined by various scholars differently, some of whoch includes:

"Research is a process of steps used to collect and analyze information to increase our understanding of a topic." (Creswell,2009)

"Research is a systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena." (Kerlinger, 2000)

"Research is the process of collecting, analyzing and interpreting data in order to understand a phenomenon." (O'Leary, 2017)

These definitions point towards the nature of research which is characterized by several key features that distinguish it from other forms of inquiry. Such characteristics ensure that research is systematic, rigorous and contributes valid and reliable knowledge to the field of study. Some of these include:

1. Research follows a structured and organized approach to inquiry. It involves a clearly defined sequence of steps ensuring that research is methodical and coherent.
2. In research, variables are carefully controlled to ensure that the results are due to the manipulation of the independent variable rather than extraneous factors.
3. Research relies on empirical evidence, which is based on observation and experimentation rather than on theory or belief.
4. Research involves a critical examination of existing knowledge and methodologies. Researchers rigorously scrutinize their work to ensure reliability and validity of research findings.
5. Research is conducted according to logical reasoning and principles. The research process is designed to follow a logical flow, from formulating hypotheses to drawing conclusions.
6. Research strives to be objective and unbiased. Researchers aim to collect and interpret data without biasness influencing the results.

Objectivity is crucial for ensuring the credibility and generalizability of the findings.

7. Research should be replicable, meaning that other researchers should be able to follow the same procedures and obtain similar results. Replicability enhances the reliability of the findings and helps establish the validity of the research.
8. Research seeks to explore new areas, develop new methods, or provide fresh insights into existing problems. Innovation in research drives scientific progress and contributes to the advancement of knowledge.

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3.4.1 Nature and Purpose of Research

Research is a systematic and disciplined process to explore, describe, explain and predict phenomena. It involves a careful and methodical approach to gathering, analyzing and interpreting data to increase our understanding or solve specific problems. Being an essential process for the advancement of knowledge across all disciplines, research serves multiple purpose, each contributing to the broader goal of understanding and improving the world we live in. At its core, the purpose of research is to investigate questions and problems, leading to new insights, discoveries and innovations. This investigation can take many forms, from exploring uncharted areas and describing phenomena to explaining underlying mechanisms, predicting future trends and applying findings to real-world challenges.

One primary purpose of research is exploration. Exploratory research is particularly valuable when little is known about a topic or when a new area of inquiry is being initiated. This type of research is often the first step in the research process and aims to generate new ideas, identify potential problems and establish a foundation for further study. It is characterized by flexibility and open mindedness, as researchers may not have specific hypotheses at the outset but rather seek to uncover patterns, themes, and insights.

Descriptive research aims to systematically characterize and document various aspects of a phenomena. This type of research answers

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questions about what is happening, where, when and how. It provides a detailed account that can help to map out the landscape of a particular field or subject. Descriptive research is essential for understanding the prevalence, distribution and characteristics of phenomena, such as demographic studies that describe population characteristics, or surveys that gather detailed information about people's attitudes and behaviors. By providing a comprehensive overview, descriptive research sets the stage for deeper exploration and analysis.

Explanatory research goes beyond description to understand the underlying causes and effects of observed phenomena. This type of research seeks to answer why and how something occurs, identifying causal relationships and mechanisms. Explanatory research often involves hypothesis testing, where researchers use experimental or observational methods to determine whether changes in one variable cause changes in another. By establishing cause-and-effect relationships, explanatory research enhances our understanding of complex issues, providing insights that can inform theory and practice.

3.4.2 Procedure in Research

As research aims at discovering new information, confirming existing knowledge, or addressing specific problems, it follows a structed procedure that ensures that investigation is rigorous, reliable and valid. The research procedure is a cornerstone of scientific inquiry, providing a clear roadmap that guides researchers from the initial identification of a problem through to the dissemination of findings. Each step in the research process is carefully designed to build on the previous ones, creating a coherent and logical progression that enhances the accuracy and credibility of the results. Understanding and following the procedures is crucial for conducting high quality research that contributes valuable insights and advancements in various fields. The detailed procedure encompasses:

1. Identifying the research problem
2. Reviewing the literature
3. Formulating hypotheses or research questions
4. Designing the study

5. Collecting and analyzing data
6. Interpreting results
7. Report findings

The process begins with the identification of a research problem, refined through a comprehensive review of literature. This foundation leads to the formulation of specific hypotheses or research question that direct the study's focus. The subsequent design phase involves selecting appropriate methodologies and planning for data collection, ensuring that the research approach is robust and suitable for addressing the research questions. Data collection follows, implemented with strict adherence to ethical standards to protect participants and ensure the integrity of the data. The collected data is then subjected to rigorous analysis, using appropriate statistical or qualitative techniques to uncover meaningful patterns and relationships. The interpretation of results involves situating the findings within the broader context of existing knowledge, drawing conclusions about their implications and recognizing any limitations of the study.

Finally, the findings are reported comprehensively, following academic standards to ensure clarity and transparency. Disseminating the research to the wider community through publications, presentations or reports ensure that the new knowledge can be accessed, scrutinized and built upon by others. Hence, research procedure is a meticulously organized sequence of steps that enhances the quality and credibility of research. It fosters a systematic approach to inquiry, ensuring that each phase of the research is conducted with precision. By following this procedure, researchers can contribute valuable insights, advance theoretical understanding and provide practical solutions to the problems.

3.4.3 Types of Research

Research encompasses various approaches and methodologies, each tailored to address specific research questions and objectives. Understanding the different types of research is essential for researchers to select the most appropriate methods for their inquiries. Broadly speaking, research can be categorized into several types based on its purpose, methodology and the nature of data collected.

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One of the primary distinctions in research types is between basic and applied research. Basic research, also known as pure research, is driven by a quest to expand the existing knowledge base by investigating fundamental principles and theories. Conducted predominantly in academic settings, basic research is motivated by curiosity and a desire to understand underlying mechanism and phenomena, rather than by immediate practical application. This type od research lays the groundwork for future scientific advancements and provides the foundational knowledge upon which applied research builds. In contrast, applied research is directly oriented towards addressing specific, practical problems and is often driven by the need to develop innovations, improve processes or inform policy and decision-making. While basic research contributes to the broader understanding of various fields, applied research translates these insights into tangible benefits, demonstrating the interdependence of these two types of research in advancing knowledge and improving human conditions.

Another important distinction in research methods is between quantitative and qualitative approaches. Quantitative research involves the collection and analysis of numerical data to test hypotheses, quantify relationship between variables and generalize findings across larger populations. This approach often includes methods such as surveys, experiments and longitudinal studies, focusing on measurable variables and outcomes. In contrast, qualitative research seeks to understand complex social phenomena by examining and interpreting non-numerical data. This approach emphasizes the depth and richness of subjective experiences, meanings and perspectives. Qualitative research methods include interviews, focus groups, ethnography and content analysis, allowing researchers to explore phenomena in their natural settings and gain insights into participants" attitudes, behavior and interactions. While quantitative research prioritizes objectivity and generalizability, qualitative research focuses on context and depth, providing comprehensive understanding of human experience and social processes.

Additionally, research can be further categorized based on its design and methodology. Descriptive research aims to describe the characteristics, or phenomena of interest within a population. Correlational research

examines the relationship between two or more variables without implying causation, assessing the degree of association. Experimental research involves manipulating one or more variables to observe the effect on another variable while controlling the extraneous factors, allowing researchers to establish causality through random assignment and experimental control.

Other types of research include exploratory research, which seeks to explore new phenomena or generate initial insights into a research problem, and action research, which involves collaboration between researchers and practitioners to address practical problems. Mixed-methods research combines quantitative and qualitative approaches within a single study to gain a comprehensive understanding of a research problem.

In short, understanding the various types of research is essential for researchers to choose appropriate methods and approaches to understand their research questions and objectives effectively. Each type of research offers unique advantage and limitations, and the choice depends on the specific research context, objectives and desired outcomes.

Check Your Progress

1. What is research?
2. Elaborate the steps in research process.
3. Differentiate pure and applied research methodologies.
4. Analyze the nature and purpose of research.

3.5 Relationship between Theory and Research

The relationship between research and theory is a cornerstone of scientific inquiry, facilitating a symbiotic process that leads to the advancement of knowledge across disciplines. Theories serve as foundational frameworks that provide coherent explanations and predictive power for understanding various phenomena. They articulate the underlying principles and mechanisms governing these phenomena, guiding researchers in formulating pertinent questions, generating hypotheses, and designing rigorous methodologies. By offering a structured lens through which to view the world, theories help delineate the scope and focus of research endeavors, ensuring that investigations are purposeful and systematically directed

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towards areas of significance. Conversely, research plays a critical role in lifecycle of theories. Empirical research involves the systematic collection and analysis of data to test the validity of theoretical propositions. This empirical testing is essential as it provides the evidence needed to confirm, refine or refute theoretical models. When research findings are consistent with theoretical predictions, the theory is strengthened, gained credibility and acceptance within the scientific community. However, when research uncovers loopholes or contradictory evidence, it prompts critical re-evaluation and potential modification of the theory. This process can lead to the refinement of existing theories or the development of entirely new theoretical framework that better account for the observed data. Additionally, research uncovers new questions and areas of inquiry, feeding back into the theoretical domain. These questions stimulate further development in the area of theory, creating a dynamic feedback loop where theory and research continuously inform and enhance each other. This process ensures that theories remain robust, adaptable and reflective of the complexities of the real world.

The evolution of theory and research is profoundly influenced by the historical context in which they develop. Historical events, such as wars, economic crises, and social movements, can significantly shape the questions that researchers prioritize and the theories they develop to understand these phenomena. For instance, the Great Depression spurred extensive research in economics and social policy, leading to the development of theories about economic cycles and government intervention. Similarly, prevailing cultural attitudes, such as the civil rights movement, have driven research in sociology and psychology, focusing on issues of equality, discrimination, and social justice. Technological advancements also play a critical role, as new technologies enable more sophisticated data collection and analysis, which in turn can lead to the refinement or creation of new technologies. For example, the advent of the internet and big data analytics has transformed research methodologies in numerous fields, allowing for more comprehensive and complex studies. Understanding the historical context in which theories and research emerge provides deeper insights into their origins and development. it reveals how scientific inquiry is not conducted in a vacuum

but is instead a dynamic process influenced by the broader socio-economic and technological landscape.

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3.5.1 Role of Theory and Research in Social Science

The role of theory and research in social science is foundational to advancing our understanding of human behavior, social structures and societal dynamics. This interrelationship forms the bedrock of scientific inquiry within social sciences, facilitating a systematic approach to studying complex social phenomena.

1. **Guiding Framework:** Theories provide a guiding framework that helps researchers identify and define problems, formulate hypotheses and interpret findings. In social sciences, theories such as functionalism, conflict theory and symbolic interactionism offer different lenses through which social phenomena can be understood and analyzed. These theoretical perspectives help researchers develop a coherent understanding of how individual behaviors and societal structures interact.
2. **Hypothesis Formation:** Theories play a crucial role in hypothesis formation. They offer explanations for observed patterns and suggest possible relationships between variables. For example, social learning theory might lead researchers to hypothesize that exposure to aggressive behavior increases the likelihood of aggressive behavior in individuals.
3. **Research Design:** Theory informs the design of research studies by suggesting appropriate methodologies and analytical techniques. Quantitative research, often guided by positivist theories, might employ surveys or experiments to test hypotheses and establish causal relationships. Qualitative research, influenced by interpretivist theories, might use interviews or ethnography to explore the depth and complexity of social experiences.
4. **Data Interpretation:** Research findings are interpreted within the context of existing theories. This interpretive process helps either support, refine or challenge theoretical propositions. For example, findings from a study on educational attainment may confirm existing

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theories about social capital or prompt new theoretical insights about the role of technology in education.

5. **Theory Development:** Research contributes to the development and evolution of theories. Empirical finding can lead to the refinement of existing theories or the creation of new ones. For example, the development of intersectionality theory emerged from research highlighting the interconnected nature of social categorizations such as race, class and gender.
6. **Practical Applications:** Theories and research in social science often have significant practical implications. They inform policy-making, guide interventions and improve practices in various fields such as education, healthcare, criminal justice and social work. For instance, theories of crime and deviance can shape criminal justice policies and rehabilitation programs.
7. **Addressing Social Issues:** Social science research guided by theory can address pressing social issues, such as inequality, discrimination and poverty. By understanding the underlying causes and dynamics of these issues, researchers can propose evidence-based solutions and advocate for social change.
8. **Cross-Disciplinary Insights:** Theories and research in social science often intersect with other disciplines, such as economics, political science and psychology, enriching the understanding of complex issues and fostering interdisciplinary collaborations.

Hence, theory and research are integral to social science, providing a structured approach to understanding and addressing the multifaceted nature of human behavior and social systems. Their interplay ensures that social science remains a rigorous, dynamic and relevant field, capable of contributing to both academic knowledge and practical solutions for societal challenges.

Self-Assessment Questions

1. Discuss the connection between research and theory building.

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2. Elaborate the role of research and theory in the field of social sciences with examples.

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Check Your Progress

1. What is theory? Describe its various components.
2. Elaborate the usage of research in the field of Political Science.
3. Differentiate between quantitative and qualitative research.
4. What is theorization? Discuss.
5. Discuss the interrelationship between research and theory.

3.6 Summing Up

The unit elaborate on the understanding of theory and research. Starting with the definition to its components, the chapter dwells a discussion on the concept of research and its aspects and types. The latter part dwells into the relationship that exists between research and theory, highlighting its nature and purpose. In order understand this inter-dependence even further, the chapter attempts to analyze the application of research and theory in the field of social science by providing examples accordingly.

3.7 References and Suggested Readings

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Unit- 4

Process of Theory Building

Unit Structure:

4.1 Introduction

After discussing in Unit 3 the relationship between theory and research, we will, in this unit attempt to understand the various processes involved in the theory building. The chapter starts with defining the concept of theory and its various components. Understanding the meaning would later help the students to delineate the importance of the theory in any research proposals. The later part of the chapter then deals with theory building, wherein an attempt is made to map out step by step the procedures involved in the developing a good theory. Through this chapter the students will be able to develop an idea on the virtues of what consists of a "good" theory which will help them to initiate an effort to start with their research in their respective fields.

4.2 Objectives

After this chapter, the students will be able to:

- Understand theory and its components
- Explain the importance and characteristics of theory
- Apply theory building in actual practice by understanding the steps involved in developing it

4.3 What is Theory?

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Theory, an important idea which requires to decoded intricately, differentiating its usage from the everyday connotations to the formal definition that is used in academic context. Along these lines, a theory is understood in terms of operationalization which encompasses several critical components that are essential for its structure and utility. Generally, academic point to a theory is made of four components: (1) definitions of terms or variables, (2) a domain where the theory applies, (3) a set of relationships of variables, and (4) specific predictions (factual claims). (Hunt, 1991; Bunge, 1967; Reynolds, 1971). Elaborating on these components:

1. **Definition of terms or variable**: These definitions ensure that all key concepts are precisely described, reducing ambiguity and enhancing clarity, thereby facilitating effective communication and analysis within the theoretical framework.
2. **Domain where the theory applies**: This domain outlines the context, conditions, or population to which the theory is relevant, helping to delineate its boundaries and ensuring it is not misapplied beyond its intended scope.
3. **Set of relationship among variables**: These relationships, often expressed in terms of causation or correlation, explain how changes in one variable affect another, providing a structured understanding of the interactions within the domain.
4. **Specific Predictions:** These predictions, logically derived from the defined relationship among variables, are empirically testable hypotheses that researchers can investigate through experimentation or observation.

Hence, a theory gains greater explanatory and predictive ability by precisely identifying these constituents, which also helps to clarify why and how the relationships among variables are logically related. A theory's exactness and rigor are what guarantee its application and dependability in scientific research, or as Poole (1989) and Van de Van (1989) state: "A good theory is by definition, a limited and fairly precise picture" (Wacker).

Theory, as defined by the Oxford Dictionary of Sociology, (1998), is 'an account of the world which goes beyond what we can see and measure.

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It embraces a set of interrelated definitions and relationships that organizes our concepts of and understanding of the empirical world in a systematic way.' Accordingly, theories, especially social theories should be abstract and separable, for the social practices it addresses to provide a broad, overarching framework for understanding societal dynamics. This allows the theory to transcend specific situations and be applicable across different contexts and time periods. Moreover, a theory of this kind must also concentrate on a particular theme argument that unifies and strengthens the set of assertions. The theory must then be explanatory, meaning that it needs to present a coherent and logically sound set of propositions that work together without internal contradictions. The theory should have a clear thesis about social phenomena, providing an explanation for their form or existence. This explanatory power is essential, as it allows the theory to account for why social phenomena occur in a way they do, and to provide insights into the underlying mechanism and principles driving these phenomena. Hence, a logically consistent theory not only enhances our understanding of social reality but also enables us to predict and potentially influence future social developments. Furthermore, the theory must be sufficiently broad to take into consideration every instance of phenomenon it seeks to describe. This generality ensures that the theory can be applied broadly across different context and situations, rather than being limited to specific cases. Besides, the theory cannot be limited down to the justifications offered by the participants for their own actions. While these firsthand accounts are valuable and offer important insights, a theory must go beyond subjective interpretations and provide an objective, overarching framework. This ensures that the theory can systematically analyze and explain social phenomena without being limited by individual perspectives or biases. The theory must also be compatible with what social scientists and its participants already know about the social world. This consistency ensures that the theory is grounded in empirical reality and aligns with established knowledge and observations. Substantive validity also means that the theory should be capable of being linked to other bodies of knowledge, facilitating its integration with existing theoretical frameworks and empirical findings. By being substantively valid, the theory gains credibility and relevance, enhancing

its utility in explaining social phenomena and contributing to the broader understanding of the social world. This interconnectedness with other knowledge domains ensures that the theory not only stands on its own but also enriches and is enriched by other research, fostering a more comprehensive and cohesive understanding of social dynamics. Finally, testing theory's predictability is the most effective method of determining its validity or accuracy. This means assessing the theory's ability to accurately forecast future events or behaviors based on its principles.

Once we understand the definition of theory, the next section helps us analyze the need to have such theories in the field of social sciences.

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4.3.1 Why Do We Need a Theory?

First and foremost, theories are necessary because they enable us to make sense of a wide range of unrelated phenomena. However, with the aid of a theory, we can summarize the nature of their interaction and explain the phenomena in terms of a few principles that reveal the relationship between them. By providing this structured understanding, theories provide a complex and diverse observations, making them essential tools in both scientific and practical endeavors. One of the significant aspects of theory is its level of abstraction. The range of application of a theory is greater when it is more abstract, or more generalized, but it is also farther removed from the real-world scenarios. There are generally two types of theories:

1. **Formal Theories:**

   Formal theories are highly abstract and generalized, concentrating on broad principles that can be applied across a wide range of situations and disciplines. Their primary aim is to identify universal laws or patterns that govern the behavior of phenomena, providing a foundational framework that transcends specific contexts. Due to their higher level of abstraction, formal theories might not be immediately applicable to particular cases or practical situations. However, this also allows them to offer a comprehensive understanding that can be adapted and utilized in various fields. By focusing on essential elements and relationships that underlie diverse phenomena, formal theories help to synthesize and unify knowledge across different domains, enabling researchers

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and practitioners to approach complex problems with a coherent, overarching perspective. This broad applicability makes formal theories invaluable for advancing theoretical knowledge and guiding empirical research, even if their direct application to specific situations may require additional contextual adaption.

2. Substantive Theories:

Substantive theories are more specific and grounded in particular contexts, focusing on explaining phenomena within a specific domain or field. These theories are developed based on empirical observations and are closely tied to real- world situations, making them highly relevant to practice applications. Unlike formal theories, which aim for broad generalizability, substantive theories have a narrower scope. However, this specificity allows them to offer detailed and practice insights that can directly inform practice and policy within their particular area of application. For instance, a substantive theory in education might provide specific strategies for improving students'engagement in classroom settings, based on detailed observation and data from educational environments. This practical orientation ensures that substantive theories are not only theoretically robust but also highly useful for addressing concrete problems and informing decisions in specific fields.

In a nutshell, we need a theory because it provides a structed framework for understanding and explaining complex ideas. Theories help us organize and synthesize diverse observations, revealing underlying patterns and relationships that might not be immediately applicable. They guide the formulation of hypotheses, drive the design of empirical research and offer predictive power that can be tested and validated. By offering both broad and specific insights through formal and substantive theories, they enhance our ability to address practical problems and advance scientific knowledge. Finally, theories are essential for making sense of the world, guiding research, informing practice and contributing to the development of a comprehensive body of knowledge.

Check Your Progress

1. Theories should be predictive (T/F)
2. Theories do not help us to relate different phenomena in social setting (T/F)
3. Formal theories are characterized by specificity (T/F)
4. Theories enhance the credibility of research (T/F)
5. Theories help to explain the relationship among variables (T/F)

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4.4 Characteristics of 'Good' Theory

As regarded by Popper in 1957, a 'good' theory is the one that have virtues and hence makes it superior to the other theories. The supremacy of the good theory matters because researchers have to weigh the relative importance of competing ideas. As the effective theory is a cornerstone of scientific enquiry, providing a robust framework for understanding, explaining, and predicting phenomena. The following characteristics define a good theory and highlights its importance in research and practice:

1. **Logical Consistency:**

   It is a fundamental attribute of a good theory, ensuring its internal coherence and freedom from contradictions. For a theory to be logically consistent, all its components-propositions, hypotheses, definitions and predictions- must align without conflicting. This internal coherence is crucial as it provides a clear and unified explanation of the phenomena the theory aims to describe and predict. A logically consistent theory facilitates reliable and predictable outcomes, which are essential for both scientific inquiry and practical application.

2. **Explanatory Power:**

   Explanatory power is a crucial characteristic of a good theory, reflecting its ability to provide deep insights into why and how specific phenomena occur. A theory with strong explanatory power goes beyond merely describing relationships between variables; it elucidates the underlying mechanisms and processes that drive these relationships. This depth of understanding is vital for advancing knowledge and developing comprehensive explanations of complex phenomena. Moreover, a theory's explanatory power enhances its practical relevance. By

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providing detailed explanations, the theory can inform decision-making, guide policy development, and suggest effective interventions. The explanatory power also contributes to the theory's ability to integrate with and build upon existing knowledge. A theory that offers clear and detailed explanations can be more easily related to other theories and empirical findings, facilitating the development of a cohesive body of knowledge.

3. **Generalizability:**

A strong theory is characterized by its generalizability, meaning it can be applied to a wide range of instances and contexts. This broad applicability makes the theory relevant across different situations, populations and settings, enhancing its versatility and utility for researchers. Generalizability ensures that the theory is not limited to specific cases but can provide a comprehensive framework for understanding diverse phenomena. When a theory is generalizable, it offers insights and explanations that can be extended beyond the original context in which it was developed. This ability to generalize findings allows researchers to apply the theory to new and varied scenarios, testing its validity and robustness in different environments.

4. **Substantive Validity:**

Substantive Validity is a crucial attribute of a good theory, ensuring that it is grounded in empirical reality and aligns with existing knowledge. A theory with substantive validity accurately reflects what is known about the phenomena by both participants and social scientists, making it a reliable representation of the real world. This consistency with existing knowledge ensures that the theory is not only possible but also credible, as it resonates with the empirical observations and experiences of those involved. A theory that demonstrates substantive validity can be liked to other established bodies of knowledge. This means it integrates well with existing theoretical frameworks and empirical findings, creating a coherent and unified understanding of the subject matter. Such integration is vital for advancing knowledge, as it allows the theory to build on and contribute to the broader scientific discourse.

5. Predictive Power:

One of the most crucial aspects of a good theory is its ability to make accurate predictions. Predictive power refers to a theory's capability to forecast future events or behaviors based on its principles and propositions. This aspect of a theory is essential because it provides a practical test of the theory's validity and utility. When a theory can consistently predict outcomes accurately, it demonstrates its reliability and the robustness of its underlying principles. The predictive power of a theory can be tested and validated through empirical research. Researchers use the theory to generate hypotheses about future events and then collect data to see if the predictions hold true. This empirical testing is a critical step in the scientific process, as it allows for the verification and refinement of the theory.

6. Objectivity:

An effective theory is characterized by its objectivity, which allows it to transcend subjective interpretations and personal biases. While incorporating insights from informants, a good theory maintains a degree of detachment from individual perspectives, ensuring that it offers a comprehensive and unbiased understanding of the phenomena under study. Since objectivity in a theory ensures that the resulting explanations are colored by personal biases, the theory therefore offers a neutral and unbiased perspective that is grounded in empirical evidence and logical reasoning. This impartiality enhances the credibility and trustworthiness of the theory, making it more widely accepted within the scientific community.

7. Practical Relevance:

Beyond theoretical robustness, a good theory should have practical implications that extend its value beyond academic circles. A theory with practical relevance provides actionable insights that can inform practice and policy within its specific area of application. This practical dimension is crucial as it ensures that the theory is not intellectually robust but also useful in addressing actual problems. A theory that offers practical relevance helps bridge the gap between research and application. For example, in social science, a theory that explains the

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factors influencing human behavior can guide the development of interventions to improve mental health, education or community welfare. Similarly, in public policy, a theory that accurately models economic behavior can inform strategies to enhance economic stability and growth.

Even though each of these theoretical virtues is extremely significant for developing theories, it becomes crucial to consider each virtue's proportional weight when evaluating competing theories. In a nutshell, these virtues ensures that the theory is reliable and valuable for advancing knowledge, guiding research and informing practice. By embodying these characteristics, a good theory serves as a powerful tool for making sense of complex phenomena and driving scientific and practical advancements.

STOP TO CONSIDER

Theories often consist of broad, generalized statements that outline potential relationships between variables or explain certain phenomena. However, due to their abstract nature, they must be operationalized into specific, testable hypotheses to undergo empirical scrutiny. Operationalization involves defining theoretical concepts in practical, measurable terms. This process translates the abstract components of a theory into concrete variables that can be observed and measured. For instance, a theory about social behavior might suggest that social cohesion leads to higher community engagement. To test this, researchers would operationalize "social cohesion" and "community engagement" into specific, measurable variables, such as the number of community events attended or the frequency of social interactions within a community. One operationalized, these hypotheses can be tested through empirical research. Researchers gather data through various methods such as experiments, surveys or observations and analyze this data to see if the predictions derived from the theory hold true. This empirical testing is crucial for validating or refuting the theory, as it provides evidence for the theory's applicability and accuracy. Furthermore, the process of testing a

theory through hypotheses allows for refinement and development. Based on empirical findings, researchers can modify the theory to better reflect reality, enhancing its explanatory power and reliability. This process of testing and refinement ensures that the theory evolves in response to new data, maintain its relevance.

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4.5 Theory Building Research

There are different procedures for theory building depending on the specific type of research projects. Understanding the study helps to establish a basic process that guarantees, irrespective of the kind of research, all requirements for a good theory building. In this manner, every phase illustrates a prerequisite that must be met in order to satisfy the theory building criteria. Right from the definitions, domains or predictions, that are essential requisites, the same process is to be followed for all kinds of theory building study irrespective of the technique. Although the phases for theory building are sequentially places, but in practice, they often interact with one another and are not always consecutive. For instance, identifying a new concept might necessitate redefining existing definition when representing a theory. Similarly, establishing a prediction or factual claim might require defining or identifying different relationships. Thus, while the process is outlined in distinct steps, a research effort might not necessarily proceed through each step in a proper sequence to develop a "good" hypothesis. Rather the process is flexible with researchers frequently revisiting and reefing each phase based on new insights and findings. This dynamic approach allows for the continuous improvement and adaptation of theories, ensuring their relevance in explaining and predicting phenomena within their domain.

The role of the literature search in the research process is indispensable for all stages of theory building. It provides a foundation by yielding specific predictions from other theories, accepted definitions and identifying the domains where a theory applies. A thorough literature review also uncovers previously established relationships and empirical tests, ensuring that new theories are built upon a solid base of existing knowledge. Engaging with both academic and practitioner publications is essential to gain a comprehensive understanding of the subject matter. This broad

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approach helps in identifying gaps in the current literature, preventing redundancy and ensuring the new theory contributes meaningful and novel insights to the field. Additionally, the literature search aids in refining research questions, conceptualizing variables and developing hypotheses, aligning them with established knowledge and empirical evidence. By systematically reviewing existing studies, researchers can validate their theoretical framework. Lastly, a comprehensive literature search supports the integrity and validity of the theory building process, ensuring that all critical components are thoroughly addressed.

Identifying the who and what of a study necessitates precise definitions of variables to clearly delineate the scope of the research. This precision is crucial for ensuring that the study remains focused and manageable. The literature review often provides a foundational basis for determining these variables, offering established definitions and insights that can guide the research. However, it is sometimes necessary to redefine these variables to better align with the specific context and objectives of the new study. if existing definitions are found to be inadequate, they must be refined to prevent ambiguity and ensure clarity. Moreover, redefining variables should be justified by demonstrating how current definitions fall short in capturing the nuances of the phenomenon being studied. This process is essential as it emphasizes the importance of clarity, precision in research, without which the research may suffer from vague or overlapping constructs, leading to confusion and potentially invalid conclusions. Therefore, careful consideration and rigorous justification of redefining variables are critical to maintain the integrity and focus of the study. However, the condition of "concept stretching" is one significant issue with definitions in research. This occurs when a concept is applied too broadly, extending beyond its original or intended boundaries. Concept stretching can lead to a loss of precision and clarity, making it difficult to differentiate between related but distinct phenomena. When definitions are stretched, the concept may become so generalized that it loses its specific meaning and utility, reducing its effectiveness in guiding research and analysis. This dilution can result in ambiguous findings and interpretations as the variables being studied may no longer accurately represent the phenomena of interest. To avoid concept

stretching, it is essential to maintain clear precise definitions that are closely aligned with the research objectives and the specified context of the study. this often involves critically evaluating existing definitions, refining them to fit the study's unique requirements, and rigorously justifying any modifications. By ensuring that definitions remain focused and accurate, researchers can preserve the validity and reliability of their work, thereby producing more meaningful and actionable results.

Once the specific definitions of the variables have been determined, defining the domain is crucial to specify when and where the theory holds. The domain encompasses the conditions, contexts and boundaries within which the theory is applicable. This step is fundamental because the scope of the theory directly influences its generalizability. A narrowly defined domain limits the theory's applicability, making it specific to particular settings. Conversely, a more broadly defined domain enhances the theory's potential generalizability, allowing it to be applied across various contexts and population. However, the initial domain of a theory often starts narrow due to the specific focus of the initial research. Through rigorous testing and application in different settings, eras, or populations, theory-building research works to expand the theory's domain. This process involves refining the theory based on new data and insights, progressively broadening its applicability. By successfully testing the theory in diverse contexts, researchers can demonstrate its adaptability, thereby increasing generalizability.

Creating a relationship model typically begins once both the definitions of variables are clear and the domain has been determined. This step involves determining which variables are logically connected to others within the context of the theory. Each variable in the model should be explicitly defined, with clear explanations of how and why it is connected to or distinct from other variables. This is a critical phase because the validity of the theory relies on a precise and coherent articulation of these relationships. The complexity of this step stems from the need to ensure that both the theory and the model used to verify it are thoroughly developed and internally coherent. A well-constructed model not only maps out the hypothesized relationships between variables but also provides a clear rationale for these

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connections. This involves justifying each relationship based on theoretical reasoning and empirical evidence, ensuring that the model is logically sound and empirically testable. Additionally, scholarly literature plays a pivotal role at this stage by guiding the identification of critical relationships. Reviewing existing theories and empirical findings helps researchers determine which relationships are essential for the theory's development. by integrating insights from the literature, researchers can align their model with established knowledge, thereby strengthening its theoretical foundation and enhancing its credibility. In the relationship-building step, there are four types of theory-building relationships: those relationships that are assumed to be true (fundamental laws or axioms); those laws that are derived from the fundamental laws (derivative laws or theorems); those laws that span the gap from the theoretical to the empirical world (bridge laws or guiding hypotheses), and the relationships that are being investigated research or theoretical hypotheses) (Hunt).

The final step in theory building is theory prediction, where the theory's capacity to forecast outcomes is articulated. While technically, a theory merely needs to make predictions to meet the basic definitional requirements, without necessarily providing empirical evidence, practical considerations often demand more. Merely proposing hypotheses without empirical backing may lead to a plethora of speculative assertions. Consequently, for a theory to gain acceptance and credibility within the academic community, it generally needs to be supported by empirical data. In practice, this means that while a theory can initially be presented with its predictions, the real test of its validity lies in its empirical verification. Predictions derived from the theory need to be subjected to rigorous testing using data collection through well designed studies. This process involves operationalizing the variables and relationships defined in the theory, conducting empirical research, and analyzing the results to see of they align with the theory's predictions. The necessity for empirical evidence stems from the scientific principle of falsifiability, which posits that for a theory to be considered scientific, it must be testable and potentially refutable by empirical observation. Thus, empirical validation not only strengthens the theory's claims but also demonstrates its applicability and reliability in

explaining and predicting real world phenomena. Furthermore, empirical testing helps refine theories. When predictions are tested and do not align with observed data, this discrepancy can lead to the refinement of the theoretical framework, ensuring that the theory evolves to more accurately reflect the complexities of the phenomena it aims to explain.

Hence, while every phase in developing a theory must adhere to all the qualities of a "good" theory, each step is more strongly associated with a particular set of qualities. For instance, the initial stage of defining the research problem and conducting a literature review is particularly aligned with the virtue of substantive validity, ensuring that the theory is grounded in empirical reality and existing knowledge. This stage establishes the foundation upon which the rest of the theory is built, requiring precise definitions and a clear understanding of the domain. When moving to the stage of key variables and developing hypotheses, the virtue of logical consistency becomes paramount. At this point, it is crucial to ensure that the relationships between variables are coherent and free of contradictions. This logical structure of the theory must be sound so that it provides a unified explanation of the phenomena in question. As the theory progresses to the stage of choosing an appropriate research design and collecting data, the virtue of generalizability comes into focus. Here, the theory's applicability to a wide range of instances and contexts is tested. Ensuring that the theory can be applied broadly requires careful consideration of how the variables and their relationships are operationalized in different stages. During data analysis and refining the theory, the virtue of explanatory power is crucial. This stage involves interpreting the results to see if they support the theoretical framework. A theory's ability to explain why and how phenomena occur is tested and refined, ensuring that the theory not only fits the observed data but also provides a deep understanding of the underlying mechanisms. Finally, in the stage of communicating findings and applying the theory in reality, the virtue of practical relevance becomes most significant. A good theory should offer actionable insights that can inform practice and policy. The practical implications of the theory demonstrate its utility beyond academic discourse, showing its impact on real problems and its ability to guide decision making.

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Self-Assessment Questions

1. Define theory building. What are the virtues of a good theory building?

   .....

   .....

2. "There are different procedures for theory building depending on the specific type of research projects." Explain.

   .....

   .....

3. What is operationalization?

   .....

   .....

4.6 Types of Theory Building Research

Research can be broadly classified into two major categories: analytical research and empirical research. These classifications represent distinct methodologies and objectives in studying and understanding the phenomena.

1. Analytical Research

Analytical research involves using logical reasoning and critical thinking to analyze existing information, aiming to understand underlying principles, relationships and mechanisms by dissecting and examining components of a given subject. This type of research relies heavily on theoretical frameworks, seeking to build on or refine existing theories through critical analysis and interpretation. It predominantly employs qualitative methods, evaluating existing literature, theories and case studies. The main objective of analytical research is to develop a deeper theoretical understanding by uncovering relationships, principles and patterns that explain phenomena. Examples of analytical research include analyzing the impact of economic policies on market behavior using existing economic theories, critically examining literary works to understand thematic evolution over time, and studying the historical development of scientific theories to identify key turning points and influences.

2. Empirical Research

Empirical research is based on observed and measured phenomena, involving the collection and analysis of primary data through experiments, surveys or observations to test hypotheses and validate theories. This type of research relies on direct and indirect observation and experimentation, aiming to gather tangible evidence to support or refuse hypotheses. It often employs quantitative methods to collect numerical data, though qualitative data can also be used. The data is collected original and obtained directly from experiments, surveys, fieldwork, or other data collection methods. The primary goal of empirical research is to gather empirical evidence that can be used to test theories, identify correlations and establish causal relationships. Examples of empirical research include conducting clinical trials to test the efficacy of a new drug, performing surveys to understand consumer preferences and behavior and observing social interactions in a specific community to study social dynamics.

Check Your Progress

1. Explain different types of theories.
2. What are the characteristics of good theory?
3. Evaluate the steps involved in building a theory
4. What the different types of theory building research?

4.7 Summing Up

Building theory is an important aspect of any research proposals. Taking this into consideration, after reading the chapter, the students will understand the nuances involved in bringing a theory into reality. Right from following the steps to analyzing the importance of these theory building procedures, students will be able to apply them in reality.

4.8 References and Suggested Readings

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BLOCK : 3
TYPES OF RESEARCH METHODS

Unit 1 : Pure and Applied Research

Unit 2 : Explorative Research and Action Research

Unit 3 : Mixed Methods of Research

Unit 4 : Combining Qualitative and Quantitative Research

Unit 5 : Some Other Methods of Research

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Unit -1

Pure and Applied Research

Unit Structure:

1.1 Introduction

Research is an in-depth examination of a subject, usually with the goal of learning something new or developing a deeper comprehension. It may be used to discover new information, develop new goods and address a range of issues. To achieve a purpose, however, research may be done in a variety of methods. A person's research strategy will probably depend on the question one hopes to answer as well as additional elements that will enable him or her to obtain the necessary response with accuracy. Basic and applied research are the two primary areas into which research is divided. Each king of study has different goals and advantages. The unit will allow the students to comprehend the distinctions and applications between these two kinds of research.

1.2 Objectives

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After reading the unit, the students will be able to understand:

- The basics of research
- The application of pure and applied research in social setting
- The difference between pure and applied research

1.3 What is Research?

Research refers to deliberate, planned intellectual work that is focused on studying phenomena to broaden the boundaries of existing knowledge. It involves systematic effort to gather, organize, analyze and interpret data to address specific issues and find solutions that benefit society. Research reaches the status of science when a predetermined set of methodologies or techniques are used to gather, document, examine and evaluate data throughout a study cycle that spans from selecting a problem to publishing the final report. This methodical approach to problem solving is characterized by critical thinking and application of scientific method.

The idea of research has consistently proven to be a vital and effective instrument that humanity has utilized to advance knowledge, solve problems and innovate across various fields. It is an investigation method used to discover the truth, driven by curiosity and the need to address specific questions or issues. According to Webster's dictionary, research is defined as a deliberate, thorough and extended research, rather than just a casual quest for knowledge. This definition underscores the meticulous and systematic nature of research, which distinguishes it from mere information gathering or casual inquiry. The scientific method which forms the cornerstone of the applied sciences, is employed in research to find answers to complex problems. The rigor and systematic approach of the scientific method ensure that research findings are reliable, reproducible and valid. Moreover, in applied sciences, research is not just about understanding phenomena but also about applying this understanding to develop new technologies, improve processes and create innovations that can benefit society for example, medical research aims to understand the mechanisms of diseases and develop effective treatments and cures.

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Research also plays a crucial role in social sciences, where it helps in understanding human behavior, social structures and cultural dynamics. By employing various methodologies, including qualitative and quantitative analysis, social scientists can explore complex social issues, develop theories and propose interventions that can lead to social change and improvement. The impact of research extends beyond the academic and scientific communities, it informs policy-making, guides business strategies and shape educational practices. For instance, research in education can lead to the development of more effective teaching methods and learning materials, enhancing educational outcomes for students. Furthermore, the interdisciplinary nature of modern research fosters collaborations across different fields, leading to comprehensive solutions to multifaceted problems. For example, addressing climate change requires the combined efforts to environmental scientists, economists' sociologists and policymakers.

The research process typically begins with the identification and formulation of a research problem. This stage involves defining the specific question or problem to be investigated, which sets the direction for the entire study. Following this, a thorough literature review is conducted to understand the existing body of knowledge related to the problem and to identify gaps that the current research aims to fill. Next, researchers develop hypotheses or research questions based on the insights gained from the literature review. These hypotheses or research questions guide the research design, which outlines the methodology and procedures to be used for data collection and analysis. The research design can vary widely depending on the nature of the study, including experimental, observational, qualitative or quantitative approaches. Data collection is a crucial phase where researchers gather information using various methods such as surveys, experiments, observations or archival research. This data is then systematically analyzed to test the hypotheses or answer the research questions. Statistical tools and qualitative analysis techniques are often employed to interpret the data and draw meaningful conclusions. The findings from the data analysis are then synthesized to refine the theoretical framework and adjust hypotheses if necessary. The final phase of the research process involves writing and publishing a report that details the study's methodology, findings and

implications. This report contributes to the broader academic discourse and provides a foundation for future research. In a nutshell, research is a disciplined and structed approach to investigating complex issues and developing evidence-based solutions. By adhering to rigorous scientific methodologies, researchers ensure the credibility, reliability and validity of their findings, which ultimately advance knowledge and drive societal progress.

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1.4 Pure (Also Knows as Fundamental or Basic) Research

Scientific inquiry that seeks to increase the body of current knowledge without offering immediate practical solutions is known as basic or fundamental research. This type of research is driven by a deep desire to understand the fundamental principles and concepts that underpin various phenomena. The primary goal is to explore and uncover new knowledge thatcontributes to the theoretical framework of a particular field.

Basic research is characterized by its pursuits of broad generalizations and principles rather than specific, applied outcomes. It is often conducted without a direct practical application but with the understanding that such foundational knowledge can eventually lead to significant practical applications. Hence, accordingly, between the late 19th and the early 20th centuries, the idea of fundamental research was developed in an effort to bridge the gaps in the application of science to society. In the social sciences, basic research might involve studying human behavior, social interactions and cultural patterns to develop theories that explains how societies functions and evolve. For example, sociologists might investigate the dynamics of group behavior, social norms and institutions, aiming to create theories that provide a comprehensive understanding of social structures and processes. Similarly, psychologists might study cognitive processes, emotional responses and developmental stages to build theories about human mind and behavior.

Along these lines, such researches delve into the underlying principles governing various phenomenon. Researchers engage in systematic inquiry to uncover new insights, theories or models that contribute to the theoretical framework of a discipline. Therefore, by exploring the fundamental principles

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of nature, society or human cognition, basic research lays the foundation for applied research and technological innovations.

The process of conducting basic research is a meticulous journey aimed at expanding our fundamental understanding of various phenomena. It begins with the formulation of hypotheses, which are essentially propositions derived from existing knowledge and theoretical frameworks. These hypotheses articulate the expected relationships or outcomes based on prior research. Once hypotheses are formulated, the next step is designing experiments or observational studies to test these hypotheses. This involves selecting appropriate methodologies, determining the sample size and identifying the variables to be measured. The design must ensure that the study is capable of isolating the factors under investigation and providing clear, unbiased results. For example, in a laboratory setting, researchers might manipulate specific variables to observe their effects, while in observational studies, researchers might systematically record and analyze behaviors or events as they occur in natural settings.

Data collection follows, where researchers gather quantitative or qualitative data through various means such as surveys, experiments, field observations or archival research. This step is crucial as the quality and accuracy of the data directly impacts the reliability of the research findings. Researchers must employ rigorous protocols to minimize errors and biases during data collection. After data collection, the next phase involves analyzing the data using statistical or computational methods to test the hypotheses. This analysis helps determine whether the observed data supports the initial hypotheses or if adjustments are necessary. Statistical tools are employed to identify patterns, correlations and causal relationships within the data.

Based on the results if the data analysis, researchers the refine their theories. This step involves integrating the new empirical evidence with the existing body of knowledge, leading to the modification or expansion of theoretical frameworks. If the hypotheses are supported, the theories are strengthened and gain credibility; if not, the theories may need to be revised or new hypotheses formulated. This refinement process ensures that the theories remain reliable and reflective of empirical realities. In a nutshell, this entire process right from hypotheses formulation to theory refinement is

crucial for the development of a reliable scientific theory. Each step helps to eliminate inconsistencies, resolve ambiguities and build a more comprehensive understanding of the phenomena under study. Such a nature of this process means that research findings are continually scrutinized and tested, which further enhances their validity and reliability over times.

Moreover, basic research encourages ongoing dialogue within the scientific community, researchers share their findings through publications, conferences and collaborations, inviting peer review and critique. This scrutiny and feedback are essential for identifying potential flaws, biases or alternative interpretations, thus contributing to the refinement and strengthening of theories.

One of the significant outcomes of basic research is the development of theoretical frameworks that serve as the foundation for applied research. By establishing broad principles and generalizations, basic research creates a knowledge base that applied researchers can draw upon to develop practical solutions to specific problems.

1.4.1 Types of Basic Research

Basic research can be categorized into several types based on the objectives, methodologies and field of study. Here are the main types of basic research:

1. **Descriptive Research**

   Descriptive research aims to describe as they exist. It involves observing and detailing the characteristics of objects, events, or subjects without manipulating any variables. This type of research answers questions about the "what," "where," and "when" of the phenomenon. Common methods include surveys, case studies and observational studies.

   Example: a study that talks about the various species of plants in a rainforest and describes their features.

2. **Analytical Research:**

   Analytical research involves analyzing and interpreting data to uncover patterns, relationships or trends. It often builds on descriptive research by using quantitative methods such as statistical analysis to draw conclusions from data.

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Example: analyzing the data from a national health survey to determine the correlation between lifestyle factors and heart disease incidence.

3. **Theoretical Research:**

   It aims to expand the theoretical understanding of phenomena without immediate practical application. It focuses on developing, refining or challenging theories.

   Example: research that explores the theoretical foundations of quantum mechanics.

4. **Historical Research:**

   Historical research involves examining past events to understand the present and anticipate potential future effects. It uses historical records and documents to investigate, interpret and understand past trends and patterns.

   Example: a study analyzing historical data to understand the economic impact of past pandemic.

5. **Exploratory Research:**

   It is conducted to explore a problem or situation when there are few or no earlier studies to refer to. It seeks to gain insights and familiarity for later investigation or to determine the best methods to use in a subsequent study. This type of research is flexible and can involve qualitative methods like interviews or focus groups.

   Example: preliminary research investigating new trends in social media use among teenagers.

1.4.2 Data Collection Method

Data collection methods are crucial for obtaining accurate and relevant information for a research study. the choice of method depends on the research questions, objectives, and the nature of the study. Here are some common data collection methods used in basic research:

1. **Surveys and Questionnaires:**

   They are used to collect data from a large number of respondents through structured questions. It can be administered in person, by mail, online or over the phone. While they allow for the collection

of a large amount of data in a relatively short time, responses may at times be influenced by how questions are phrased or by the respondent's interpretation.

2. **Interviews:**

   Interviews involve direct, face to face interaction between the researcher and the respondents. They can be structured, semi-structured or unstructured. While they provide depth and detail, allow for clarification of responses and offer opportunity to explore complex issues. They can be time-consuming and costly.

3. **Observations:**

   Observation involves systematically watching and recording behavior and events as they occur in their natural setting. They provide real time data ad a context for behavior. They are useful for studying behaviors that respondents may not be able to report accurately. However, observer bias can affect the accuracy of the data. It can also be difficult to observe and record everything objectively.

4. **Document and Content Analysis:**

   This method involves the systematic examination of documents, texts or media content to extract meaningful information. It can provide historical and contextual insights. It allows for the analysis of large amounts of data. The availability and authenticity of documents can be an issue. Interpretations can be subjective.

5. **Case Studies:**

   Case studies involve an in-depth analysis of a single case or a small number of cases to be analyzed. They provide detailed and rich qualitative data and can offer insights into complex issues. However, findings from case studies may not be generalized to larger populations. They can also be time consuming.

6. **Experiments:**

   Experiments involve manipulating one or more variable to determine their effect on a dependent variable. This method is commonly used in laboratory settings but can also be conducted in the field. While they allow for control over variables and can establish causality, laboratory settings may not accurately reflect real-world conditions, and some phenomena may not be easily manipulated or controlled.

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STOP TO CONSIDER

Basic research, is primarily concerned with expanding knowledge and understanding fundamental principles. It is not aimed at solving specific practical problems but rather at gaining a deeper insight into phenomena. Some applications of basic research are:

1. Advancement of Scientific Knowledge: Basic research contributes to the overall body of scientific knowledge. It helps to uncover new phenomena, theories and principles that can form the foundation for applied research. Example: investigating the properties of subatomic particles, which led to the development of quantum mechanics.
2. Technological Innovations: Basic research often leads to technological advancements by providing new insights and understanding that can be used to develop new technologies. Example: research in fundamental physics led to the development of semi-conductor technology, which is crucial for modern electronics.
3. Foundation for Applied Research: The discoveries and theories developed through basic research becomes the basis for applied research. Applied research uses this foundational knowledge to address specific practical problems. Example: basic research on the structure of DNA provided the groundwork for applied research in genetic engineering and biotechnology.
4. Understanding Human Behavior: Basic research in psychology and sociology helps to understand the underlying principles of human behavior and social interactions. Example: research on cognitive biases and decision-making process has implications for improving business strategies and public policy.
5. Environmental and ecological insights: Basic research in environmental science and ecology enhances our understanding of natural processes and the impact of human activities on ecosystems. Example: studies on climate change mechanisms provide essential knowledge for developing strategies to mitigate global warming.

1.4.3 Purpose of Basic Research

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The primary purpose of basic research is to deepen our understanding of fundamental principles and phenomena without an immediate practical application in mind. This type of research aims to advance scientific knowledge by exploring unknown areas and generating new insights, contributing to the broader body of scientific understanding. By focusing on fundamental questions, basic research describes, explains, and predicts various aspects of the natural and social world.

Basic research is also crucial for theory development and testing. It involves formulating hypotheses based on existing knowledge, designing experiments or observational studies to test these hypotheses, collecting and analyzing data, and refining theories based on empirical evidence. This process ensures that theories are capable to withstanding scrutiny and further testing. Further, understanding fundamental mechanisms is another key aspect of basic research. By uncovering the underlying principles that govern various phenomena, basic research provides a deeper understanding of how things work.

Basic research also plays a vital role in exploring new phenomena and making unexpected discoveries. This exploratory nature can lead to groundbreaking findings. It additionally contributes to educational and academic development by advancing scientific disciplines and training future scientists and researchers in the latest methods and knowledge. Basic research also informs public policy and addresses societal issues by providing a deeper understanding of human behavior and social structures. Research in social sciences and humanities can guide policies on education, healthcare and criminal justice, ensuring that they are grounded by robust scientific evidence. Driven by intellectual curiosity, basic research also satisfies the human desire to understand the world and our place within it. For example, astronomers studying the origins of the universe seek to answer profound questions about the nature of existence. Finally, basic research lays the groundwork for future innovations, as discoveries often lead to technological advancements that were not initially anticipated. In short, the purpose of basic research is multifaceted, aiming to explore, understand and explain the fundamental aspects of the natural and social world. By contributing to

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the growth of scientific knowledge, it lays the ground for future applications and innovations, making it an essential component of scientific progress.

1.4.4 Characteristics of Basic Research

Basic research has several distinctive characteristics that differentiate it from applied research. Some key characteristics are:

1. **Theoretical Focus:**
   The research primarily aims to advance theoretical understanding rather than practical application. It seeks to uncover fundamental principles and generate new knowledge about how things work in the natural and social world. This type of research is driven by curiosity and a desire to explore the unknown, rather than immediate practical needs or commercial objectives.
2. **Exploratory Nature:**
   Basic research is exploratory and open ended, often investigating broad questions and fundamental phenomena. Researchers in this domain seek to understand the underlying mechanisms and principles that govern observed phenomena. This exploratory nature allows for the possibility of unexpected discoveries and new directions for further investigation.
3. **Hypothesis- Driven:**
   Basic research often begins with the formulation of hypotheses based in existing theories and knowledge. These hypotheses are then rigorously tested through experiments, observations or simulations. The goal is to either support or refute these hypotheses, thereby refining or expanding the theoretical framework.
4. **Long Term Perspective:**
   Basic research is typically conducted with a long-term perspective. It may not yield immediate practical benefits, but it contributes to the body of knowledge that can eventually lead to significant scientific advancements and technological innovations. The impact of basic research is often seen over extended periods as new insights and theories pave way for future applications.

5. **Methodological Rigor:**

   Basic research adheres to strict methodological standards to ensure the validity and reliability of its findings. This involves careful planning of experiments or studies, precise measurements and data collection, and thorough analysis. The use of control groups, replication of studies and peer review are common practices to main scientific rigor.

6. **Public Good:**

   Basic research often serves the public good by contributing to the collective knowledge of society. It can inform public policy, enhance education and improve our understanding of critical issues such as health, environment and social behavior. The insights gained from basic research can lead to societal benefits that go beyond immediate practical applications.

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Some examples of Basic Research include:

1. **Social identity and group dynamics**: Research study how individuals for social identities and how these identities influence group dynamics and behavior.
2. **Cognitive development in children:** Developmental psychologists explore how children develop cognitive abilities such as language, reasoning, and problem solving from infancy through adolescence.
3. **Decision-making process:**Behavioral economists and psychologists investigate how individuals make decisions, including the cognitive biases and heuristics that influence choices.
4. **Cultural influences in behavior:** Anthropologists and sociologists examine how cultural norms, values and practices shape human behavior and social structures.
5. **Economic behavior and market dynamics:** Economists conduct basic research on how individuals and groups make economic decisions. How market functions and the underlying principles of economic behavior.

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Self-Assessment Questions

1. Pure research is also called?
   a. Fundamental research
   b. Action research
   c. Applied research
   d. Descriptive research
2. Formulation of hypotheses is the primary step in any research
   a. True
   b. False
   c. Sometimes
   d. None of the above
3. Which of the following is the characteristics of basic research?
   a. Exploratory
   b. Theoretical
   c. Open ended
   d. All of the above

1.5 Applied Research

Applied research is a branch of science that focuses on creating workable answers to the real-world issues. Applied research makes use of preexisting ideas, information and methodologies to address particular, concrete difficulties in a variety of disciplines or sectors, in contrast to fundamental research, which aims to expand the bounds of theoretical knowledge. The primary objective of applied research is to translate theoretical understanding into actionable strategies, technologies or interventions that can be implemented to solve immediate challenges. This type of research is often driven by the needs of society, industry or government, focusing on areas such as health care, education, engineering and business to create direct and beneficial impacts.

Taking instances from the field healthcare sector, applied research might involve developing new treatments, medical devices, or public interventions to combat diseases and improve patient outcomes. Similarly, in the field of education, applied research could focus of developing new

teaching methods, educational technologies, or curriculum designs to enhance learning outcomes. Researchers might apply theories of cognitive development and educational psychology to create interventions that address specific learning challenges, such as improving literacy rates or integrating technology in the classroom to engage students better.

The process of applied research is a systematic approach designed to develop practical solutions for the problems. It begins with identifying a specific problem or challenge that requires a solution, ensuring the focus remains on a tangible and relevant issue. Researchers then review relevant literature and existing knowledge to understand the current state of research, identify gaps, and build on theories. This foundational work informs the design of a study or experiment, which involves selecting appropriate methodologies, defining variables and planning data collection and analysis. Data is then collected through various methods such as surveys, experiments, observations or case studies and analyzed using statistical or qualitative techniques to test hypotheses and evaluate potential solutions. The final step is implementing the finding to address the problem, which often requires collaboration between researchers and practitioners to ensure the solutions are feasible and effective. This process, grounded in empirical evidence and practical feedback, aims to refine solutions continuously, enhancing their applicability and impact.

1.5.1 Types of Applied Research

Types of applied research can be broadly categorized based on their focus and application areas. Here are some types:

1. **Evaluation Research:**
   Evaluation research is designed to assess the effectiveness, efficiency and impact of programs, policies or products. It aims to provide feedback and insights that can be used to improve and refine these interventions. This type of research is commonly used in education, healthcare, social services and non-profit organizations.
2. **Action Research:**
   It is a participatory process that focuses on solving immediate problems through a cycle of planning, acting, observing and

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reflecting. It emphasizes collaboration between researchers and practitioners. Action research is widely used in educational settings, where teachers work with researchers to develop and test new teaching strategies or classroom interventions.

3. **Policy Research:**

   Policy research aims to inform policy decisions by providing evidence-based analysis and recommendations. It seeks to understand the potential impact of policy options and guide policymakers in making informed decisions. This research is conducted by government agencies, think tanks, and NGOs.

4. **Diagnostic Research:**

   It aims to identify the underlying causes of specific problems or conditions. It seeks to understand the nature and source of issues by investigating symptoms, pattens and contributing factors. The goal is to provide a clear diagnosis that can inform effective interventions and solutions.

5. **Developmental Research:**

   Developmental research focuses on the creation and improvement of products, processes, programs or methodologies. It aims to advance knowledge and practice through the systematic development and testing of new ideas, technologies and interventions. This type of research involves continuous refinement based on feedback and testing.

1.5.2 Data Collection Methods

In applied research, the choice of data collection methods is crucial for ensuring that the research objectives are met effectively. These methods can be broadly classified into two categories: qualitative and quantitative. Each category has distinct characteristics and serves different purposes in the research process:

1. **Quantitative Methods:**

   Quantitative methods are used to gather numerical data that can be quantifies and subjected to statistical analysis. These methods aim to measure variables and identify patterns, relationships and causal links. Some common methods are:

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a. **Surveys:** Structured questionnaires designed to collect data from a large number of respondents. It is useful for gathering data ranging from attitudes, behaviors, demographics and other measurable variables.
b. **Experiments:** It is a controlled study where one or more variables are manipulated to observe their effect on other variables. It is ideal for establishing cause- and- effect relationships.
c. **Observational studies:** It is a systematic way of recording the observable behaviors or events. It is suitable for studying behaviors in natural settings.
d. **Secondary Data Analysis:** It is applied using the existing data that is collected by other researchers or organizations. It is efficient for longitudinal studies or when primary data collection is not feasible.

2. **Qualitative Methods:**

It aims to explore and understand phenomena in depth, providing rich, detailed insights into people's experiences, attitudes and behaviors. Some common methods are

a. **Interview:** It is an in-depth, open-ended conversations with individuals to explore their perspectives and experiences. It is useful for gaining detailed, personal insights.
b. **Focus Groups:** These are group discussions facilitated by a researcher to explore collective views and experiences. They are ideal for generating diverse perspectives on a particular topic.
c. **Case Studies:** Case studies are in-depth analysis of a single case or a small number of cases. They are suitable for exploring complex phenomena in its real-life context.
d. **Ethnography:** It is an immersive research method where the researcher observes and participates in the daily life of the study subjects. It provides deep insights into cultural practices and social interactions.

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Applied research plays a crucial role in solving practical problems and improving various aspects of society. Here are some key applications across different fields:

1. Healthcare: Applied research in healthcare focuses extensively on developing new medications, therapies and medical devices. Researchers collaborate with the pharmaceutical companies and healthcare providers to create innovative treatments that address various medical conditions.
2. Education: In the field of education, applied research plays a pivotal role in designing and refining curricula to improve learning outcomes. Researchers analyze educational needs, learning styles, and student performance data to develop curricula that are both engaging and effective.
3. Business and Industry: Applied research drives innovation in product development by identifying consumer needs and preferences. Researchers work with companies to design and test new products, ensuring they meet market demands and stand out in competitive markets.
4. Environmental Science: Applied research in environmental science is crucial for developing sustainable practices in agriculture, industry and urban planning. Researchers study environmental impacts and devise strategies to minimize negative effects while promoting sustainability.

1.5.3 Purpose of Applied Research

The purpose of applied research is to bridge the gap between theoretical knowledge and practical application, addressing specific challenges by using scientific methods to develop effective solutions. Unlike the basic research, which primarily seeks to expand our understanding of fundamental principles and theories, applied research is driven by the need to solve tangible problems and improve outcomes in various fields. This type of research is essential in areas such as healthcare, where it leads to the development of new treatments, improved diagnostic methods and

enhanced patient care strategies. In education, applied research aims to refine teaching techniques, optimize learning environments, and develop innovative educational tools that improve student performance and engagement. Environmental applied research focuses on creating sustainable practices, mitigating pollution and conserving natural resources to address ecological issues. Additionally, in public policy and social sciences, applied research informs the creation of effective programs and policies that address societal issues such as crime, poverty and health disparities. By directly tackling these specific problems, applied research not only advances scientific knowledge but also ensures that this knowledge is used in ways that have a direct, positive impact on society, enhancing the quality of life and contributing to economic and social development.

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1.5.4 Characteristics of Applied Research

Applied research is characterized by several key features that distinguish it from other types of research. These characteristics include:

1. **Problem-Solving Focus:** Applied research is inherently practical and problem-oriented. It starts with a clear identification of specific issues or challenges that need resolution. These problems can be diverse, ranging from improving health outcome in a community to enhancing the efficiency of industrial processes. The primary objective is to develop actionable solutions that address these problems effectively.
2. **Goal-Oriented:** Unlike basic research, which seeks to expand general knowledge, applied research is guided by specific goals and objectives. These goals are usually well-defined at the outset and direct the research process.
3. **Practical Application:** The hallmark of applied research is its focus on producing results that can be directly applied in real world situations. This could involve creating new products, developing technologies, optimizing processes, or implementing new policies.
4. **Empirical Nature:** Applied research relies on empirical methods to gather data and derive conclusions. This involves systematic collection, measurement and analysis of data using both quantitative

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and qualitative techniques. The empirical approach ensures that the findings are grounded in observable and measurable evidence, thereby enhancing the reliability and validity of the research outcomes.

5. **Interdisciplinary Approach:** Complex problems often require insights and expertise from multiple disciplines. Applied research commonly involves interdisciplinary collaboration, where researchers from various fields such as engineering, medicine, economics and social science work together. This collaborative effort enriches the research by incorporating diverse perspectives and methodologies, leading to more holistic and effective solutions.
6. **Immediate Relevance:** The findings of applied research are intended to be immediately relevant and beneficial to stakeholders, including policymakers, practitioners and the general public.
7. **Stakeholders Involvement:** Applied research frequently involves the active participation of stakeholders who are directly impacted by the research outcomes. Engaging stakeholders such as community members, industry partners or government agencies ensures that the research addresses their needs and is practically viable.

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Some examples of Applied Research are:

1. **COVID-19 Vaccine Development**: the rapid development of vaccines for COVIS-19 by pharmaceutical companies like Pfizer-BioNTech and Moderna.
2. **Online Learning Platforms**: evaluating the effectiveness of online learning platforms like coursera.
3. **Precision Agriculture:** research on precision agriculture technologies such as drone-based crop monitoring and automated irrigation systems, which help farmers optimize resource use and increase productivity.

4. **Renewable Energy Solutions:** research on improving the efficiency and cost-effectiveness of solar panels and wind turbines. This includes developing new materials and technologies to enhance energy capture and storage.

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Self-Assessment Questions

4. Applied research aims to provide a practical solution to the problems (T/F)
5. Case studies, focus groups, interviews are some methods of undertaking applied research (T/F)
6. Applied research is normative in nature (T/F)
7. Policy research aims to inform policy decisions by providing evidence-based analysis (T/F)
8. Applied research seeks to expand general knowledge (T/F)

1.6 Difference between Basic and Applied Research

Applied research and pure research represent two fundamental approaches to scientific inquiry, each with distinct goals, methodologies and outcomes. While both types of research are essential for the advancement of knowledge, they serve different purpose and cater to varying needs within the scientific and practical realms. Applied research focuses on addressing specific, real-world problems, aiming to develop practical solutions that can be directly implemented in various fields such as medicine, engineering and education. In contrast, pure research seeks to expand our understanding of fundamental principles and theories without immediate concern for practical applications. This form of research is driven by curiosity and the desire to explore the underlying mechanisms of natural and social phenomena. The interplay between these two approaches is crucial, as applied research often relies on the foundational knowledge generated by pure research, while discoveries from applied research can inspire new directions for basic research. By examining the characteristics and contributions of both applied and pure research, we can better appreciate their roles in the continuous pursuits of scientific and technological progress.

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ASPECT	PURE RESEARCH	APPLIED RESEARCH
Objective	Expand knowledge, understand fundamental principles	Solve practical problems, improve processes
Focus	General principles and theories	Specific goas and objectives
Methodology	Theoretical analysis, modeling, exploratory studies	Empirical methods: experiments, surveys, field studies
Collaboration	Primarily conducted by academic researchers	Often involves researchers and practitioners
Practicality	No immediate practical use	Direct practical applications
Outcome	New theories, models, deeper understanding	Tangible benefits, new products, improved processes
Implications	Long-term scientific progress, foundational knowledge	Immediate impact on society, industry or organization
Examples	Discovery of DNA structure, social behavior theories	Development of new medical treatments, engineering solutions, educational interventions
Scope	Broad, discipline-wide	Narrow, problem-specific
Relevance	High for future research and theoretical advancements	High for current issues and practical needs.

Check Your Progress

1. What do you understand by Pure Research?
2. Distinguish between the types of pure and applied research.
3. Compare the method of research undertaken in pure research with applied research.
4. Evaluate the characteristics of applied research.
5. "Applied research aims to solve practical problems." Explain.

1.7 Summing Up

After reading the unit, the student will get a clear understanding of pure and applied research, along with its various aspects. While pure research explores basic ideas and theories out of curiosity without concerns for immediate applicability, conversely, applied research concentrates on tackling particular issues in reality with the goal of creating a workable solution for a range of industries. Furthermore, by knowing the intricacies of these research the students will be further able apply the concepts in practical usage.

1.8 References and Suggested Readings

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Unit -2

Explorative Research and Action Research

Unit Structure:

2.1 Introduction

The unit deals with the understanding of action research and exploratory research. These research techniques are two distinct yet complementary approaches within the realm of scientific inquiry. While exploratory research is employed when there is limited knowledge or understanding of a subject, action research, on the other hand, focuses on solving practical problems through a participatory process running across in the research cycle. Together, these research methods play crucial role in advancing knowledge and addressing issues existing in the society.

2.2 Objectives

After studying the Unit, the student will be able to:

- Define exploratory and action research
- Examine the application of these research technique in the social setting

- Analyze the role of the researchers in using exploratory or action research techniques.

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2.3 Explorative Research

Exploratory research is a vital research strategy particularly suited for situations where a researcher has limited expertise of a subject or phenomenon under investigation. This research type is often employed in the initial stages of an inquiry, serving as the foundation upon which more structured and detailed research can be built. The primary goal of exploratory research is to gain a deeper understanding of the problem, generate new ideas, and identify potential avenues for further study. One of the key characteristics of exploratory research is its open-ended and flexible approach. Unlike more structured research designs that rely on predefined hypotheses and a rigid methodological framework, exploratory research allows researchers to delve into the research issue without being constrained by initial assumptions. This flexibility is crucial because it enables the researcher to follow emerging leads and adjust the research focus based on preliminary findings, thus ensuring that the investigation remains responsive to new insights and directions.

The open-ended nature of exploratory research means that it often employs qualitative methods such as interviews, focus groups and observations. These methods facilitate an in-depth examination of participants' experiences, perceptions and behaviors, providing a rich and nuanced understanding of the research issue. For example, through semi-structured interviews, researchers can explore participants' thoughts and feelings in detail, allowing for the discovery of new themes and patterns that may not have been previously considered. Additionally, exploratory research may involve reviewing existing literatures and conducting case studies to gather background information and contextual knowledge. This comprehensive approach helps to build a foundational understanding of the subject, guiding subsequent research efforts. By synthesizing information from various sources, researchers can identify gaps in existing knowledge, refine the research problem, and develop a conceptual framework that can be tested in future studies. Exploratory research is instrumental in hypothesis

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generation. By investigating the research issues in an open-ended manner, researchers can develop informed hypotheses that can be tested in more rigorous and controlled studies. This hypothesis-testing aspect of exploratory research is essential for advancing scientific-knowledge, as it provides the initial insights and groundwork necessary for conducting subsequent confirmatory research. In a nutshell, exploratory research is a crucial step in the research process when dealing with new, complex, or poorly understood issues. It provides a flexible and adaptive framework for investigating the research problem, generating new ideas, and laying the groundwork for more conclusive and rigorous research. Through its open-ended inquiry and in-depth exploration, exploratory research helps researchers navigate uncharted territory and develop a comprehensive understanding that is essential for advancing knowledge and addressing existing problems.

2.3.1 Exploratory Research Methods

There are several types of exploratory research, each suited to different research contexts and objectives. These types include:

1. **Literature Review**

   A literature review is a critical and comprehensive examination of existing scholarly articles, books, dissertations, conference proceedings and other academic sources relevant to the research topic. This type of exploratory research is essential for identifying gaps in the current body of knowledge, understanding the theoretical and conceptual frameworks that have been previously applied, and refining research questions. By synthesizing existing research, a literature review helps to establish the context and significance of the new study ensuring that it builds on and contributes to the existing knowledge base.

2. **Case Studies**

   Case Studies involve an in-depth analysis of a single case or a small number of cases within their real-life context. This type of research is particularly useful for exploring complex phenomena that cannot be easily captured through quantitative methods. Case studies allow

researchers to gain detailed insights into the unique characteristics, processes, and outcomes of specific instances. They often use multiple data sources such as interviews, observations and document analysis to provide a comprehensive understanding of the case. This method is especially valuable when the boundaries between the phenomenon and context are not clearly evident.

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3. **Pilot Studies**

   Pilot studies are small-scale preliminary studies conducted to test the feasibility and design of a larger study. They help researchers refine their research questions, methodologies and data collection instruments. By conducting a pilot study, researchers can identify potential problems and make necessary adjustments before launching the full-scale study. Pilot studies also provide initial data that can help in formulating hypotheses and guiding further research, this step is crucial in ensuring the reliability and validity of the subsequent larger study.

4. **Focus Groups**

   Focus groups involve guided group discussions with selected participants who share certain characteristics relevant to the research topic. This qualitative research method is effective for exploring participants' attitude, perceptions, experiences and social dynamics. A moderator facilitates the discussion, encouraging participants to share their views and interact with each other. Focus groups generate rich qualitative data and can reveal new perspectives and insights that may not emerge through individual interviews or surveys. They are particularly useful in the early stages of research for generating ideas and identifying key issues.

5. **Interviews**

   Interviews are structured, semi-structured or unstructured conversations with individuals who have relevant knowledge or experience. This method allows researchers to delve deeply into specific topic, gather detailed information and uncover underlying motivations and beliefs. Structured interviews use a fixed set of questions, while semi-structured interviews allow more flexibility,

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and unstructured interviews are more open-ended. Interviews can provide in-depth insights and a deeper understanding of the research topic, capturing the nuances of participants' experiences and perspectives.

6. **Observations**

Observations involve the systematic recording of behavior and events in their natural setting. This method can be participant (where the researcher is involved in the activities being observed) or non-participant (where the researcher observes without becoming involved). Observations are particularly useful for studying phenomena as they occur naturally, providing first hand insights into the context, interactions, and dynamics of the research subject. This method helps capture the subtleties of behavior and context that might be missed through other data collection methods.

7. **Surveys**

Surveys, though associated with quantitative research, can also be used in an exploratory context to gather preliminary data and identify trends and patterns.Open-ended questions in surveys allow respondents to provide qualitative insights that inform further research. Surveys are useful for reaching a larger number of respondents and collecting data on their attitudes, opinions, behaviors and characteristics. This method helps generate hypotheses and identify areas for more detailed investigation.

8. **Content-Analysis**

Content-Analysis is the systematic examination of communication materials such as books, articles, speeches, media content and social media posts. This method helps researchers identify themes, patterns and trends in the material being studied. Content analysis can be quantitative (counting the frequency of certain words or phrases) or qualitative (interpreting the meaning and context of the content). This method is valuable for understanding how topics are portrayed and discussed in various media, providing insights into societal attitudes and perceptions.

9. Ethnography

Ethnography is a qualitative research method that involves the researchers immersing themselves in the community or context being studied. This method provides a deep understanding of the cultural and social dynamics at play. Ethnographers typically spend extended periods of time observing and interacting with participants in their natural environment. This immersive approach allows researchers to capture the lived experiences, rituals, and social interactions of the community, providing rich, detailed insights into the research topic.

Hence, each type of exploratory research method has its strength and is chosen based on the specific research goals, the nature of the research question, and the context un which the research is conducted. By employing one or more of these methods, researchers can give a comprehensive understanding of their topic, generate new hypotheses and lay the groundwork for more conclusive research. Exploratory research is a critical step in the research process, setting the stage for deeper investigation and discovery.

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2.3.2 Purpose of Exploratory Research

Exploratory research is a vital methodological approach used when a researcher has limited knowledge or understanding of a particular subject or phenomena. Its primary purpose is to provide foundational insights and familiarity with the research problem, thereby laying the groundwork for future. This type of research is characterized by its flexibility and open-ended nature, allowing to adapt and refine their focus as they uncover new information.

One of the fundamental purposes of exploratory research is to clarify and define concepts that are ambiguous or poorly understood. In many fields, researchers encounter terms and ideas that lack precise definitions or are interpreted differently by various stakeholders. Through exploratory research, these concepts can be explored in depth, leading to a more consistent and universally accepted understanding. This process often involves reviewing literature, conducting interviews and engaging in

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discussions with experts to develop a shared framework that can be used in subsequent studies. Additionally, exploratory research is essential for identifying and prioritizing the key variables and issues that should be the focus of further research. In many cases, the initial stages of research reveal a multitude of potential factors that could influence the outcome. However, due to limited resources and time, it is crucial to narrow down these factors to those that are most relevant and impactful. Exploratory research helps in highlighting these priority areas, ensuring that subsequent research efforts are focused and efficient.

Another significant purpose of exploratory research is to generate hypotheses. Unlike other forms of research that test pre-existing hypotheses, exploratory research aims at uncovering patterns and relationships that can lead to the formulation of new hypotheses. These hypotheses then provide a structured pathway for more rigorous testing in later stages of research. By analyzing preliminary data and observing emerging trends, researchers can identify potential causal relationships and other significant factors that warrant further investigation. Understanding the context in which a phenomenon occurs is another crucial goal of exploratory research. In social sciences and other fields, delving into the various environmental, social, cultural and economic factors that influence the research problem is vital. This contextual understanding is crucial for developing theories and models that are grounded in reality. It also helps in interpreting the findings accurately and ensuring that the conclusions drawn are relevant and applicable to the broader context.

Exploratory research is particularly valuable for uncovering new insights and ideas that may not have been previously considered. This type of research can reveal unexpected findings that lead to the development of new theories or the modification of existing ones. These insights can be groundbreaking, opening up new avenues for investigation and expanding the scope of the research field. By being open-ended and flexible, exploratory research encourages creativity and innovation, allowing researchers to explore uncharted territories. Before embarking on a large-scale research project, it is essential to assess its feasibility. Exploratory research helps in evaluating the practicality of the research design, the

availability of data and potential obstacles. This assessment ensures that resources are used efficiently and that the research project is viable. By conducting exploratory research, researchers can identify any issues that may arise and address them before committing to more extensive studies.

The development of effective research instruments, such as surveys, interview guides and observation protocols, is another key purpose of exploratory research. By exploring the research problem, researchers can refine these tools to ensure they are accurate and reliable, this refinement process involves testing the instruments in preliminary studies and making necessary adjustments based on the feedback and results obtained. Exploratory research also plays a vital role in gathering the perspectives and experiences of various stakeholders. Understanding these viewpoints provides a more comprehensive picture of the research problem and ensures that the findings are robust and inclusive. By engaging with different stakeholders, researchers can identify the needs, concerns and priorities of the people affected by the research, leading to more relevant and impactful outcome. For researchers who are new to a field or studying a novel phenomenon, exploratory research enhances familiarity with the subject matter. This background knowledge is essential for designing relevant research studies in subsequent phases. By gaining a deep understanding of the topic, researchers can ensure that their future research efforts are well-informed and targeted. In applied fields, exploratory research can inform decision-making processes. The initial insights gained can guide policy formulation, strategic planning and other practical applications, ensuring that decisions are based on a sound understanding of the research problem. This application of exploratory research ensures that the solutions developed are effective and grounded in empirical evidence.

In a nutshell, exploratory research serves multiple critical purpose in the research process. It provides a foundational understanding of the research problem, clarifies concepts and definitions, identifies research priorities, generate hypotheses and uncovers new insights. Additionally, it assesses the feasibility of large-scale projects, develops effective research instruments, gathers stakeholder perspectives, enhances familiarity with the subject, and informs decision-making processes. By employing a flexible

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and open-ended approach, exploratory research enables researchers to navigate complex and poorly understood phenomena, paving the way for more detailed and conclusive studies in the future.

STOP TO CONSIDER

Exploratory research plays a pivotal role across various fields by providing initial insights and guiding further, more focused investigations. Here are a few examples of its practical applications:

1. Market Research: Companies often use exploratory research to gather preliminary data on consumer needs and preferences before developing new products. This might involve focus groups, in-dept interviews or observational studies.
2. Healthcare: Public health researchers employ exploratory methods to investigate health behaviors and attitudes towards health interventions. This helps in designing effective health promotion and disease prevention programs.
3. Education: Educators and researchers use exploratory research to assess the effectiveness of new teaching methods and curricula. Observations, interviews and pilot studies help identify strengths and areas for improvement. Understanding factors that influence student engagement and motivation can inform the development of strategies to enhance learning outcomes.
4. Social Sciences: Sociologists and anthropologists use exploratory research to study social behaviors, cultural practices and community dynamics. Ethnographic studies and qualitative interviews provide deep insights into human interactions.
5. Environmental Studies: Exploratory research helps in understanding new or poorly studied ecosystems, providing a basis for conservation efforts. Identifying sustainable practices and understanding their adoption in different communities helps in promoting environmental sustainability.

2.3.3 Advantages and Disadvantages of Exploratory Research

Advantages:

1. **Flexibility:** One of the primary advantages of exploratory research is its flexibility. Researchers are not bound by rigid methodologies or pre-defined hypotheses, allowing them to adjust their focus based on preliminary findings and emerging insights. This adaptability is crucial when exploring new or poorly understood areas.
2. **Foundation for Future Research:** This type of research often serves as a foundational phase that informs and shapes subsequent studies. By identifying key variables and generating preliminary hypotheses, exploratory research provides a roadmap for more focused and detailed investigations. This foundational work ensures that future research efforts are based on a solid understanding of the subject matter, which enhances the efficiency and effectiveness of the studies.
3. **Insight Generation:** The open-ended nature of exploratory research is instrumental in uncovering new ideas, trends, and patterns that might nit be evident through more structured approaches. This ability to generate novel insights can lead to the development of innovative theories and models, pushing the boundaries of the research field.
4. **Clarification of Concepts:** Exploratory research plays a crucial role in defining and clarifying concepts that may be ambiguous or poorly understood. By exploring different dimensions of a concepts, researchers can develop clear and consistent definitions, which are essential for building a coherent and comparable body of knowledge. This clarification process helps ensure that subsequent research uses consistent terminology and frameworks.
5. **Feasibility Assessment:** Before launching large scale research project, exploratory research can assess the feasibility of the study design, data availability and potential obstacles. This assessment helps researchers identify practical challenges and resource requirements, ensuring that subsequent research projects are viable and well-planned.

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Disadvantages

1. **Lack of Conclusiveness:** One of the main drawbacks of exploratory research is that it does not provide definitive answers or conclusive evidence. The findings are often preliminary and require further validation through more rigorous and structured research methods. This lack of conclusiveness can be a limitation when stakeholders seek concrete solutions.
2. **Subjectivity:** The open-ended nature of exploratory research can introduce subjectivity, as the findings may be influenced by the researcher's perspectives and biases. this subjectivity can affect the reliability and generalizability of the results. To mitigate this, researchers need to be aware of their biases and employ strategies to ensure objectivity.
3. **Limited Predictive Power:** Exploratory research is primarily aimed at understanding a phenomenon and generating hypotheses, rather than making precise predictions. As a result, it typically offers limited predictive power and may not provide accurate forecasts about future events or behaviors. This limitation means that additional research is often needed to test and refine the hypotheses generated by exploratory studies.
4. **Resource Intensive:** Conducting exploratory research can be resource intensive in terms of time, effort and costs. Because the research process is open-ended, it may require more extensive data collection and analysis than more structured research methods. Thei resource intensity can be a constraint, particularly for researchers with limited funding or tight timelines.
5. **Difficulty in Measuring Impact:** The impact of exploratory research can be difficult to measure, as its primary outcomes are often intangible, such as generating new ideas or hypotheses. Unlike applied research, which can demonstrate clear and measurable improvements in practice, the contributions of exploratory research may be less immediately apparent. This can make it challenging to justify the investment in exploratory studies to funding bodies or stakeholders looking for concrete results.

Self-Assessment Questions

1. What do you understand by exploratory research?

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2. Briefly elaborate the purpose of exploratory research serve.

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2.4 Action Research

Action research is a distinctive research methodology that intertwines practical action with rigorous research to address issues and generate new knowledge. It is characterized by a dual focus: on the one hand, it involves taking concrete steps to solve a problem, and on the other, it involves systematically analyzing the effects of these actions to understand their impact. this approach allows research and practitioners to engage in a continuous cycle of action and reflection, making it highly adaptable and responsive to the needs of the situation.

The term "action research" was first coined in 1944 by Kurt Lewin, a professor at MIT. Action research is a highly participatory approach, extensively utilized in the social sciences, particularly in educational settings. This methodology emphasizes collaboration and active participation among researchers and participants, making it uniquely suited to address practical problems while generating actionable knowledge. In educational contexts, for instance, action research enables teachers to identify challenges within their classrooms, implement strategies to address these issues, and assess the outcomes systematically. This hands-on process allows educators to adapt and refine their teaching methods based on direct feedback from their experiences and observations. By involving students, colleagues and others in the research process, action research fosters a collaborative environment where insights and solutions are co-created. Moreover, Lewin's pioneering work laid the foundation for this dynamic approach, emphasizing the importance of combining theory and practice to bring about social change. His vision of action research as a tool for empowerment and

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improvement continues to influence contemporary research practices, encouraging an ongoing dialogue between theoretical inquiry and practical application.

Due to the it encounters; action research is often referred to as a cycle of action or a cycle of inquiry. This cyclical process involves several key stages: planning, acting, observing and reflecting. This cyclical approach allows for continuous improvement and adaptation. Each cycle builds on the previous one, using insights to refine and enhance the strategies and actions being implemented. The detailed explanation of each step in the action research is as follows:

1. **Identifying the Problem:**

   The first step in action research involves identifying and defining the problem. This stage requires the researcher to collaborate with participants to point the specific issues they aim to address. Herein a comprehensive literature review is conducted to understand what is already known about the issue and to identify gaps I existing knowledge. Then the researcher develops a plan of action. This plan outlines the steps to be taken to address the problem, including the goals, strategies, resources required and the time for implementation. Overall, this foundational step is crucial as it sets the direction for the subsequent phases of the research process.

2. **Planning the Action:**

   Once the problem is clearly defined, the next step is to develop a plan of action. This involves developing potential strategies and interventions that could address the identified problem. The planning phase collaborative, involving various people at different levels in order to ensure that the proposed actions are feasible and have the support of those who will be implementing them. This stage also includes setting specific, measurable objectives to achieve the success of the intervention.

3. **Implementing the Action:**

   After planning, the next stage is the implementation of the action plan. This step involves putting the planned strategies into practice. During implementation, it is important to maintain flexibility and be

prepared to make adjustments as needed. This phase is dynamic and requires continuous monitoring to ensure that the actions are being carried out as planned and are effectively addressing the problem.

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4. **Observing and Collecting Data:**

   While the action plan us being implemented, the researcher collects data to observe the effects of the intervention. This can include both qualitative and quantitative data, such as students feedback, attendance records, test scores and classroom observations. The aim is to gather comprehensive information that provides insights into how well the action plan is working. This step is critical for understanding the impact of the intervention and identifying any unforeseen challenges or success. Detailed and systematic data collection helps in evaluating the effectiveness of the action.

5. **Reflecting on the Results:**

   The final step in the action research cycle is reflection. In this stage, the researcher and participants analyze the collected data to assess the outcomes of the intervention. They reflect on questions such as: Did the action plan achieve its objectives? What were the successes and challenges? What could be improved in the future? This reflection is essential for drawing conclusions about the effectiveness of the intervention and for making informed decision about the next steps. The insights gained during reflection often lead to identifying new problems or areas for further action, thus continuing the cycle of action research. Reflection ensures that the learning from the research is integrated into practice and that continues improvement is fostered. In a nutshell, action research is a cyclical process involving problem identification, planning, implementation, observation and reflection. Each stage is interconnected and essential for addressing real-word issues in a systematic and participatory manner. This process not only aims to solve immediate problems but also contributes to the ongoing development of knowledge and practice in the field.

DRAW THE DIAGRAM

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2.4.1 Types of Action Research

Action research can be broadly categorized into two main types: participatory action research (PAR) and practical action research. Both types aim to solve problems through systematic inquiry, but they differ in their approaches, objectives and the extent of stakeholders' involvement.

Participatory Action Research (PAR) is a collaborative and inclusive approach that actively involves community members in the research process. This method emphasizes the co-creation of knowledge and solutions by engaging those who are directly affected by the issue being studied. The collaborative nature of PAR ensures that the research addresses the actual needs and concerns of the community, making the findings more relevant and impactful. Key characteristics of PAR include a high level of collaboration, where community members, stakeholders or participants are treated as co-researchers. This collaboration fosters empowerment as it values the input and experiences of participants, building their capacity to effect change. Additionally, PAR is often driven by a commitment to social justice, aiming to address power imbalances and promote equity. The research process in PAR is cyclical, involving repeated cycles of planning, action, observation and reflection, allowing for continuous learning and adaptation based on feedback and outcomes. For instance, in a community health project, PAR might involve residents working with researchers to identify health issues, develop interventions and evaluate their effectiveness, ensuring that solutions are culturally relevant and accepted by the community.

Practical Action Research, on the other hand, is more practitioner-focused and aims to solve immediate problems within a specific context, such as classroom, workplace or organization. Unlike PAR, which emphasized broad community collaboration, practical action research often involves a single researcher or a small group of practitioners working within their own professional setting. This approach is driven by the need to address specific, practical problems faced by practitioners in their daily work, focusing on finding actionable solutions that can be implemented quickly. Reflective practice is a key aspect, as practitioners engage in systematic reflection on their practices, identifying areas for improvement, implementing changes, and evaluating outcomes. This process helps practitioners learn

from their experiences and continuously improve their practices.Practical action research is highly context-specific, tailored to the needs of the practitioner's environment, and may not aim for broad generalizability but seeks effective solutions within the particular setting. Findings from practical action research are often applied immediately to address the identified problem, making it a valuable tool for practitioners seeking to improve their practice. For example, a teacher conducting practical action research might experiment with new teaching strategies to enhance student engagement and learning outcomes, systematically implementing and evaluating these strategies to identify what works best in their classroom context.

Hence, both participatory and practical action research are valuable approaches to addressing real-world problems through systematic inquiry. While on one hand, participatory action research emphasizes collaboration and empowerment, seeking to create social change through the active involvement of community members, while practical action research focuses on solving immediate, context-specified problems faced by practitioners, emphasizing reflective practice and immediate application of findings. Both types contribute to the ongoing improvement of practices and the generation of relevant, actionable knowledge.

2.4.2 When is Action Research Used?

Action research is utilized in numerous contexts where there is a need to address practical problems, enhance practices, or generate new knowledge through a collaborative and reflective process. This research method is particularly valuable in settings where researchers are actively involved in both the identification of issues and the development of solutions, ensuring that the outcomes are directly relevant and applicable. In educational settings, action research is often employed to develop, test and refine curriculum materials and teaching strategies, helping educators improve student learning outcomes and classroom management. it is also used for teachers' professional development, enabling them to reflect on and enhance their teaching practices continuously.

In community development, action research plays a crucial role on designing, implementing, and evaluating health initiatives and social services.

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By engaging community members in the research process, it ensures that interventions are tailored to the specific needs and contexts of the population, thereby enhancing their effectiveness. Organizations and businesses leverage action research to address workplace issues such as employee engagement, productivity, and job satisfaction. This method is also instrumental in implementing and evaluating new policies, ensuring that they align with organizational goals and improve overall performance.

Healthcare providers use action research to improve patient care practices, enhance healthcare delivery, and address specific health issue within communities. In public health, it helps design and assess interventions aimed at improving population health, with a focus on involving the community in the process. Environmental studies also benefit from action research, particularly in sustainability projects and conservation efforts. By involving local communities, researchers can develop and test sustainable practices and policies that are more likely to be effective and enduring.

Social justice and advocacy efforts often employ action research to empower marginalized groups, ensuring their voices are heard and their needs are addressed. This approach helps activists develop evidence-based advocacy strategies aimed at influencing public policy and promoting social change. The participatory nature of action research, combined with its long-drawn process of planning, action, observation and reflection, ensures that the solutions developed are context-specific and practical. This methodology not only fosters a sense of ownership and commitment among participants but also enhances the practical impact of the research, making it a powerful tool for addressing complex issues across diverse fields.

2.4.3 Advantages and Disadvantages of Action Research

Advantages:

1. **Practical Problem Solving:** Action research is designed to address problems directly and find practical solutions that can be applied immediately. This makes it particularly valuable in fields where quick and effective responses are needed, such as education, healthcare and community development. by focusing on specific issues, action research can lead to tangible improvements and innovations that directly benefit practitioners.

2. **Collaborative Approach:** A hallmark of action research is its collaborative nature. Participants in the research are often treated as co-researchers, meaning their insights, experiences and perspectives are integral to the research process. This collaboration fosters a sense of ownership and empowerment among participants, ensuring that the solutions developed are not only practical but also deeply informed by those who will implement and be affected by them.
3. **Flexible and Adaptive:** Action research is inherently flexible and adaptable, allowing researchers to modify their methods and focus as new information emerges. This adaptability is crucial in dynamic and complex environments where conditions and understandings can change rapidly. This nature of action research-where cycles of planning, action, observation and reflection are repeated- facilitates continuous learning and adjustment, leading to more effective and responsive interventions.
4. **Context-Specific Insights:** By being conducted within specific contexts, action research provides insights that are highly relevant and tailored to the local setting. This contextual relevance ensures that the solutions developed are suitable for the particular challenges and conditions of the environment in which they are applied. This localized understanding can lead to more effective and sustainable outcomes compared to more generalized research approaches.
5. **Encourages Reflective Practice:** Action research emphasized reflective practice, encouraging participants to critically evaluate their actions and the outcomes of those actions. This reflective approach helps individuals and organizations to develop a deeper understanding of their practices, identify areas for improvement and make informed decisions about future actions. Reflective practice is a key component of professional development and can lead to significant personal and organizational growth.

Disadvantages:

1. **Limited Generalizability:** One of the primary limitations of action research is that its findings are often highly context-specific and

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may not be easily generalizable to other settings. This limitation means that while action research can provide deep insights and solutions for particular situations, its broader applicability may be limited. Researchers must be cautious in extrapolating results to different contexts without careful considerations.

2. **Time-Consuming:** The cycle of planning, action, observation and reflection that characterize action research requires significant time and effort. Researchers and participants need to be committed to the process over the long term, which can be demanding and resources-intensive. This time commitment can be a barrier for some organizations or individuals, particularly those with limited resources or pressing needs for quick solutions.
3. **Potential for Bias:** Because action researchers are often deeply involved in the process and may have a personal stake in the outcomes, there is a risk of bias. Maintaining objectivity can be challenging, and researchers must be diligent in ensuring the validity and reliability of their findings. This potential for bias can undermine the credibility of the research if not carefully managed.
4. **Dependence on Participant Engagement:** The success of action research heavily relies on the active participation and engagement of all stakeholders. If participants are not fully committed or if there is a lack of effective collaboration, the quality and impact of the research may be compromised. Ensuring sustained engagement and participation can be difficult, especially in settings where participants have competing demands or interests.
5. **Ethical Considerations:** Given its collaborative and participatory nature, action research must navigate complex ethical considerations, such as informed consent, confidentiality and the potential impact on participants. Researchers must be vigilant in maintain ethical integrity throughout the research process. This includes being transparent about the research goals, methods and potential risks, and ensuring that participants are fully informed and willing to engage.

2.5 Exploratory Research and Action Research - A Comparison

ASPECT	ACTION RESEARCH	EXPLORATORY RESEARCH
Definition	A research method aimed at simultaneously investigating and solving an issue	A research strategy employed when the researcher has limited understanding or expertise on a subject.
Purpose	To implement change and solve practical problems while conducting research.	To gain insights and understanding of a problem, generate new ideas, and identify potential avenues for further study.
Research Approach	Highly participatory and collaborative, involving stakeholders as co-researchers.	Open-ended and flexible, without pre-defined hypotheses, allowing the researcher to follow emerging leads.
Focus	Practical problem-solving with immediate application in real settings.	Exploration and understanding of phenomena, often without immediate practical application.
Methodology	Continuous cycle of planning, action, observation and reflection	Qualitative methods like interviews, focus groups and literature reviews; sometimes initial quantitative methods.
Data Collection	Involves continuous feedback and data collection during the action and reflection phases.	Flexible data collection methods adapted as the research progresses
Outcomes	Solutions to practical problems, improved practices and actionable recommendations	Preliminary insights, concepts and hypotheses that can guide further research
Engagement	High level of engagement and collaboration with participants and stakeholders	Initial engagement with participants to gather insights, with less emphasis on continuous collaboration
Application	Immediate application of findings to address specific issues within the research setting	Generation of new ideas and understanding, laying the groundwork for future research
Flexibility	Adaptable approach allowing modification based on continuous feedback	Highly flexible, with the ability to change direction based on emerging insights

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Generalizability	Findings are often context-specific and may not be easily generalizable	Insights are typically preliminary and may be applicable to a broader range of contexts.
Ethical Considerations	Requires careful attention to ethical considerations due to active participant involvement	Ethical considerations focus on informed consent and confidentiality during initial engagement
Time Commitment	Often time-consuming due to the cycle and continuous participant engagement	Can be less time-consuming initially but may lead to further, more extensive research
Examples	Used in educational settings, healthcare improvements projects and community development	Used in market research, new technology exploration and early-stage social science research
Potential Bias	Potential for researcher and participant bias due to close involvement	Reduced risk of bias as initial research is more exploratory and less influenced by preconceived notions
Data Analysis	Continuous analysis throughout the research process, often combining qualitative and quantitative data	Initial data analysis to identify themes and patterns, guiding subsequent, more detailed studies.

Check Your Progress

1. Analyze the importance of action research.
2. Distinguish between exploratory and action research.
3. Examine the role played by the researcher in exploratory research.
4. Explain the tools and techniques used in exploratory and action research.

2.6 Summing Up

In this Unit the student will learn about the exploratory and action research along with the advantages and limitations of each respectively. The use of these research techniques in various fieldshelps to integrate the knowledge and action I order to promote progress in the society. The unit

also makes a comparison with the two research techniques which would enable the students to better understand the utility of each technique.

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2.7 References and Suggested Readings

- Kothari, C. R. *Research Methodology: Methods and Techniques*. 2nd ed., New Age International Publishers, 2004.
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Unit - 3

Mixed Methods of Research

Unit Structure:

3.1 Introduction

The unit evaluates the meaning of research methods and its variants in order to give a vivid picture to the students before adopting any research methods. Efforts have been made to throw light on the mixed methods research with involves combining both quantitative and qualitative approach. This increasing dependence on the mixed methods in the recent years, have enhanced the credibility of the concept, therefore making its application in the field of social sciences even more general. Further, the students will be acquainted with different types of such mixed methods exists, along with its limitations and advantages.

3.2 Objectives

After going through this Unit, students will be able to:

- Explain the meaning and types of research methods;
- Justify the need for adopting mixed method research;
- Discuss its types along with understanding the advantages and limitations.

3.3 Research Method

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A research method is a systematic approach that is used to collect, analyze and interpret data in order to answer research questions, test hypotheses, or explore new ideas. It encompasses the tools, techniques, and procedures employed by researchers to ensure that the data gathered is accurate, reliable and valid. Research methods provide a structured framework for conducting scientific investigations, allowing researchers to systematically explore phenomena, establish facts and draw evidence-based conclusions. These methods are essential in various fields of study, including social sciences, natural sciences and humanities to advance knowledge and inform practice. Research methods can be categorized into three primary types: quantitative, qualitative and mixed methods, each serving distinct purposes and suited to different research objectives. The choice of research method is crucial for the credibility of a study. Each method has specific procedures and techniques designed to ensure systematic data collection and analysis.

1. Quantitative Methods

Quantitative research methods involve collection and analysis of numerical data. These methods are typically used to test hypotheses, measure variables and determine relationships between them. Quantitative techniques include surveys, experiments and statistical analysis.

2. Qualitative Methods

Qualitative research methods focus on exploring phenomena in-depth to understand the underlying reasons, opinions and motivations, these methods involve collecting non-numerical data through interviews, focus groups, observations and content analysis. Qualitative research is particularly useful for gaining insights into complex issues, understanding participants' experiences, and exploring new areas where little is known.

3. Mixed Methods

Mixed methods research combines both quantitative and qualitative approaches to provide a comprehensive understanding of research problems. This methodology allows researchers to benefit from the strengths of both quantitative and qualitative data, often starting with qualitative exploration followed by quantitative measurement. Mixed methods can enhance the validity of research by providing a fuller picture of the research question.

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3.4 Meaning of Mixed Method of Research

Mixed methods research is a comprehensive approach that integrates both quantitative and qualitative research methodologies within a single study. This methodological strategy is designed to increase the strengths of both numerical (quantitative) data and narrative (qualitative) data to achieve a more thorough understanding of the research subject. By combining these two approaches, researchers can address a broader range of research questions and draw on the complementary strengths of each method. Quantitative data provides the ability to measure and analyze variables numerically, offering a broad view and enabling statistical analysis to identify patterns, trends and relationships. On the other hand, qualitative data offers rich, detailed insights into participants' experiences, motivations and the context surrounding the research phenomena. This approach allows for a more holistic analysis, where quantitative results can be explained and deepened through qualitative insights, and qualitative findings can be quantified to understand their prevalence and significance. Mixed method research is particularly valuable in complex studies where neither quantitative or qualitative methods alone can provide a complete picture. For instance, it is frequently used in social sciences, health research and educational studies to explore multifaceted issues. By integrating these two methods, researchers can validate findings through triangulation, gain a more comprehensive understanding and produce more robust and reliable conclusions. Additionally, this methodological approach underscores the importance of methodological pluralism and recognizes that different types of data can provide complementary perspectives on the same research problem.

In recent years, mixed methods research has gained significant traction in the social, behavioral and allied sciences due to its comprehensive approach to investigating complex research problems. This methodology combines quantitative and qualitative research techniques to leverage the strengths of both approaches, thereby providing a fuller, more nuanced understanding of the subject matter. Quantitative methods are grounded in the positivist paradigm, emphasizing objective measurement and statistical

analysis to test hypotheses and uncover patterns. Conversely, qualitative methods, associated with interpretative and critical theory paradigm, focus on exploring participants' experiences and meanings through detailed narrative data.

The fundamental premise of mixed methods research is to integrate these diverse methodologies to achieve a richer, more complete analysis. For instance, quantitative data might provide broad generalizations and measurable insights, while qualitative data can offer depth and context to those insights. This combination allows researchers to address the limitations inherent in each method when used in isolation, such as the lack of contextual depth in quantitative data or the limited generalizability of qualitative data.

However, integrating quantitative and qualitative methods poses significant methodological challenges, primarily due to their differing epistemological and ontological foundations. The positivists underpinnings of quantitative research assume a objective reality that can be precisely measured, whereas qualitative research, influenced by interpretative paradigms, views reality as subjective and socially constructed. These differences necessitate careful planning and design to ensure that the two methods are not only compatible but also synergistic.

A key challenge in mixed methods research is the coherent integration of qualitative and quantitative data. Researchers must design their studies ensuring that each methodological component is appropriately aligned with the research questions and objectives. This includes selecting suitable data collection and analysis techniques and integrating findings in a way that they complement and enhance each other rather than conflict.

Despite these challenges, the advantages of mixed methods research are substantial. It allows for a more holistic understanding of research problem, facilitating the enhancement of validity through cross-verification from multiple sources, and can uncover insights that might be overlooked by single-method studies. Hence, mixed methods research is increasingly recognized for its ability to address the multifaceted nature of social, behavioral, and allied sciences, offering robust and versatile tools for comprehensive inquiry.

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3.5 Justifying Mixed Method of Research

The rationale for mixed method research is rooted in its ability to provide a more comprehensive understanding of complex research problems that can be achieved through either quantitative or qualitative methods alone. Here are several key reasons for employing mixed method research:

1. By combining quantitative and qualitative approaches, researchers can draw on the strengths of both to provide a fuller picture. Quantitative methods offer the ability to generalize findings and identify patterns through statistical analysis, while qualitative methods provide depth and context through detailed exploration of participants' experiences and perspectives.
2. Findings from one method can inform and shape the use of the other method within the same study. for example, qualitative insights might be used to develop more refined quantitative measures, or quantitative results might highlight areas that require deeper qualitative exploration.
3. Mixed methods enable researchers to expand the breadth and range of a study. by incorporating both numeric and narrative data, researchers can address a wider variety of research questions and provide more comprehensive answers. This approach is particularly useful when exploring multifaceted phenomena that cannot be fully understood through a single methodological lens.
4. Each research method has its inherent limitations. Quantitative research may lack depth, while qualitative research may lack generalizability. By combining both, mixed method research can offset these weaknesses, leading to more credible outcomes.
5. Mixed methods research can be particularly valuable in applied fields where practical solutions to the problems are sought. The quantitative component can measure the extent of an issue or the effectiveness of a solution, while the qualitative component can provide insights into how and why these solutions work or do not work in specific contexts.
6. The mixed method approach provides flexibility in research design, allowing researchers to adapt their methods as the study progresses.

This is particularly useful in exploratory research, where initial findings may necessitate changes in the research approach.

7. Collecting both numerical and narrative data provides a richer data set. This comprehensive set can lead to more insightful and actionable conclusions, enhancing the overall quality and impact of the research.

In short, the rationale for mixed methods research lies in its ability to provide a more complete, valid and practical understanding of research problems by integrating the strengths of both quantitative and qualitative approaches.

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3.6 Types of Mixed Methods of Research Design

Mixed methods research designs are varied and can be adapted to suit different research purposes and questions. Some of the most commonly used mixed method research designs are:

1. **Convergent Parallel Design:**

   In convergent parallel design, the researcher collects both quantitative and qualitative data simultaneously. These data sets are analyzed separately but are compared and combined during the interpretation phase. This design is used when the researcher aims to compare and contrast the quantitative statistical results with qualitative findings to provide a more comprehensive understanding of the research problem. Example: A researcher might conduct a survey to gather numerical data on student performance (quantitative) and, at the same time, holds focus groups to explore students' experiences and perceptions of their learning environment (qualitative). The quantitative data might show general trends in performance, while the qualitative data can provide deeper insights into the reasons behind these trends.

2. **Explanatory Sequential Design:**

   The explanatory sequential design begins with the collection and analysis of quantitative data. The findings from this phase inform the subsequent qualitative phase, which aims to explain or elaborate on the quantitative results. This design is particularly useful for explaining unexpected results or delving deeper into significant

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quantitative findings. Example: A researcher might first conduct a large-scale survey on employee satisfaction (quantitative). Based on the survey results, the researcher identifies surprising trends, such as higher satisfaction in a particular department. To understand why this is the case, the researcher then conducts in-depth interviews with the employees from the department (qualitative).

3. **Exploratory Sequential Design:**

   The exploratory sequential design starts with qualitative data collection and analysis, the insights gained from the qualitative phase are then used to develop a quantitative instrument, which is administered to a larger sample. This design is ideal for exploring a phenomenon in depth initially and then testing the insights on a larger scale. Example: A researcher might begin by conducting focus groups to understand consumer attitudes towards a new product (qualitative). The theme and patterns identified in the focus groups are then used to design a survey, which is distributed to a broader audience to quantify the findings (quantitative).

4. **Embedded Design:**

   In the embedded design, one data type (quantitative or qualitative) is embedded within a larger study that primarily uses the other data type. The embedded data provide supportive information that enhances the primary research. The design addresses different questions or provides a secondary perspective within the same study. Example: A primarily quantitative study on the effectiveness of a new teaching method includes qualitative interviews with teachers. While the quantitative data might measure student performance engagement, the qualitative interviews provide contextual insights into how and why the teaching method works from the teachers' perspectives.

5. **Transformative Design:**

   The transformative design is guided by a theoretical framework throughout all phases of the research process. Both quantitative and qualitative data are collected either sequentially or concurrently, with the theoretical lens shaping the research questions and methods.

This design is used to address issues of social justice and marginalized populations, ensuring that the research is driven by a transformative agenda. Example: Research on the educational experiences of minority students using both surveys and narrative interviews, guided by a critical race theory framework. The quantitative data might highlight disparities in educational outcomes, while the qualitative data provide detailed narratives that explain these disparities from the students' perspectives.

6. **Multiphase Design:**

The multiphase design involves multiple phases of data collection and analysis, often combing several mixed methods designs over time. Each phase builds on the findings of the previous one. This design is suitable for large-scale, long-term research projects that evolve over time. Example: A longitudinal study on health interventions might begin with qualitative focus groups to identify key issues (qualitative), followed by a survey to measure intervention effectiveness (quantitative). Subsequent phases could involve follow-up interviews to explore long-term impacts (qualitative) and additional surveys to assess ongoing effectiveness (quantitative).

Hence, each mixed methods design offers unique advantages, making them suitable for various research questions and contexts. By combing quantitative and qualitative approaches, researchers can leverage the strength of both methodologies, resulting in a more comprehensive understanding of such complex phenomenon.

Stop to Consider

Mixed Methods research can be applied to a wide range of research fields and topics, including:

1. Healthcare: This approach is often used to combine quantitative data from clinical trials with qualitative insights from patient interviews, providing a comprehensive understanding of treatment outcomes and patient experiences.
2. Education: Researchers may use mixed methods to evaluate educational programs by combining test scores and grades

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(quantitative data) with teacher and student feedback (qualitative data).

3. Business and Management: Mixed methods research can be utilized to study organizational behavior, market trends, and consumer preferences by merging numerical data on sales or productivity with qualitative data from employee or customer interviews.
4. Environmental Studies: This approach allows researchers to combine quantitative data on environmental changes with qualitative data from community observations and interviews to gain a holistic view of environmental issues and their impact on human communities.
5. Criminal Justice: This research method can be used to study crime rate and patterns (quantitative data) alongside the experiences of victims and offenders (qualitative data), offering a better understanding of criminal behavior and justice system efficacy.

Self-Assessment Questions

1. What are the functions of research methodology?

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2. Distinguish between quantitative, qualitative and mixed method approach to research.

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3.7 Advantages and Limitations of Mixed Method Research

Advantages:

1. Comprehensive Understanding:

Mixed methods research combines quantitative and qualitative approaches to provide a thorough understanding of the research problem. Quantitative data offers a broad overview, identifying patterns and trends across large samples. Qualitative data, on the other hand, delves deeper into individual experiences, motivations

and meanings. Together, these methods allow researchers to explore both the general scope and the detailed intricacies of a phenomenon, leading to a more complete understanding.

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2. **Complementarity:**

   Quantitative and qualitative methods each have their strengths and weaknesses. Quantitative method excels in providing statistical generalizations and identifying correlations, but they may miss the context or underlying reasons behind those correlations. Qualitative methods offer rich, contextual insights but may not be easily generalizable. By combining these methods, researchers can leverage the strengths of each while offsetting their respective weakness, thereby enhancing the overall depth of the study.

3. **Triangulation:**

   Triangulation involves using multiple methods to study the same phenomenon, which can increase the credibility and validity of the results. If findings from quantitative surveys align with insights from qualitative interviews, the convergence of evidence strengthens the conclusions. The cross-validation helps to confirm the reliability of the results, as different methods corroborate the findings, reducing the likelihood of biases or errors.

4. **Flexibility:**

   Mixed methods research offers considerable flexibility, allowing researchers to adapt their approach based on the specific needs of the study. researchers can choose the appropriate balance between quantitative and qualitative elements, depending on the research questions and objectives. This adaptability makes mixed methods suitable for a wide range of research contexts and allows for methodological adjustments as the study progresses.

5. **Enhanced Interpretation:**

   Quantitative data often answers "what" is happening by providing statistical evidence, while qualitative data addresses "why" or "how" its is happening by exploring underlying processes and perspectives. This combination facilitates a richer interpretation of results. For instance, quantitative data might show a high dropout rate in a

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program, while qualitative data can reveal the personal or systemic reasons behind it, leading to more informed and actionable conclusions.

6. **Depth and Breadth:**

Mixed methods research can capture the breadth of a phenomenon through large-scale quantitative surveys and the depth through detailed qualitative interviews or case studies. Quantitative methods can provide data from a broad sample, identifying general trends and patterns. Qualitative methods can then offer in-depth insights into specific cases or contexts, adding richness and detail to the findings. This dual approach ensures that both the scope and of the research problem are addressed.

7. **Improved Data Validation:**

The integration of quantitative and qualitative data can help cross-validate findings, enhancing the overall reliability of the research. Quantitative data might provide numerical evidence, while qualitative data can offer contextual confirmation or challenge these findings. This cross- validation process helps to identify and address inconsistencies, biases, or gaps in the data, leading to more accurate and trustworthy conclusions.

8. **Innovative Approaches:**

Mixed methods research encourages methodological innovation by allowing researchers to creatively combine different techniques and tools. This innovation can lead to the development of new methodologies, data collection instruments, or analytical frameworks. By blending traditional and novel approaches, mixed methods research can push the boundaries of methodological practices and contribute to the advancement of research techniques and strategies.

Limitations:

1) **Complexity:**

Mixed methods research is inherently more complex than single-method research due to the need to design, implement, and integrate both quantitative and qualitative approaches. This complexity can

present significant challenges in planning and execution. Researchers must be proficient in both methodologies, understand how to combine them effectively and ensure coherence throughout the study. this often requires a high level of expertise and experience, making mixed methods research more challenging to undertake successfully.

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2) **Time-Consuming:**

Conducting mixed method research typically takes more time compared to using a single method. Researchers must design and conduct both quantitative and qualitative phases, which may involve extensive data collection and analysis. For instance, quantitative surveys might require a larger sample size to achieve statistical power, while qualitative interviews or focus groups can be time-intensive in terms of scheduling, conducting and transcribing. This nature of integrating findings from both methods adds further to the time demands.

3) **Resource-Intensive:**

Mixed methods research requires more resources, including funding, personnel and technology. The dual approach means that researcher may need additional equipment, software and sometimes even separate teams for quantitative and qualitative phases. For instance, quantitative research might require specialized statistical software and access to large datasets, while qualitative research might need transcription services and analytical tools. Securing the necessary resources can be a significant hurdle, particularly for smaller research projects or those with limited funding.

4) **Integration Challenges:**

One of the critical challenges in mixed method research is effectively integrating the quantitative and qualitative data. This process involves combining numerical data with narrative data to form coherent and meaningful conclusions. Researchers must develop strategies for linking these different types of data, ensuring that the integration enhances the overall understanding of the research problem. This can be methodologically challenging, as it requires an understanding of both data types and how they can be brought together in a complementary manner.

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5) Inconsistent Results:

There is a risk that the quantitative and qualitative components of a mixed methods study may produce conflicting or inconsistent results. Resolving these discrepancies can be challenging and may require additional analysis or interpretation. Researchers need to be prepared to address such inconsistencies thoughtfully, considering the different contexts and limitations of each method. This might involve re-examining the data, seeking additional information, or exploring new angles to reconcile the findings.

6) Publication Challenges:

Publishing mixed methods research can be more complicated than publishing single-method studies. Academic journals often specialize in either quantitative or qualitative research, and finding a suitable outlet that values and understands mixed methods can be difficult. Additionally, mixed methods papers tend to be longer due to the need to describe both methodologies and their integration comprehensively. Researchers may face challenges in fitting their work within standard journal length limits while ensuring that all critical aspects of their study are adequately covered.

7) Ethical Considerations:

Mixed methods research can pose unique ethical challenges, particularly in terms of participant consent and confidentiality. Researchers must ensure that participants are fully informed about the different types of data being collected and how they will be used. Balancing the ethical considerations of both quantitative surveys and qualitative interviews or observations requires careful planning and sensitivity to participant concerns. Ensuring ethical rigor across both methodological approaches can be demanding and complex.

8) Generalizability Issues:

Mixed methods research may face challenges in achieving generalizability, particularly when qualitative findings are based on small, context-specific samples. While quantitative data can provide broad generalizations, qualitative data offer depth and context-

specific insights. Researcher must carefully consider the balance between depth and breadth, and clearly articulate the scope and limitations of their findings. Generalizing qualitative insights to larger populations must be done cautiously, acknowledging the contextual factors that may limit wider applicability.

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3.8 Comparison between Quantitative, Qualitative and Mixed Methods

ASPECT	QUANTITATIVE METHOD	QUALITATIVE METHOD	MIXED METHOD
Definitions	Systematic investigation involving numerical data to test hypotheses	Exploratory research focused on understanding meanings and experiences through narrative data	Combines quantitative and qualitative methods for comprehensive analysis
Purpose	To quantify data and generalize results from a sample to the population	To explore phenomena, understand context and provide insights	To leverage strengths of both methods for broader understanding and corroboration
Data Collection	Structured tools like surveys, experiments, and existing statistical data	Unstructured or semi-structured techniques like interviews, focus groups and observations	Utilizes both structured and unstructured data collection methods
Data Type	Numerical data	Textual or visual data	Both numerical and textual/visual data
Analysis	Statistical analysis	Thematic, content or narrative analysis	Integrates statistical and thematic analysis
Research Questions	Focused on measuring variables and testing specific hypotheses	Aimed at exploring complex phenomena and developing theories	Addresses both measurement and exploration questions.
Strengths	Generalizability, objectivity and ability to test hypotheses rigorously	Depth of understanding, context sensitivity and ability to capture complex phenomena	Comprehensive insights, validation of findings through triangulation, flexibility
Limitations	May overlook context and depth of phenomena	May lack generalizability and be more subjective	Complex to design and implement, requires expertise in both methods
Examples	Large-scale surveys, clinical trials, economic modeling	Ethnography, case studies, grounded theory research	Program evaluation, health services research, educational research
Philosophical Underpinnings	Positivism	Interpretivism, constructivism	Pragmatism, which focuses on practical outcomes.

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Check Your Progress

1. Discuss the different forms of Mixed Methods.
2. Elaborate with an example of mixed method which uses both the qualitative and quantitative methods.
3. In your opinion, what do you think, whether mixed methods of research is superior over the traditional methods of research or not? Discuss with an example.
4. Distinguish between quantitative and qualitative approach of research.

3.9 Summing Up

In order to summarize, the student will thoroughly learn the details of mixed method research. By combining numerical data with narrative insights, mixed methods research offers a more holistic understanding of complicated phenomena, thereby enhancing the depth of the findings. The students will further understand the different types of mixed research embedded within it. In a nutshell, mixed methods research represents a dynamic and versatile approach that significantly enriches the research process and outcomes, making it an indispensable tool in the social, behavioral and allied sciences.

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Unit - 4

Combining Quantitative and Qualitative Research

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Unit Structure:

4.1 Introduction

Combining qualitative and quantitative research, often referred to as mixed methods research, represents a powerful approach to scientific inquiry that uses the strength of both methodologies. Quantitative research, with its focus on numerical data and statistical analysis, excels in measuring and identifying patterns across large populations, providing a broad understanding of phenomena. In contrast, qualitative research delves into the intricacies of human experiences and social contexts, offering deep, contextual insights through narrative data. When these two methods are integrated, it provides a more comprehensive perspectives than either of the approach alone. Consequently, mixed methods research allows for a fuller exploration of research questions, thereby facilitating the validation of findings.

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4.2 Objectives

After reading this unit, the student will be able to:

- Describe the meaning and characteristics of quantitative and qualitative research
- Strengths and limitations of quantitative and qualitative research
- Explain the mixed method research

4.3 Meaning of Quantitative Research

Quantitative research is a systematic approach that focuses on quantifying data to uncover patterns, relationships and trends within a given phenomenon. This type of research is characterized by its structured tools such as surveys, questionnaires and statistical software to collect and analyze numerical data. The primary objective of quantitative research is to test hypotheses and measure variables in a way that can produce reliable and generalizable results. This method is essential in the field like natural sciences, social sciences, business and health sciences, where precise measurement and statistical analysis are crucial.

In quantitative research, the variables are both controlled and manipulable, allowing researchers to systematically alter them to investigate the relationship between causes and effects. This manipulation of variables is fundamental to understanding how changes in one aspect can impact another, providing clarity on cause-effect dynamics. Through this approach, researchers can conduct comparative analyses to identify differences or similarities across various groups or conditions. Additionally, interventional research is made possible by intentionally modifying variables to observe outcomes within a specific population, this controlled environment ensures that findings are not only precise but also reliable, enabling researchers to draw conclusions that contribute significantly to the body of knowledge in their respective fields.

Characteristics of Quantitative Research:

Quantitative research is distinguished by several key characteristics that define its methodology and approach to data collection and analysis. Here are the primary characteristics:

1. Objective and Systematic Approach:

Quantitative research is designed to be objective and systematic. Objectivity is maintained by minimizing researcher bias and ensuring that the findings are based on empirical data rather than subjective interpretations. the systematic approach involves a clear and well-defined research plan, which includes specific steps and procedures for data collection and analysis.

2. Numerical Data Collection:

The cornerstone of quantitative research is the collection of numerical data. This data can be obtained through various methods such as surveys, experiments, standardized tests, or secondary data sources (like census data). The use of numerical data allows for precise measurement and statistical analysis.

3. Variables and Measurement:

Variables in quantitative research are defined and measured precisely. There are typically two types of variables:

- **Independent Variable:** these are the variables that are manipulated or controlled to observe their effect on dependent variables.
- **Dependent Variable:** These are the outcomes or responses measured in the study to see the effect of the independent variables.

The relationship between these variables is analyzed to understand cause-and-effect dynamics or correlations.

4. Large and Representative Samples:

To ensure generalizability, quantitative research often involves large and representative samples. This means that the sample should accurately reflect the population from which it is drawn. Random sampling techniques are frequently used to achieve this representativeness.

5. Statistical Analysis:

The analysis of numerical data in quantitative research is conducted using statistical methods. These methods can range from simple descriptive statistics (like means and standard deviations) to more complex inferential statistics (like regression analysis, ANOVA, and

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chi-square tests). Statistical analysis helps in determining the significance of the findings and in making predictions.

6. Reliability, Validity and Replicability:

Quantitative research emphasizes the reliability and validity of the measurement instruments and the data collected. Reliability refers to the consistency of the measurements, while validity concerns the accuracy of the measurements. Ensuring both is crucial for the credibility of the research findings. Additionally, another key feature of quantitative research is its replicability. The research methods and procedures are documented in detail so that other researchers can replicate the study to verify the results. This replication is essential for building a cumulative body of scientific knowledge.

7. Precise and Unambiguous Reporting:

The results of quantitative research are reported precisely and unambiguously. This includes detailed descriptions of the research design, data collection methods, statistical analyses and findings. The use of tables, graphs and charts often accompanies the narrative to provide a clear and concise presentation of the data.

4.3.1 Strengths and Limitations of Quantitative Research

Quantitative research offers several strengths that make it a valuable and widely-used approach in various fields of study. Some key strengths are:

1. They have strong predictive capabilities. By analyzing the relationships between variables, researchers can make informed predictions about future trends, behaviors or outcomes.
2. The structured nature of quantitative research, with detailed documentation of methods and procedures, ensures transparency and accountability. This transparency allows for scrutiny and verification by other researchers, enhancing the credibility of the findings.
3. Quantitative research has the ability to perform comparative analysis. Researchers can compare different groups, conditions or time periods to identify patterns, differences or changes.

4. Quantitative research often involves large, representative samples that allow findings to be generalized to a broader population. This generalizability is achieved through random sampling techniques and statistical analysis, making the results applicable to the real setting.
5. It can be conducted efficiently, especially with the availability of advanced data collection and software for statistical analysis.

Some limitations of quantitative research are:

1. It focuses on numerical data and statistical analysis, often at the expense of detailed understanding. It may not capture the richness and complexity of human experiences, behaviors and motivations that qualitative methods can uncover.
2. Quantitative research may struggle to provide deep contextual understanding of social, cultural and historical factors influencing phenomena. It may overlook the context-specific elements that qualitative method excels in capturing.
3. Quantitative research is often cross-sectional, focusing on data collection at a single point in time. This makes it challenging to explore changes and developments over time, which may be critical for understanding dynamic processes.
4. Quantitative research is hypothesis-driven and may overlook variables that were not initially considered. This can limit the exploration of unexpected factors that could influence the outcomes under study.
5. Misinterpretation of statistical results or misapplication of statistical techniques can lead to erroneous conclusions. Proper training and expertise in statistical analysis are essential to mitigate this risk.

In a nutshell, while quantitative research offers numerous strengths that contribute to its widespread use and reliability, it also has certain drawbacks. However, despite this, quantitative research remains a powerful tool for generating reliable results.

4.3.2 Methods used in Quantitative Research

Being a systematic investigative phenomenon that includes the collection and analysis of numerical data, quantitative research is often used

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to quantify behaviors, opinions, attitudes and other variables to identify patterns and relationships. Some methods of quantitative research are:

1. Surveys and Questionnaire:

Surveys and questionnaires are foundational tools in quantitative research. They involve asking a series of pre-defined, structured questions to a large group of respondents. These questions can be delivered through various methods, including online platforms, paper forms, telephone interviews or face-to-face interactions. The primary aim is to gather numerical data that can be statistically analyzed to identify patterns, correlations and trends.

Surveys are widely used across different fields, such as market research to understand consumer preferences, social sciences to gauge public opinion, and healthcare to assess patient satisfaction or treatment outcomes. They are instrumental in collecting data from a broad audience quickly and efficiently.

Surveys can reach a large and diverse audience, making it possible to gather significant amount of data in a relatively short time. They are cost-effective, especially when conducted online, and the data collected can be easily analyzed using statistical software to draw meaningful conclusions. At the same time, surveys may suffer from response bias, where the answers provided do noy accurately reflect the true opinions or behaviors of respondents. This can occur due to poorly worded questions, social desirability bias or non-response bias.

2. Experiments:

Experiments are rigorous method of quantitative research that involve manipulating one or more independent variables to observe the effect on a dependent variable. This method is characterized by its high level of control, which allows researchers to isolate and determine causal relationships between variables. Experiments are typically conducted in controlled environments, such as laboratories to minimize external influences.

Experiments are common in disciplines such as psychology, medicine, and natural sciences. For example, in psychology, experiments might be used to study the effects of different types of therapy on mental

health outcomes. In medicine, clinical trials are a form if experimental research used to evaluate the efficacy of new treatments or drugs.

The primary advantage of experiments is their ability to establish causality. By controlling for extraneous variable, researchers can confidently attribute changes in the dependent variable to the manipulation of the independent variable. Experiments are also replicable, meaning other researchers can repeat the study to verify the results. However, one of the main limitations of experimental research is that it can be artificial, as the controlled settings do not always accurately reflect real conditions. This can limit the external validity or generalizability of the findings. Additionally, experiments can be resource-intensive, requiring significant time, money and effort to design and conduct.

3. Longitudinal Studies:

Longitudinal studies involve collecting data from the same subjects repeatedly over a period of time. This method is particularly valuable for studying changes and developments over time, such as tracking the progression of a disease, the impact of educational interventions, or the evolution of social attitudes.

Longitudinal studies are widely used in fields such as medicine, education and social sciences. For example, a longitudinal study in medicine might track patients' health outcomes following a particular treatment over several years. In education, researchers might follow a cohort of students throughout their academic careers to assess the long-term effects of different teaching methods.

Longitudinal studies provide rich data on how variables change over time, offering insights into trends and long-term effects that cross-sectional studies cannot. This method allows for the examination of causal relationships and the direction of causality by observing the temporal sequence of events. At the same time, such studies can be time-consuming and expensive, as they require repeated data collection over extended periods. They also face challenges such as participants attrition, where subjects drop out of the study over time, which can bias the results. Maintaining consistent data collection methods and adapting to changes in technology or methodology over time can also be challenging.

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4. Cross-Sectional Studies:

Cross sectional studies involve collecting data from a population or a representative subset at a single point in time. This method provides a snapshot of the variables of interest, allowing researchers to assess the prevalence of certain characteristics, behaviors, or conditions within the population.

Cross sectional studies are frequently used in epidemiology to assess the prevalence of disease or heath behaviors with a population. They are also common in social sciences to study demographic characteristics, opinions, or behaviors of a specific group at a particular time.

They are relatively quick and inexpensive to conduct compared to longitudinal studies. They allow researchers to analyze data from a large number of subjects, providing a broad overview of the variables of interest. This method is useful for identifying associations between variables and generating hypotheses for future research. However, since cross-sectional studies collect data at only one point in time, they cannot establish causality or determine the direction of relationships between variables. They are also suspectable to recall bias, where participants may not accurately remember past behavior or events.

5. Correlational Research:

Correlational research involves measuring the relationship between two or more variables to determine whether they are associated. Unlike experimental research, correlational studies do not involve manipulating variables, instead they observe and measure variable as they occur naturally.

They are used in various fields, including psychology, education and public health. For example, researchers might use correlational studies to examine the relationship between stress levels and academic performance among students or association between physical activity and hearth health.

Correlational research can identify relationships between variables that may warrant further investigation through experimental methods. It is useful for studying variables that cannot be manipulated for ethical or practical reasons. This method can also handle large datasets, making

it suitable for analyzing complex relationships in big data. On the other hand, correlational research cannot establish causation, meaning it cannot determine whether one variable causes change in another. The presence of confounding variables can also complicate the interpretation of results, as other unmeasured factors may influence the observes relationship.

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Self Assessment Questions

1. What are the characteristics of quantitative research?

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2. Discuss the strengths and weaknesses of quantitative research.

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4.4 Meaning of Qualitative Research

Qualitative research is a method of inquiry that focuses on understanding human behavior, experience, and social phenomena from the perspective of the participants. Unlike quantitative research, which seeks to quantify data and generalize results across populations, qualitative research aims to provide a deep, contextualized understanding of specific situations, individuals, or groups. This approach involves collecting non-numerical data, such as interviews, observations and textual analysis, to explore meanings, concepts and patterns that emerge from the data.

Qualitative research is often used in the social sciences, humanities and fields where understanding the complexity of human experiences is essential. It emphasizes the importance of the context in which people live and interact, recognizing that reality is subjective and constructed through social interactions. The researcher plays a critical role in interpreting the data, and the process is typically long, with data collection and analysis occurring simultaneously to refine the research focus and questions continuously.

Such research is less focused on explaining phenomena in terms of cause-and-effect relationships and more interested in understanding them

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in depth. This approach aims to capture the complexity and richness of human experiences, behaviors and interactions by exploring the subjective meanings and interpretations that individuals assign to their experiences. Moreover, instead of seeking to generalize findings to a larger population, qualitative research strives to provide a detailed, nuanced understanding of specific contexts and situations. This method allows researchers to delve into the intricacies of social and cultural dynamics, uncovering insights that might be overlooked by more rigid, quantitative approaches.

Characteristics of Qualitative Research

Qualitative research has several distinctive characteristics that make it a powerful method for exploring complex phenomena, understanding social processes, and gaining deep insights into human behavior and experiences. Some characteristics are:

1. **Naturalistic Inquiry:**

   Qualitative research is conducted in the natural settings where participants live or work, allowing researchers to gather data in real contexts without manipulating the environment. This approach ensures that the findings are grounded in the everyday experiences of the participants and provides a more authentic understanding of the phenomenon under study.

2. **Holistic Perspectives:**

   This research approach considers the whole phenomenon and its complexity, taking into account the context in which the phenomenon occurs, and the multiple factors that influence it. Qualitative researchers aim to understand the interconnectedness between various elements of the phenomenon, providing a comprehensive view that quantitative methods may not capture.

3. **Emergent Design:**

   Qualitative research designs are flexible and can evolve as the study progresses. Researchers may modify their methods based on what they learn during the data collection process. This adaptability allows researchers to follow emerging leads, explore new areas of interest, and adjust their focus as necessary to better understand the research problem.

4. Participant Perspective:

A central goal of qualitative research is to understand the participants' perspectives, experiences and meanings. Researchers aim to see the world through the eyes of the participants, capturing their viewpoints and interpreting their experiences within the context of their lives. This focus on the participants' perspectives ensures that the research findings are relevant and meaningful to those being studied.

5. Interactive Process:

The research process is often interactive, involving close contact and direct communication between the researcher and participants. This interaction can help build rapport and trust, facilitating deeper insights. Through interviews, focus groups and participant observation, researchers engage with participants in ways that allow for rich, detailed data collection.

6. Descriptive Data:

Qualitative data are collected in form of words, images or objects rather than numbers. This can include interviews, observations, documents and audiovisual materials. The richness of this descriptive data allows for in-depth analysis and provides an understanding of the research phenomenon.

7. Inductive Analysis:

Qualitative research often uses an inductive approach to data analysis, where patterns, themes and categories emerge from the data rather then being imposed by the researcher. This process involves identifying recurring elements and relationships within the data, leading to the development of concepts and theories that are closely tied to the empirical evidence.

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4.4.1 Strengths and Limitations of Qualitative Research

Qualitative research, which focuses on exploring phenomena and understanding meanings and experiences, offers several strengths that make it an invaluable method in various field of study. Some strengths are:

1. One of the significant strengths of qualitative research is its ability to develop rich, detailed theories. Unlike quantitative research, which

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often tests existing theories, qualitative research generates new theories and frameworks based on detailed observations and interactions. This inductive approach is essential for fields where existing theories may not adequately explain complex or emerging phenomena.

2. Qualitative research often involves a participatory approach, empowering participants to share their stories and experiences in their own words. This empowerment leads to a more authentic and accurate representation of their perspectives, which is particularly important in research involving marginalized or vulnerable populations. It ensures that their voices are heard and valued in the research process.
3. The flexible and open-ended nature of qualitative research allows for the discovery of unexpected insights and new directions for inquiry. Researchers can follow leads that emerge during data collection, leading to findings that were not anticipated at the outset. This adaptability makes qualitative research particularly suited for exploring new or poorly understood areas.
4. Qualitative research can complement and enhance quantitative research by providing context and dept to numerical findings. Mixed-methods approaches, which combine qualitative and quantitative methods, leverage the strengths of both to provide a more comprehensive understanding of research problems. Qualitative insights can help interpret quantitative data and generate hypotheses for further testing.
5. Qualitative research fosters methodological innovation by encouraging researchers to develop and adapt methods to suit their specific research questions and contexts. This innovation can lead to the creation of new research tools and techniques that enhance the quality and depth of data collection and analysis.

Some limitations of qualitative research are:

1. Qualitative research often relies on the researcher's interpretation of data, which can introduce bias. This subjectivity can affect the objectivity and replicability of the study. different researchers might

interpret the same data in different ways. Leading to varying conclusions.

2. Qualitative research can be very time-consuming, both in terms of data collection and analysis. Methods such as interviews, focus groups and ethnography require significant time investment from both researchers and participants.
3. The context- specific nature of qualitative research makes it difficult to replicate studies. The unique circumstances and individual perspectives involved in qualitative studies often cannot be reproduced in subsequent research, limiting the ability to verify findings.
4. The analysis of qualitative data can be complex and labor intensive. Researchers must sift through large volumes of text, audio or video data, identifying themes, patterns and meanings, which can be a challenging and subjective process.
5. Qualitative studies typically involve smaller, non-random samples, making it difficult to generalize findings to large populations. The insights gained are often specific to the context and participants studied, which limits their applicability to other settings or groups.

Hence, while qualitative research provides valuable insights and a deep understanding of complex phenomena, its limitations mist be acknowledged. Researchers should be aware of these limitations when designing studies, interpreting results and considering the implications of their findings.

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4.4.2 Methods used in Qualitative Research

Qualitative research employs a variety of methods to gather rich, detailed data that help researchers understand complex phenomena, experiences and social processes. Some key methods used in qualitative research are:

1. Focus Groups:

Focus groups involve guided discussions with a small group of people on a specific topic. A moderator facilitates the discussion, encouraging participants to share their perspectives and interact with each other. focus groups are useful for exploring social dynamics, collective views,

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and the range of opinions within a community or group. They can reveal how group interactions and discussions shape individual opinions and behaviors.

2. Ethnography:

Ethnography is an in-depth study of people and cultures, involving prolonged engagement in the field. Researchers use participant observation, interviews, and other methods to collect data, aiming to understand the daily lives, practices and social norms of the group being studied. Ethnography provides a holistic view of the social context and the meanings people attach to their experiences. It is particularly useful for studying complex social processes and cultural phenomena in their natural settings.

3. Case Studies:

Case studies involve a detailed examination of a single case or a small number of cases within their real context. This method is useful for exploring complex issues, processes, or events in depth. Case studies can include various data sources, such as interviews, observations, documents and archival records. They provide a comprehensive understanding of the case and its contextual factors, making them suitable for studying unique instances of the phenomenon.

4. Narrative Analysis:

Narrative analysis focuses on the stories and accounts people talk about their lives and experiences. Researchers analyze these narratives to understand how individuals make sense of their experiences, construct identities and communicate their realities. This method is particularly useful for exploring personal and social identities, life histories and cultural narratives. It helps uncover the underlying themes and structures of narratives, revealing how people construct meaning and convey their experiences.

5. Grounded Theory:

Grounded theory involves generating theories from data collected during the research process. Researchers collect and analyze data simultaneously, refining their understanding and developing theoretical concepts grounded in the data. This method is useful for building new

theories and understanding phenomena that lack existing theoretical framework. Grounded theory is particularly effective for studying social processes and interaction, as it allows for the development of theories that are closely tied to empirical data.

6. Interviews:

Interviews are a common method in qualitative research, allowing researchers to collect detailed information directly from participants. They can structured, semi-structured or unstructured:

a. **Structured Interviews:** These follow a strict set of questions, ensuring consistency across interviews but limiting flexibility. They are used when the researcher needs to gather specific information from all participants.

b. **Semi-Structured Interviews**: These use a guide with predetermined questions but allow for additional questions based on the participant's responses. This method strikes a balance between consistency and flexibility, enabling the researcher to explore topics in more depth.

c. **Unstructured Interviews**: These are more conversational, with no fixed set of questions, allowing the participants to steer the conversation. This method is particularly useful when the research wants to explore a topic broadly and in depth, following the participant's lead.

In summary, some of these qualitative research methods offer diverse ways to gather and analyze data, providing deep insights into human behavior, social processes and cultural context. By selecting the appropriate method(s) for their research questions, qualitative researchers can explore complex phenomena and make contributions accordingly. Each methods have its own strength and is suited to different types of research questions and contexts, allowing researchers to tailor their approach to specific needs of their study.

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Check Your Progress

1. Grounded theory focuses on …….. the relationship between ab empirical investigation and theory.
2. Ethnography focuses on the study of a ……ccommunity.
3. The final report of the cast study provides a …… and ……..description of the case and its context.
4. Advantage of focus group is gathering ……...

4.5 Difference between Quantitative and Qualitative Research

ASPECT	QUANTITATIVE RESEARCH	QUALITATIVE RESEARCH
Nature of Data	Uses numerical data that can be measured and quantified. This type of data is objective and can be easily compared and analyzed using mathematical and statistical methods.	Uses non-numerical data that are descriptive, such as texts, images or audio. This type of data captures detailed information about participants' experiences, opinion and interactions. The data are subjective and often provide deep insights into the context.
Objective	Aims to quantify the problem by way of gathering numerical data. It seeks to understand how prevalent a particular issue is within a given population.	Seeks to understand the underlying reasons, opinions and motivations behind the phenomenon.
Research Questions	Typically addresses questions related to "how many," "how much," "how often" or "to what extent." These questions are aimed at measuring variables and quantifying relationships.	Addresses questions relation to "why," "how" and "in what way." These questions aim to explore processes, experiences and the meanings individuals or groups assign to them.
Approach	Follows a deductive approach where researchers test theories or hypotheses. The research design is structured and pre-determined	Follows an inductive approach where researchers generate new theories or hypotheses from the data collected. The research design is flexible, allowing for the exploration of phenomena as they emerge.
Methods	Common methods include surveys, experiments and structured observations. These methods involve predefined instruments like questionnaires and measurement tools to collect data systematically.	Common methods include interviews, focus groups, participant observations and ethnographies. These methods involve open-ended data collection techniques that allow for in-depth exploration of participants' perspectives.

Data Collection	Utilizes structured data collection methods such as questionnaires with close-ended questions, standardized tests, or systematic observation. This ensures consistency and the ability to replicate the study.	Utilizes unstructured or semi-structured data collection methods such as open-ended interviews, group discussions and field notes. This allows for a more natural and detailed capture of participants' experiences and insights.
Sample Size	Generally, requires larger sample sizes to ensure that the findings are statistically significant and can be generalized to a larger population.	Typically involves smaller sample sizes to allow for in-depth study of each participant or case.
Outcome	Produces generalized results that can be used to predict trends and make informed decisions. The outcomes are typically presented in the form of statistical reports, charts and graphs.	Produces detailed, context-specific insights that help to understand complex phenomena. The outcomes are typically presented in the form of narrative descriptions, case studies and thematic reports.

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If we have to summarize the entire table, it can be concluded that quantitative research is suited for studies requiring measurable data and statistical analysis to test hypotheses and identify patterns across larger populations. Qualitative research, on the other hand, is ideal for exploring complex phenomena, understanding deeper meanings, and generating new theories based on rich, detailed data. Both methods have their unique strengths and can be complementary when used together in mixed methods research to provide a comprehensive understanding of research questions.

4.6 Combining Quantitative and Qualitative Methods

As discussed in the previous unit, the method of combining both the research method leads to the introduction is a new concept known as the mixed method research. It seeks to provide a comprehensive approach to investigate the research questions by using the strengths of both quantitative and qualitative methodologies. This integrative strategy enables researcher to capture a complete picture of the study phenomenon, offering both numerical evidence as well as contextual understanding.

There are reasons that highlight both the opportunities and potential risks associated with this methodology of mixed research, thereby making it a powerful yet challenging approach for researchers. Firstly, is its

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comprehensive understanding which aims to provide a more complete understanding of research problems by capturing both the breadth of quantitative data and the depth of qualitative insights. This holistic approach allows researchers to explore phenomena more thoroughly. By employing mixed methods, researcher can quantify the extent of a phenomenon through quantitative measures and then delve deeper into understanding the underlying reasons, contexts and perceptions through qualitative data.

Secondly, by using both the methods, researchers can cross-validate their findings, enhancing the credibility and validity of the results. Triangulation helps to confirm the accuracy of data and provides a full picture of the research question. Triangulation involves using multiple data sources, methods, investigators or theoretical perspectives to check the consistency of findings. Thirdly, each method has its own strengths- while quantitative method offers precise measurement and statistical analysis, qualitative method provide context. Combing these strengths allows for a more robust analysis. While quantitative data can identify patterns and generalize findings to larger population, qualitative data can explain why those patterns exist.

Fourthly, mixed method research offers flexibility, enabling researchers to tailor their approach to fit the research question. This adaptability allows for the exploration of different aspects of a problem, which might be missed by a single method approach. Researchers can use an exploratory sequential design (qualitative research followed by quantitative research) to first explore a phenomenon and then measure it. Alternatively, they can use an explanatory sequential design (quantitative research followed by qualitative research) to explain unexpected quantitative results with qualitative data. Lastly, the integration of qualitative and quantitative data facilitates both the development and testing of theories. Qualitative data can generate new hypotheses, while quantitative data can test these hypotheses, providing a dynamic interplay between theory and data. A mixed methods approach can be particularly useful in fields like psychology, where qualitative interviews can help develop new theoretical insights about human behavior, which can be tested through experiments or surveys. This process strengthens both the theory and its empirical foundation.

Along with the opportunities offered, such methods also entail risks with it. Due to its involvement of more than one method, mixed research is inherently more complex. Researchers need to be proficient in both quantitative and qualitative techniques which requires extensive training and expertise. Managing and integrating two different sets of data involves complex design and logistical considerations. Next, mixed methods research is often more time-consuming due to the need to design, collect, and analyze two sets of data. Such extended timelines can be challenging for the researchers with limited time and resources. The dual phases of data collection and analysis can delay the research process.

One of the biggest hurdles in mixed methods research is integrating both data in a meaningful way. Researchers must carefully plan how to combine and interpret data from different sources to ensure coherent and cohesive results. Integrating diverse data sets can be methodologically challenging. Researchers should hence develop strategies to merge numerical data with narrative data, ensuring that the results are not only coherent but also meaningful and insightful. This often requires innovative analytical techniques and a deep understanding of both methods. Along with this problem of integration, there are also risk of methodological conflicts that stems from different philosophical paradigms (e.g., positivism for quantitative methods and interpretivism for qualitative methods). It can lead to conflicts in research design, data interpretation and reporting.

Hence, the rise of mixed methods research represents both a significant opportunity and a potential challenge for researchers. While it surely gives a upper hand to make use of the strengths of both quantitative and qualitative methods, but it also increases complexity, time, and resource demands as well as the challenges related to data integration which consequently requires a more careful consideration and skillful management. However, despite these risks, the benefits of mixed methods research make it valuable approach for advancing knowledge across various disciplines.

Check Your Progress

1. Discuss the advantages and disadvantages of mixed method research

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2. Describe the methods of quantitative research.
3. Explain the process of integration of quantitative and qualitative research.
4. Describe quantitative research with an example.

4.7 Summing Up

After going through the unit, the student will be able to understand in detail the concepts of both quantitative and qualitative research and its various aspects. The unit starts with describing the quantitative approach and its application in various fields of research, later part of the unit deals with the qualitative approach. The last section talks about the integration of both these methods in the form of the mixed method research in a single research methodology.

4.8 References and Suggested Readings

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Unit - 5

Some Other Methods of Research

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Unit Structure:

5.1 Introduction

The study of the socio-cultural aspects of social concerns id known as social research. In this sense, theories and research methodologies used in the quest of knowledge in social science have been impacted by many scientific fields. As a result, it encompasses issue of conceptualization, theoretical discussion, research practice specification, analytical frameworks and epistemological presuppositions.

5.2 Objectives

After going through the unit, the student will be able to:

- Understand the difference between research method and methodology;
- Different types of research that are used in the field of social sciences.

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5.3 Research Method Versus Methodology

A research method refers to a systematic and organized approach used to collect, measure and analyze data in order to answer research questions, test hypotheses, or explore new phenomena. Research methods are fundamental tools that guide researchers in the process of gathering empirical evidence and making sense of the information to draw meaningful conclusions. These methods provide the procedural framework within which research is conducted, ensuring that data collection and analysis are conducted in a structured and reliable manner.

Research methods can be categorized into several types, including qualitative methods (such as interviews, focus groups and content analysis), quantitative methods (such as surveys, experiments, and statistical analysis), and mixed methos, which combines the elements of both quantitative and qualitative approaches. Each of these methods has its own set of techniques and procedures tailored to specific research objectives and questions. For instance, qualitative methods are often employed to explore complex phenomena, understand participants'' perspectives and gather in-depth insights. They are flexible and open-ended, allowing researchers to adapt their strategies based on the emerging data. On the other hand, quantitative methods are used to collect numerical data that can be statistically analyzed to identify patterns, relationships and causal effects. These methods are characterized by their structured nature and reliance on standardized instruments for data collection. Hence, it can be said that the choice of research method depends on the nature of the research problem, the research objectives and the type of data needed to address the research questions. By employing appropriate research methods, researchers can ensure that their studies are methodologically sound, and the findings are valid, reliable and generalizable. This systematic approach to data collection and analysis is what makes research methods a cornerstone of the scientific inquiry process, allowing researchers to contribute valuable knowledge to their respective fields.

On the other hand, research methodology is a systematic, theoretical analysis of the methods applied to a field of study. It is a comprehensive framework that provides a structured approach for conducting research,

encompassing the theoretical framework. Strategies and specific techniques used in a study. Research methodology outlines the overall plan and direction for a research project, ensuring that the methods chosen align with the research objectives, questions and goals.

At its core, research methodology addresses the "how" and "why" of the research process. It includes defining the research design, which is the blueprint for how data will be collected, measured and analyzed. This involves selecting an appropriate strategy, such as experimental, correlational or descriptive research and determining the specific type of study, such as a case study, longitudinal study or cross-sectional study. the methodology also encompasses the selection of data collection methods, which can range from qualitative techniques like interviews and observations to quantitative methods like surveys and experiments as well as mixed methods that integrate both approaches. Data analysis procedures are another critical component of research methodology. These procedures involve the techniques used to interpret the collected data, which may include statistical analysis for quantitative data or coding and thematic analysis for qualitative data. The methodology also outlines sampling techniques, specifying how participants or cases will be selected, the sample size and the criteria for inclusion or exclusion. Moreover, ethical consideration is an integral to research methodology, ensuring that the research respects the rights and welfare of the participants and adheres to the ethical guidelines. Additionally, the methodology addresses issues of validity and reliability, implementing strategies to enhance the credibility, accuracy and replicability of the findings.

By providing a structured and systematic approach, research methodology ensures that the research is conducted rigorously and scientifically. It allows researchers to apply theoretical principles to practical problems, generating valid and reliable results that contribute to the body of knowledge in a given field. Research methodology bridges the gap between theory and practice, enabling researchers to design studies that are methodologically sound and capable of addressing complex research questions.

Understanding the distinction between research method and research methodology is crucial for conducting structured research. The table below will elaborate upon the difference:

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ASPECT	RESEARCH METHOD	RESEARCH METHODOLOGY
Definition	Specific techniques or procedures used to collect and analyze data.	The systematic, theoretical analysis of the methods applied to a field of study.
Scope	Narrow focus on data collection and analysis processes	Broad focus, encompassing the overall strategy and rationale behind the methods used.
Components	Includes tools such as surveys, experiments, interviews, observation, etc.	Includes research design, theoretical framework, data collection methods, analysis techniques and ethical considerations
Purpose	To obtain data needed to answer research questions or test hypotheses.	To provide a structured approach to the entire research process, ensuring coherence and validity.
Focus	Practical application of tools and techniques.	Conceptual and theoretical foundation guiding the choice and application of methods.
Planning Level	Operational level, dealing with specific steps and procedures.	Strategic level, dealing with overall planning and justification of the research approach.
Examples	Conducting a survey, performing a laboratory experiment, conducting a focus group.	Choosing a mixed method approach, developing a conceptual framework, deciding on qualitative or quantitative analysis.
Sequence	Methods are the steps taken during the data collection and analysis phase.	Methodology is decided at the beginning of the research process to guide the overall approach.
Application	Directly used to gather and process data.	Used to justify and explain the selection and implementation of research methods.

5.4 Different Methods of Research

Research methods encompass a broad spectrum of techniques and approaches used to gather, analyze and interpret data. While quantitative and qualitative research methods are the most commonly discussed, there are numerous other methods that researchers employ depending on the nature of their study, the research question, and the discipline. These methods can range from mixed methods research, to more specialized techniques

like longitudinal studies, case studies, ethnography and action research. Each method offers unique advantages and is suitable for different types of investigations, providing researchers with the tools they need to uncover insights and contribute to their fields effectively.

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5.4.1 One Time Research

One time research, often referred to as cross-sectional research, involves collecting data from a population or a representative subset at a single point in time. This type of research aims to capture a snapshot of the current state of a specific phenomenon or variable. Providing a detailed picture of the present situation without delving into how things change over time. It is a commonly used approach in various fields such as sociology, psychology, healthcare, marketing and education due to its straightforwardness and efficiency. One time research is designed to describe the characteristics or status of a population at the specific moment. An example will further explain this research.

Consider a study conducted by an educational institution to assess the reading proficiency of fifth grade students. Researchers administer a standardized reading test toa sample of fifth graders from different schools within the district. The results provide insights into the current reading levels, identifying how many students meet, exceed, or fall below the expected proficiency standards. This data helps in understanding the current state of reading skills among fifth graders at that specific point in time, which can inform immediate educational interventions or policy decisions.

Strength:

1. Since data is collected once, the research process is relatively quick, allowing for timely analysis and reporting of results.
2. One time data collection requires fewer resources compared to longitudinal studies that necessitates multiple rounds of data gathering.
3. The design, implementation, and management of cross-sectional studies are straight, making them accessible and easy to execute.
4. Provides an immediate and comprehensive view of the current state of the population or phenomenon being studied, useful for making prompt decisions.

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5. Applicable in various disciplines for assessing the prevalence or characteristics of issues, aiding in immediate understanding and action.

Limitations:

1. One time research cannot determine cause and effect relationship since it lacks temporal data to show how variables influence each other over time.
2. Provides information limited to a single point in time, which may not reflect changes or trends that occur before or after the data collection.
3. May overlook variations and dynamics that evolve over time, potentially leading to an incomplete understanding of the phenomenon.
4. Without longitudinal data, it is challenging to control for all confounding factors that might affect the results.
5. The specific timing of data collection can significantly influence the results, which may not be representative of different periods.

Hence, one time research is a powerful method for obtaining a clear and immediate picture of a phenomenon at a particular moment. While it excels in providing current insights and is efficient in terms of cost and time, its inability to track changes over time and establish causal relationships are significant limitations. Therefore, one time research is often complemented by other research methods to achieve a more holistic understanding of the subject under study.

5.4.2 Longitudinal Research

Longitudinal research is a type of study that involves repeated observations or measurements of the same variables over an extended period. This research design tracks changes, developments, or trends within the study population across time, making it ideal for understanding the dynamics of change and the long-term effects of various factors. By following the same subjects or variable over multiple points in time, longitudinal studies can reveal patterns and causal relationships that are not observable in one

time research. Such type of research can be used in various fields, including psychology, sociology, medicine, education and economics to investigate how individuals, groups, or phenomenon evolve over time. An example will further elaborate the longitudinal research.

Consider a longitudinal study investigating the long-term effects of a new educational program on student performance. Researchers might select a cohort of students who begin the program in kindergarten and follow the through their high school graduation. Data on their academic performance, social skills and behavioral development would be collected at multiple intervals, such as annually or biannually. This approach allows researchers to observe how the program impacts students over time and identify any lasting benefits or drawbacks.

Strength:

1. Longitudinal studies can establish cause and effect relationship by observing how changes in one variable affect changes in another over time.
2. They capture the timing and sequence of events, providing insights into how and when changes occur.
3. Particularly useful in developmental research, they track growth, aging, or progression in subjects, offering a comprehensive view of developmental processes.
4. They enable the study of trends and long-term patterns such as economic cycles, social changes, or health trends, which are not detectable in cross-sectional studies.
5. Since data is collected prospectively, there is less reliance on participants' memory, reducing recall bias compared to retrospective studies.

Limitations:

1. Longitudinal studies require a significant amount of time to conduct, which can delay the availability of results and findings.
2. The extended duration and repeated data collection efforts make these studies expensive to implement and maintain.

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3. Maintaining participant involvement over time can be challenging, leading to dropout rates that may affect the study's validity and reliability.
4. The design, execution and data analysis of longitudinal studies are more complex and demanding compared to cross-sectional studies.
5. Over long periods, advancements in technology or changes in research methods can introduce inconsistencies in data collection and analysis.

Longitudinal research is invaluable for understanding changes and developments over time. Its ability to establish causality and track long-term trends provides deep insights that are unattainable through other research designs. However, the method's demanding nature in terms of cost, time and complexity requires careful planning and resource allocation. Despite its challenges, the richness of data and the depth of understanding gained from longitudinal studies make them a crucial tool in various field of research.

Self Assessment Questions

1. **Which of the following best describes longitudinal research?**
   a) Data is collected at a single point in time
   b) Data is collected from the same subjects repeatedly over time
   c) Data is collected from different subjects at different points in time
   d) Data is collected from multiple subjects at one time
2. **What is a primary advantage of cross-sectional research?**
   a) It can establish cause-and-effect relationships
   b) It captures long-term trends
   c) It is generally less time-consuming and expensive
   d) It requires participant retention over time

3. Which type of research is more suitable for studying the development of a condition over time?

a) Cross-sectional research
b) Longitudinal research
c) Experimental research
d) Descriptive research

4. Which of the following statements is true?

a) Longitudinal research is generally less expensive than cross-sectional research.
b) Cross-sectional research can track changes in the same subjects over time.
c) Longitudinal research can provide insights into cause-and-effect relationships.
d) Cross-sectional research is always better than longitudinal research.

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5.4.3 Field Setting Research

Field setting refers to the collection and analysis of data within the natural environment where the phenomena of interest occur, rather then in a controlled or laboratory setting. This approach is widely used across various disciplines, including anthropology, sociology, psychology, and environmental studies, to gain a more authentic and comprehensive understanding of behaviors, interactions, and contextual influences. By immersing themselves in the actual environment, researchers can observe and analyze subjects within their real context, thus providing insights that are more reflective of genuine behavior and interactions.

Field setting research involves studying subjects in their natural habitat, which could range from observing animals in the wild, examining social interactions in urban neighborhoods, to exploring cultural practices in remote communities. The goal is to understand the phenomena as they naturally occur, without the artificial constraints or variables often imposed in laboratory settings. This type of research can employ various methods such as participant observation. Interviews, surveys, case studies and ethnography to collect both quantitative and qualitative data.

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An example of field setting research could be anthropologist living within a remote tribal community to study their daily rituals, social structures and cultural norms. By participating in and observing the community's activities, the researcher can gather rich, contextual data that provides a deep understanding of the tribe's way of life, which might not be possible through remote or laboratory-based research methods.

Strength:

1. Since the data is collected in a natural setting, the findings are often more applicable to real scenario. This enhances the ecological validity of the research, making the results more relevant and credible.
2. Field research can provide comprehensive and detailed data, capturing the complexities of behaviors and interactions within their actual context.
3. By observing subjects in their natural environment, researchers can obtain more authentic and unbiased data, reducing the risk of artificial behaviors that can occur in laboratory settings.
4. It allows for a deeper understanding of the interplay between different factors and the environment, offering a more holistic view of the phenomena under study.

Limitations:

1. One of the main limitations is the inability to control external variables, making it challenging to establish clear cause and effect relationship. the natural environment is dynamic and unpredictable, which can complicate the data collection process.
2. Conducting research in natural settings can raise ethical issues, particularly regarding consent and privacy. Ensuring ethical standards while maintaining the authenticity of the observation can be difficult.
3. Field research often requires a significant amount of time to immerse oneself in the environment, build trust with participants, and collect and analyze data. This can make the research process lengthy and resource-intensive.

4. The presence of the researcher can influence the behavior of the subjects, known as observer effect, potentially impacting the results. Additionally, the researcher's biases and perspectives might affect the interpretation of the data.

Hence, field setting research plays a crucial role in gaining a comprehensive understanding of phenomena as they occur naturally. Despite the challenges, such as ethical concerns, time constraints and potential biases, the method provides invaluable insights that are deeply rooted in the real context. By capturing the richness and complexity of natural environment, field setting research contributes significantly to our knowledge across various disciplines, enabling the development of theories and practices that are both authentic and applicable to reality.

5.4.4 Laboratory Research

Laboratory research is a method of conducting studies in a controlled environment where variables can be carefully manipulated and measured. This approach is prevalent in the natural sciences, psychology, and other fields where precision and control are crucial for understanding cause- and-effect relationships.

It involves experiments conducted in a specialized facility equipped with the necessary tools and instruments to control and measure various factors. The primary goal is to isolate specific variables and observe their effects in a controlled setting, which minimizes external influences that could impact the results. This type of research allows for high internal validity, meaning the outcomes can be attributed to the manipulations of the independent variables rather than other factors.

An example of laboratory setting research is a study on the effects of a new drug on blood pressure. Participants are brought into a lab where their blood pressure is measured under controlled conditions before and after administering the drug. Researchers control all other factors such as diet, exercise and stress levels to ensure that any changes in blood pressure can be attributed solely to the drug.

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Strength:

1. Laboratory settings allow researchers to control extraneous variables, ensuring that the observed effects are due to the manipulation of the independent variable. This high level of control increases the internal validity of the study.
2. Advanced equipment and technology available in laboratories enable precise measurement and manipulation of variables, enhancing the reliability and accuracy of the results.
3. Experiments conducted in a lab can be easily replicated by other researchers, which is essential for verifying and validating results. Replication increases the reliability of findings.
4. The controlled environment helps establish clear cause and effect relationships between variables, providing evidence for scientific theories and hypotheses.
5. Laboratories often have strict ethical guideline and protocols, ensuring that experiments are conducted safely and ethically, particularly when human or animal subjects are involved.

Limitations:

1. The controlled nature of laboratory setting can create artificial conditions that may not accurately reflect the actual scenario, potentially affecting the external validity or generalizability of the findings.
2. Participants may behave differently in a lab setting than they would in natural environment. This altered behavior may impact the study's outcome.
3. Setting up and maintaining a laboratory can be expensive and resource intensive, requiring specialized equipment, materials and trained personnel.
4. Some experiments, especially those involving manipulation of variables that could cause harm or discomfort to participant, may face ethical limitations.

5. While laboratory research is excellent for testing specific hypotheses under controlled conditions, it may not be suitable for studying complex, multifaceted phenomena that occur in natural settings.

In a nutshell, laboratory research is avital method in scientific inquiry, offering unparalleled control, precision and the ability to establish causality. It plays a crucial role in advancing knowledge across various scientific disciplines. However, researchers must be mindful of its limitations, such as artificiality, participant behavior changes, and ethical considerations.

5.4.5 Simulation Research

Simulation research is a methodological approach that involves creating and using models to replicate and study the behavior of systems, processes or phenomena. This type od research allows researchers to conduct experiments in a virtual environment, which can be especially useful for studying complex or dangerous systems that would be impractical or unethical to examine in real life. Researchers can manipulate variables within this model to observe potential outcomes, explore different scenarios, and gain insights into the dynamics of the system without the constraints and risks associated with real world experimentation. Simulation can range from simple models of physical systems to complex representations of social, economic or biological processed.

An example of simulation research is the use of climate models to predict furture climate change scenarios. Scientists input data related to greenhouse gas emissions, solar radiation, ocean currents, and other variables into a sophisticated computer model. They then run simulations to project how these variables will interact over time and what impact they will have on global temperatures, weather patterns and sea levels.

Strength:

1. Simulation allows for the study of dangerous, complex or ethically sensitive scenarios without putting participants or the environment at risk.
2. Simulations can be more cost-effective than actual experiments, especially when studying large-scale or long-term processes. Once

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a model is developed, running multiple scenarios incurs relatively low additional costs.

3. Researchers have complete control over the simulated environment, allowing them to manipulate variables and test numerous hypotheses quickly and efficiently. This flexibility enables the exploration of a wide range of situations.
4. Simulation models can be easily shared and replicated by other researchers, promoting transparency and verification of findings. Other researchers can run the same or modified simulations to validate results or explore new questions.
5. Simulations are particularly useful for studying complex systems with many interacting components. Researchers can observe how changes in one part of the system affect the whole, providing insights into system dynamics that are difficult to obtain through traditional methods.

Limitations:

1. The validity of simulation research heavily depends on the accuracy of the models used. If the model does not accurately represent the system, the findings may be misleading or incorrect.
2. High quality, detailed data is required to build accurate models. Incomplete or inaccurate data can compromise the reliability of the simulation results.
3. Complex simulations can be computationally intensive, requiring significant processing power and time. This can be a limiting factor for researchers with limited access to high-performance computing resources.
4. Simulations often involves simplifying assumptions to make the model traceable. These assumptions may not always hold true therefore impacting the applicability of the results.
5. Interpreting the results of simulations can be challenging, particularly when dealing with complex model. Researchers must carefully analyze the outcomes and consider the limitations of the model to draw meaningful conclusions.

To summarize, simulation research is a powerful tool for studying systems and processes that are difficult or impractical to examine in the real world. By creating detailed models and running virtual experiments researchers can explore a wide range of scenarios, test hypotheses, and gain valuable insights. While this approach offers significant advantages in terms of safety, cost-effectiveness, and flexibility, it also requires careful attention to model accuracy, data quality and computational resources.

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Self Assessment Questions

1. **In simulation research, models are often used to:**
   a) Directly manipulate participants
   b) Create hypothetical scenarios and test outcomes
   c) Eliminate the need for hypothesis generation
   d) Collect narrative data from interviews
2. **Which of the following is a limitation of laboratory research?**
   a) High ecological validity
   b) Difficulty in controlling variables
   c) Potential lack of generalizability to real-world settings
   d) Inability to manipulate variables
3. **What is field setting research**
   a) Research conducted in a controlled environment like a laboratory
   b) Research conducted in a natural environment where the phenomena occur
   c) Research conducted using computer simulations
   d) Research conducted in academic settings only

5.4.6 Diagnostic Research

Diagnostic research is a specific type of research aimed at identifying the root cause or factors contributing to a particular problem, phenomenon, or condition. Its primary objective is to diagnose and understand the underlying issues in order to propose effective solutions or interventions.

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This type of research typically involves systematic investigation, data collection and analysis focused on identifying patterns, correlations, or causal relationships. Diagnostic research is commonly used in various fields such as healthcare, social sciences, education and business to diagnose problems, assess needs, or evaluate existing conditions. It often employs a combination of qualitative and quantitative methods to gather comprehensive insights into the problem at hand, making it a crucial step in informing subsequent actions or decisions.

An example of diagnostic research could be a study aimed at understanding the reasons for declining student performance in a school district. Researchers might collect and analyze data on factors such as teaching methods, student demographics, parental involvement, and school resources. By identifying key variables and their relationships, the research could uncover reasons for the decline and propose targeted interventions.

Strength:

1. Diagnostic research is highly focused on identifying specific causes or factors contributing to a problem or condition. By narrowing down the scope, researchers can provide precise insights that directly address the issue at hand.
2. It employs rigorous methods of data collection and analysis, often combining qualitative and quantitative approaches. This methodological rigor enhances the reliability and validity of findings, ensuring that conclusions are well supported by evidence.
3. The findings of diagnostic research are often actionable, providing clear recommendations for interventions or solutions. This makes it valuable for decision-makers who need practical insights to improve outcomes or address challenges.
4. Diagnostic research often takes a comprehensive approach by examining multiple variables and their relationships. This holistic understanding helps in uncovering complex causal pathways and interactions that influence outcomes.
5. It allows for a process of investigation and refinement. Researchers can continuously refine their hypotheses and research questions based on emerging findings, leading to deeper insights over time.

Limitations:

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1. Conducting diagnostic research can be resource intensive in terms of time, manpower and financial resources. The need for extensive data collection, analysis and potentially longitudinal studies can increase costs and logistics.
2. The interplay of multiple variables and factors can make analysis complex and challenging. Researchers must carefully manage and interpret data to avoid oversimplification or misinterpretation of findings.
3. While diagnostic research provides specific insights into particular contexts or settings, its findings may not always generalize to broader populations or different environments. This limits the applicability of findings across diverse settings.
4. In fields such as healthcare or social sciences, ethical considerations related to data privacy, consent, and potential harm to participants are critical. Researchers must navigate these ethical challenges responsibly throughout the research process.
5. Like all research methods, diagnostic research is susceptible to bias, both from researchers and participants. Bias can affect the validity of findings if not adequately addressed through rigorous study design.

In order to summarize, while diagnostic research offers precise and actionable insights into specific problems, it requires careful planning, rigorous methodology and consideration of potential limitations to maximize its effectiveness and relevance in addressing the challenges.

5.4.7 Phenomenological Research

Phenomenological research is a qualitative research approach that aims to understand and describe the essence of individuals' lived experiences regarding a particular phenomenon. This methodology is grounded in the philosophical tradition of phenomenology, founded by Edmund Husserl, and focuses on exploring the subjective experiences and perceptions of individuals to gain a deeper insight into the nature of their experiences.

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At its core, phenomenological research seeks to capture the rich, detailed descriptions of how individuals experience and interpret the world around them. The approach is deeply rooted in the belief that human experiences are inherently valuable and worthy of investigation, as they provide insights into the fundamental nature of phenomena. This type of research does not aim to explain or predict outcomes but rather to provide a detailed understanding of the lived experiences of individuals. Such researchers involve a rigorous and systematic process of data collection and analysis. Researchers engage with participants through in-depth interviews, conversations or written narratives, encouraging them to describe their experiences in their own words. The goal is to gather detailed and vivid descriptions that reveal the essence of the phenomenon from the participants' perspectives. A key concept in phenomenological research is the notion of "bracketing" or "phenomenological reduction." This involves the researcher setting aside their own biases, preconceptions and assumptions to approach the participants' experiences with an open and unbiased mind. By doing so, the researcher aims to understand the phenomenon as it is experienced by the participants, free from external interpretations or influences. Such research is often used in the fields such as psychology, sociology, education and health sciences, where understanding the depth and complexity of human experiences is crucial.

An example of phenomenological research is a study examining the experiences of immigrants adjusting to life in a new country. Researchers might conduct in-depth interviews with immigrants to understand their lived experiences, focusing on aspects such as cultural adaption, language barriers and social integration. The participants share their personal stories about the challenges and successes they encounter, their feelings of belonging or isolation, and how their identities evolve in the new environment. Through analyzing these narratives, researchers identify common themes and patterns such as the struggle for acceptance, the role of community support and the impact of cultural differences. This research provides a deeper understanding of the immigrant experience, informing policies and programs designed to support immigrant communities.

Strength:

1. Phenomenological research provides deep insights into the subjective experiences of individuals, capturing the richness and complexity of human experience. This method allows researchers to explore the subtleties of how individuals perceive and interpret their experiences.
2. By focusing on participants' perspectives, this research respects and values their experiences. This approach often gives voice to marginalized or underrepresented groups, highlighting their unique perspectives and insights.
3. The open-ended nature of data collection allows for flexibility and adaptability. Researchers can follow emerging leads and adjust the research focus based on preliminary findings, ensuring a comprehensive exploration of the phenomenon.

Limitations:

1. The reliance on participants' subjective accounts can introduce bias, and the findings may not be generalized to broader population. The emphasis on individual experiences means that the results may not be applicable to other contexts or groups.
2. The in-depth data collection and analysis required in phenomenological research can be time-consuming and resource intensive. Researchers need to invest significant time and effort to gather and analyze rich, detailed data.
3. Despite efforts to bracket their biases, researchers' interpretations can still influence the analysis and findings. The subjective nature of the research process means that researchers' perspectives

Hence, phenomenological research offers valuable insights into the complexities of human experience by focusing on the subjective perspectives of individuals. This qualitative approach allows researchers to capture the richness and depth of lived experiences, providing a comprehensive understanding of the phenomena under study. While it has its limitations, the detailed descriptions it provides can significantly enhance our understanding of various phenomena across different fields.

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Check Your Progress

1. Discuss the difference between research method and research methodology.
2. Describe Phenomenological Research with example.
3. What is Simulation Research? How is it different from Laboratory Research?
4. Differentiate between cross-sectional and Longitudinal Research.

5.5 Summing Up

The students will be able to understand the applicability of the different types of research methods that are used in the field of social sciences. The unit will allow the readers to analyze in detailed the strengths and limitations of these methodologies as well to further enhance their research background. After from the qualitative and quantitative approaches, there are several other types of research methods which are used and should be known to the students of the field. Hence, the unit provides a wholesome approach to the entire understanding of the various research methods.

5.6 References and Suggested Readings

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BLOCK : 4
NATURE OF INQUIRY

Unit 1 : Nature of Qualitative Research

Unit 2 : Nature of Quantitative Research

Unit 3 : Ethnography and Participant Observation

Unit 4 : Case Study

Unit 5 : Content Analysis

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Unit -1

Nature of Qualitative Research

Unit Structure:

1.1 Introduction

We all know that the aim of any search for knowledge i.e. research revolves around certain subject matters. These subject matters depend upon the researcher's area of interest. A social researcher's area of interest is intimately linked to the society ranging from matters like social issues, human conduct in a society, community behavior and culture etc. The Qualitative Research Method helps a social researcher to study human behavior in the natural setting. In this unit, we will focus on the meaning and definition of qualitative research. Through the study of this unit, you can know the stages to conduct a qualitative study, validity and reliability questions relating to the method, its features and criticism. The module also aims to help the students in writing the answers by giving a model answer to the 'Check Your Progress' question.

1.2 Objectives

This unit is an attempt to explain the nature of Qualitative Research. After going through this unit you will have a deep understanding on:

- Meaning of Qualitative Research.
- Stages of conducting the research.
- Types of Qualitative Research.
- Concept of reliability and validity in relation to qualitative research.
- Its features and the criticisms against it.

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1.3 Meaning and Definition of Qualitative Research

Qualitative Research is a type of research where a researcher collects data in words rather than numbers. In qualitative research, emphasis is given to understanding the social setting where the research is conducted. The subject matter of social sciences like anthropology, sociology, political science, and history is society and the human beings inhibited in it. Human beings are rational, so they can impose meaning upon anything in the social world. When a researcher tries to study the meanings of different phenomena of the social world from the perspective of the human beings living in it, then such a study is referred to as qualitative research. For example, if a researcher studies the importance of fasting as a religious ritual, then the findings may vary from society to society, or even from person to person within the same society. It is because each person will not believe in fasting as a religious ritual. Some will emphasize on science behind fasting, and some will entirely negate the concept. So, similar events can have different values in the minds of people due to their social situations and differences of thinking.

Gentles et al. define Qualitative Research as "The observation and interpretations of people's participation of different events and it takes the snapshot of the people's participation in a natural setting." (Mahajan, 2018)

For Walia, "Qualitative research focuses on words rather than numbers, this type of research observes the world in its natural setting, interpreting situations to understand the meanings that people make from day to day life"

In the words of Martin Hammersly, "Qualitative research is a form of social inquiry that tends to adopt a flexible and data- driven research design, to use relatively unstructured data, to emphasize the essential role of subjectivity in the research process, to study a small number of naturally

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occurring cases in detail, and to use verbal rather than statistical form of analysis."(Hammersley, 2013)

The last definition is broader than the first two as it encompasses all the major features of a qualitative study which we will study in the letter sections of this unit

In qualitative research, the relationship between theory and research is inductive. Here, the researcher moves from particular knowledge to general knowledge. It means the researcher does not base upon any theory while doing the research, rather, new knowledge or theory builds up as a result of the research.

The epistemological position of qualitative research is Interpretive. It means, in qualitative research the knowledge of the subject matter comes from interpretation and understanding of it by the researcher. The understanding should be based on the participant's points of view. Here, participants mean the people upon whom a particular study is conducted. The Ontological position of qualitative research is Constructivist. It means the subject matter in qualitative research is the social world which is a construction and not natural. The social world is constructed as a result of constant interaction between its members' i.e. human beings.

Stop to Consider:

Epistemology and Ontology of Social science Research:

Epistemology is the philosophical study of the nature, origin and limits of human knowledge. The term is derived from two Greek words 'Episteme' meaning knowledge and 'Logos' meaning reason. The field is referred to as the theory of knowledge. In research, epistemology deals with the source of knowledge in a particular research and the way to acquire that knowledge. There are many epistemological approaches in research. These include positivism, interpretivism, pragmatism, etc. In social science research, a researcher studies the social dynamics. It includes the study of social behavior, lived experiences of people, community and culture, religious beliefs etc. Positivism, the way to acquire knowledge in natural sciences will not be appropriate to collect data regarding these social

dynamics. While Positivism emphasizes on collection of data, experimentation and generalization of it for all situations, interpretivism focuses on understanding and explaining social dynamics from the viewpoint of those living in it. Here focus is on "empathic understanding of human action".(Bryman, 2012) The intellectual heritage of interpretivism includes Weber's notion of Verstehen, the hermeneutic-phenomenological tradition, and symbolic interactionism.

Ontology is the "science or study of being" and it deals with the nature of reality. In research, a researcher has to decide the subject matter and on the basis of it, ontological positions are chosen. However, there is a debate regarding the external existence of social world devoid of its actors. The natural world has an external existence. It is not the result of human interaction, so objective understanding of it is possible. But, for every phenomenon in the social world, individual meanings exist. For example, consumption of alcoholic liquor may be a sin for some community, but some communities may consume such liquor both as traditional and holy drink in ceremonies and festivals. That's why; it is difficult for a social researcher to have objective viewpoint on social realities. Because social realities are not identical and its meanings change over time.

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1.4 Evolution of Qualitative Research:

The roots of qualitative research can be found in the disciplines of anthropology, sociology and philosophy. The sociologist and anthropologist first used this method to inquire into different events and phenomena in the early part of the 20th century. However, the method existed in a non-structured form before its usage by the anthropologists or sociologists. Various Researchers used the method to find out cultural details, group behavior etc in their home or foreign settings. In 1920s, social anthropologists like Malinowski and Mead, sociologists of Chicago school such as Park and Burgess adopted more focused approaches while doing qualitative study. At that time qualitative research was unsystematic and journalistic.

Since the 1960s, qualitative research has been experiencing a steady growth with the emergence of approaches like symbolic interactionism,

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grounded theory etc. Publications on different methods of qualitative research were published. These included 'Qualitative Sociology' (1978), 'International Journal for Qualitative Studies', 'Handbook of Qualitative Research' (1994) etc. During this time, professionals in education and healthcare fields showed interests in adopting the qualitative approaches in their areas. Qualitative approach got different labels by different inquirers like naturalistic inquiry, field research, , case study, interpretive research, ethnography etc. Whatever the labels, the main focus of all of them is quite the same and it is on "lived experiences, interaction, and language of human beings."

1.5 Stages of Conducting a Qualitative Research:

Following are the stages of conducting a qualitative research:

- **FormulatingGeneral Research Questions:** As we know that, in qualitative research a researcher does not base upon any theory, so the study begins with the formulation of research questions for a particular study. However, review of literature play a key part in the formulation of the same. It means, a qualitative researcher may not depend upon a theory as such to start the research, but the idea of doing a research may come from the studies, experiences etc of the person. Here, research questions try to focus on 'How' rather than 'Why' of the subject matter.
- **Selection of Relevant Sites and Subjects:** At this stage, a qualitative researcher decides the subjects i.e. the persons upon whom he will conduct the research and also the place for the study.
- **Collection of Relevant Data:** In qualitative research, data is collected in the form of words, photographs, audio-video recordings etc. There are different ways to collect data in qualitative research. This includes qualitative interviewing, ethnography and participant observation, content analysis, focus group etc.
- **Interpretation of Data:** While interpreting qualitative data, the point of view of the research participants is given importance. It is because the social world lived by them is best understood by them.

- **Conceptual and Theoretical Work:** At this step, the researcher looks for new concepts or theory that emerges from the study. New findings may not result in every time when a qualitative study is conducted. After this stage, some researcher specifies the previous research questions and collects further data to test already existing findings of the same research. Those researchers who take the 'Grounded Theory' approach mostly do this.
- **Writing Up Findings/Conclusion:** In this step, the researcher writes up the whole findings of the research. It can be in the form of book, journal article, ethnographic account, report etc. The researcher must be able to convince the audience about the credibility and significance of the research findings through writing up the research.

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Self Assessment Question

Do you think the epistemology of natural science research is appropriate to study the social world? Give reasons for your answer.

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1.6 Types of Qualitative Research:

Qualitative research has an array of specialized types or variants. Although no one has created a formal typology or inventory of the variants, the following twelve are frequently recognized:

Action Research, auto ethnography, arts based research, case study, critical theory, discourse analysis, ethnography, ethnomethodology, grounded theory, narrative inquiry/life history, oral history, and phenomenology.(Yin, 2016)

Following are some of the types of qualitative research:

A. **Ethnography:** In ethnographic research, the researcher becomes a part of the community or the society where the research is conducted. By becoming a part of the community, the researcher

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can closely observe the social behavior, interactions, conversation of the participants in their actual social setting. In doing so, the researcher may hide or show his/her identity. This type of research is flexible. However, to do ethnographic research properly, one has to be a part of the community for a long period of time. It will be time consuming as a researcher has to do other things beyond the field work. There also comes the question of ethics as to whether the researcher will convey his/her identity or do the research covertly.

B. Grounded Theory: In Grounded Theory, at first data are collected and analyzed and then a theory is developed which is rooted in the data. Barney Glaser and Anselm Strauss developed the concept of Grounded Theory in research in their work 'The Discovery of the Grounded Theory' in 1967. Here, various data collection methods are used to understand the social reality of individuals, groups and cultures. This is used to explore the behavior, perspectives, feelings and experiences of people and the core of their lives.

C. Narrative Research: Through narrative research, a researcher studies human narratives either about themselves or about different social situations. It focuses on the stories told by the participants. The stories are complete entity having a beginning, middle and an end. It is used to study a specific context, life of a participant, personal reflections of one or more individuals. Observation, interviews, artifacts, diaries, photographs etc. are the ways to collect data in narrative research. However, it is time consuming and includes a very few number of cases.For example, if a study is conducted in gender role reaffirmation during Covid-19 pandemic, then women's life experiences during the pandemic will be focus of study.

D. Phenomenological Research: It is an approach to explore people's everyday life experiences. It is used to study about the life experiences of a concept or phenomena experienced by one or more individuals. This type of research is used to study the unexplored areas. Cresswell expressed that this type of study is the

search for "The central underlying meaning of the experience that emphasize the intentionality of consciousness where experiences contain both the outward appearance and inward consciousness based on the memory image and meaning."(Mahajan, 2018) It attempts to understand how participants make sense of their experiences. For example, when a research is done on the issue of domestic violence, the phonological method will try to understand how women experiences domestic violence, its way of appearance, its implications on their life etc. Only the women who are the victims of such violence can be a participant in the study.

E. Case Study: In this type of research, a particular case is studied in an intensive manner. The case in a case study research can be anything like a community, a state, a household, a classroom, a club etc. Intensive observation of the setting is the main aim of case study method. Methods used in case study research include participant observation, qualitative interviewing etc. In case study research, a researcher tries to provide in-depth analysis of a particular case. For example, when a study is conducted on women empowerment through microfinance loan in a particular village, it can be called as a case study. However, the external validity or generalizability of Casestudy research is often questioned as to how a single case can be the representative of many such cases?

Stop to Consider:

Reliability and Validity in Social Science Research:

Reliability and validity are the two important criteria to assess and establish the quality of any research conducted. Following are the views of Le Compte and Goetz about reliability and validity of qualitative research:(Bryman, 2012)

External Reliability: It examines whether a qualitative study can be replicated or not. It means whether the result of a qualitative study will be the same, if a previous study is repeated in the same context after a period of time by another researcher. For example, a researcher

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has studied about the social stereotypes behind women's menstruation in the 1990s in remote village of Assam. Now, another researcher is doing the same study in that particular village. It is obvious that same findings will not be there due to the change of timings, people's educational level, the rise of social media etc. That's why it is very difficult, although not impossible to have external reliability of a qualitative study.

Internal Reliability: It is the trustworthiness within a research group. When a qualitative study is conducted by a group of researchers, then they must have agreement on what they observe in the actual setting.

External Validity: It is to test the generalizability of a qualitative research. It is to test whether the outcome of a particular qualitative study is applicable to all similar social settings, issues, conduct, lived experiences of people etc. For example, the cause of women's vulnerable social positions may differ from society to society. So, it will be very difficult to generalize the reasons behind such an issue. Achieving external validity is quite difficult in qualitative research.

Internal Validity: It means there should be an interlink between what the researcher observes in a qualitative study and what h/she writes in the findings of the research. For LeCompte and Goetz, it can be strength of qualitative research as the researcher immerse in the social setting of the community for a long period of time in qualitative studies like ethnographic study.

Besides the above criteria to evaluate the qualitative research, there exist certain other criteria to evaluate the same. These are given by Lincoln and Guba. They propose two primary criteria for assessing a qualitative study: trustworthiness and authenticity.(Bryman, 2012)

Within the criteria of trustworthiness, there exist four criteria. These are: Credibility, Transferability, Dependability, and confirmability.

- A credibility criterion is same as internal validity. 'Respondant Validation' is the way to test the credibility of a social research. 'Respondant Validation' entails the submitting of a research report

to the participants of the research, so that they can ensure its similarity with their social experience.

- Transferability: Qualitative Research intensively studies a particular setting. It does not take into consideration a broad area. It provides in depth explanation on the study area concerned. Such in depth explanation can help others to judge the possible transferability of findings to other social settings.
- Dependability refers to the dependability of the research process used by a researcher in a qualitative study. It is to ensure whether a researcher has followed it in a sequential manner or not. These are to be recorded in detail.

Although complete objectivity is not possible in qualitative research, yet the researcher must try to separate personal values and theoretical implications in the conduct of the research and while writing the findings

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1.7 Various Methods of Data Collection in Qualitative Research:

Data refers to the information on the subject matter being studied. When the data is collected directly from the field then it is called primary data. On the other hand, when a researcher collects data from already existing data sources like research reports, survey reports, journal articles etc then it is called as secondary data.

Ways to collect Primary Data in qualitative research:

(A) Observation:

It means to keep an eye on the events, social conducts etc. of the studied population. Observation can be direct or indirect. In direct observation, a researcher directly observes the situation of the studied group. In indirect observation, only the implications of certain social events are looked at to analyze social behavior. For example, how drinking of alcoholic liquor can affect a society can be known by the observation of cases of domestic violence in that society. There are different types of observation. These are controlled observation, naturalistic observation, and participant observation.

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- **Controlled Observation:** Here, observation is conducted within a controlled environment i.e. in an artificial setting. Different psychological studies on human behavior can be an example of it.
- **Naturalistic Observation:** In naturalistic observation, observation is done in a natural setting. For example, when a researcher studies upon cultural norms of a society, he has to study it in actual setting.
- **Participant Observation:** It is also a kind of naturalistic observation. Here, the researcher not only observes but also participates in the life of the community.

(B) Interview:

It is a method of collecting data through interaction between the researcher and the participants. In qualitative research following types of interviews are mostly used:

- **Unstructured Interview:** In unstructured interview, open ended questions are asked to the participants regarding the topic of research. The researcher expects an elaborate answer to such a question so that viewpoints of participants can be known. Moreover, in such an interview follow up questions are also asked by the researcher to know everything in a clear manner.
- **Focus Group:** It is also a kind of interview where interaction happens between the researcher and a group of participants. Here, the researcher motivates the participants to involve in group interaction. During the course of the interview, the researcher also observes the behavior and attitudes of the participants.

Sources of Secondary Data:

Previous Research works, governmental and nongovernmental reports, articles etc. Secondary data collection is alluring due to its low cost.

Check Your Progress:

1. What do you mean by Qualitative Research? Discuss the stages of conducting a qualitative research?
2. Discuss the different types of qualitative research?
3. What do you mean by data? Discuss the methods of data collection in Qualitative Research?

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1.8 Features of Qualitative Research:

Following are the features of Qualitative Research:

A. Views and Perspectives of the Participants: In qualitative research, a researcher commits to study the social world from the perspective of research participants i.e. upon whom a study is conducted. It is called as the 'emic perspective'. The researcher should not impose his own viewpoints (etic perspective) on the participant's interpretation and understanding of social events of his/her natural setting. The different ways to acquire participant's point of views are face to face interaction, taking the role of the participant i.e. the immersion of the researcher in participant's social setting etc. In qualitative research, the researcher follows the concept of 'abductive reasoning'. It is to write a social scientific account of qualitative findings by the researcher in a systematic manner based on the social realities gained from the participants in their own language.

B. Emphasis on Understanding the Context: In qualitative research, the researcher tries to understand the natural setting of the researched. The natural setting of the participants is called as the context. It encompasses the social, cultural, economic, political environment in which the researched group operates their life. Only the study of the context can help a researcher to understand the social realities from participant's point of view and to describe the same. Similar events can have different meanings in different social context. For example, wearing a white garment symbolizes the death

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of someone among certain communities believing in Hinduism. But, in Christianity white dresses are worn in marriage day. As we have seen that similar events can have different meanings in different social context, so it is important to understand the social context to know social behavior of individual.

C. **Description:** In the findings ofqualitative research, we can find a detail description of the society or community being studied. Such accounts contain every minute details of the social context which meanings are important for the participants. Such detailed description of social events is called as 'Thick Description' by Geertz. Sometimes qualitative researchers even collect irrelevant information in order to provide descriptive details of social settings. And sometimes the researchers are so busy in description that it overwhelms data analysis.

D. **Emphasis on Process:** It wants to view social life in terms of process. It tries to show how events and patterns unfold over time. For Pettigrow, "Process is a sequence of individual and collective events, actions, and activities unfolding over time in context."(Bryman, 2012) Different social processes can be studied by using different methods like ethnography, participant observation, semi-structured interview, unstructured interview etc.

E. **Flexibility:** In Qualitative research, an unstructured pattern of data collection is followed. The questions in qualitative interview are not close ended questions. These are open ended questionswhich mean that there is not any particular fixed answer to such questions. Everyone can give their own perspective, interpretations, views, judgments of the social events as their answer. There is no need of any highly specific research questions for qualitative study. There is not any fix pattern to conduct a qualitative study. The direction of the research can be changed at anytime basedon collected data.

F. **Concepts and Theory Grounded on Data:** It means, qualitative research is not based on theory. Rather new theories or concepts build up through a qualitative research. Such new theories and concepts are the result of the collected data in the research process.

1.9 Criticisms of Qualitative Research:

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Following are the criticisms held against qualitative research:

A. Qualitative Research is too subjective: One of the criticisms leveled against qualitative research is that it is too subjective. It is because in qualitative research, the participant's point of view is given importance and each participant can have different understanding of similar social events. Secondly, findings in a qualitative research might be influenced by close ties between the researcher and the researched. Thus, it becomes too subjective.

B. Difficult to Replicate: A qualitative study is difficult to replicate due to the following reasons:

Firstly, no standard research procedures are followed in qualitative research. It is unstructured. Secondly, the researcher has to choose the important data quickly on the site to collect it. Most of the times, the collected data only reflects researcher's preferences and not the actual setting of the research. And thirdly, the participant's viewpoints might be influenced by the attributes (like gender, personality etc.) of the researcher and thus data manipulation happen. For example, when a qualitative research is conducted on problems faced by women laborers in steel industry by a male researcher, then we may not have an actual picture in the findings. It is because; women laborers may not trust a male researcher to that extent that they can open up about their personal problems.

C. Qualitative research is difficult to generalize: A qualitative study is difficult to generalize because it is limited to a particular social context. As one society is different from another, so it is difficult to apply the findings of one research on a similar event to another.

D. Lack of Transparency: It is very difficult to know the process through which the researcher arrived at the conclusions. The process of qualitative data analysis is also unclear. Hence, it is not transparent.

E. Time Consuming: Qualitative study is time consuming because in a qualitative interview the researcher has to devote more time. It is long because elaborate answers are sought from the participants to

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understand social realities from their perspective. It may even need more than one interview session. In ethnographic study and participant observation, the researcher has to be the part of the community at least for six months to know the social setting in a well manner.

Check Your Progress:

1. Discuss the major features of Qualitative Research? Write a note on the criticisms leveled against qualitative Research?

1.10 Summing Up

You have learned the meaning and definition of qualitative research in this module. Qualitative research deals with contextual understanding of social reality. As a method it was first used by anthropologists and sociologists and you can know its evolution in later period of time through studying the module. The unit also deals with the stages of conducting a qualitative study. It starts with formulating research questions and end with the writing of research findings. You can have the idea of primary and secondary data and how it is collected in a qualitative research after going through the module. The features and criticisms are also included in the chapter which will help you to clearly understand the nature of qualitative inquiry.

1.11 References and Suggested Readings

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Unit - 2

Nature of Quantitative Research

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Unit Structure:

2.1 Introduction:

You are already familiarized with Qualitative research in the previous module. In this module, we will learn about quantitative research method. Quantitative research primarily focused on quant that is numbers. It measures the basic concepts to understand the social reality. Although the quantitative research method is quite opposite to qualitative research, there exist certain similarities between the two. In this module, you are going to understand the meaning of quantitative research, its design and learn to conduct quantitative research. It also deals with the different data collection methods used in quantitative research. The unit also covers the features and criticisms of quantitative research method.

2.2 Objectives:

After reading this module you will be able to:

- Discuss the meaning of quantitative research method
- List the stages of conducting a quantitative research

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- Find out the various research designs used in quantitative research
- List the features of and criticisms against quantitative research
- List the similarities and differences of quantitative method with that of qualitative method

2.3 Meaning and Definition of Quantitative Research:

Quantitative method is a research method where data and information is collected in numbers. This research method is applicable in both natural as well as in the artificial settings. In quantitative research, a researcher uses the method of natural sciences to measure the social realities. It means the epistemological position of quantitative research is positivism. Here, a researcher uses scientific methods like observation, experiment, measurement etc to derive the outcome of the research. The ontology of quantitative research is objectivism. The quantitative method believes that objects of the world exist independently. It means the existence of these is not dependent upon the minds of human being. For objectivism, not only the natural world but also the social world exists independent of our mind. In quantitative research, the relationship between theory and research is deductive. It means the researcher in quantitative research base upon a theory while conducting a research. From the theory, the researcher derives hypotheses to be proved by the research. This provides direction to the whole research-from choosing research design to data collection and analysis.

For Gay et al.,"Quantitative Research relies on the collection and analysis of numerical data to describe, explain, predict or control variables and phenomena of interests."

In the words of Cresswell, "When conducting quantitative research studies, researchers seek to describe current situations, establish relationships between variables, and sometimes attempt to explain causal relationships between variables. This type of research is truly focused on describing and explaining-sometimes in a somewhat definitive manner-the phenomenon under investigation."(Mertler, 2022)

Quantitative Research seeks to explain the social world in terms of causal relationship between different variables. For Cresswell, Variable refers

to a characteristic or attribute of an individual or organization that can be measured or observed and that varies among the people or organization being studied.(Cresswell, 2009). There exist three types of variables: **Independent Variable, Dependent Variable** and **Extraneous Variable.** Independent Variable is the variable causing a particular event. The dependent variable is dependent upon the independent variable. Changes occur in the dependent variable due to the influence of independent variable. The extraneous variable is any other existing aspect which also influences the situation in an indirect way. Following example can clearly show how quantitative research views social reality in terms of cause-effect relationships between the variables:

"Covid-19 has led to digitalization of education to an enormous level"

In this statement, Covid-19 is independent variable and digitalization of education is dependent variable. It is because of Covid-19 that digitalization of education reach to its peak. The situation demanded such a step as face-to face interaction was impossible during that time. However, there are some other factors too without which such digitalization would be impossible. Such factors may include existence of high speed network, different apps like Google Meet, Zoom, digitized contents etc. These can be called as extraneous variable which also impacted the effect but indirectly.

Social researchers' interests' area is the society and the people, social dynamics, social realities and any other aspects relating to society. However, all aspects of society cannot be quantified easily. There are aspects like voting behavior, participation of women in workforce, student's participation in social activities etc which can be quantified easily. In certain matters like social stereotypes against LGBTQ person, racial prejudice etc are difficult to measure in numbers.

2.4 Stages of Conducting a Quantitative Research:

In quantitative research, the researcher should follow the following steps to derive at the results:

- **Theory:** It is the foundation of a quantitative research. Here, theory implies all the literature review done by the researcher relating to

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his topic of interests. For example, a researcher's topic of interests is women's participation in environmental movements. Then, the researcher can base his/her research on existing literature on movements and especially environmental movements. He can also draw perspectives from theories like eco feminism, eco socialism, ecologism etc.

- **Hypothesis:** It is a prediction about the result of the research. Hypothesis is derived from theory. It is to be tested through collecting data. Hypothesis guides the whole study in quantitative research.
- **Selection of Research Design:** The research design in a quantitative research is based on the hypotheses. There are mainly two kinds of research designs in quantitative research- experimental and non experimental. Again, these two designs have varieties within it. The researcher can choose from among the varieties according to their convenience.
- **Devising Measure of Concepts:** Quantitative Research is all about quantifying the different events, concepts, values etc. The natural world is easy to quantify because these exist independent of our mind, for example, velocity of the wind, temperatureetc. In social world too, certain events like people's participation in an election, number of girl dropout from school etc can be quantified easily. But concepts like women empowerment, caste discrimination, gender stereotypes etc are difficult to measure. These are ideas of mind, individual understandingof particular social phenomena. Concepts can have different meaning for different person. That's why to show concepts in numbers, measures have to be developed.
- **Selection of Research Sites and Participants:** In this step, the researcher decides the location as well as the people upon which the research will be conducted. For example, if a researcher wants to conduct a research upon women's participation in environmental movement, then women living in Garhwal Himalayas can be subjects of study as they are famous for their environmental activism.
- **Administration of Research Instruments:** It means application of various data collection methods on the proposed participants.

These include interview, structured observation, self- administered questionnaires and the like.

- **Data Processing:** When collected data is converted into usable information, the process is called data processing. It is easy to convert numerical items like age, income, rates etcto usable information. But for conceptual items like mother's emotional connection with children, community values etc data processing is bit challenging.
- **Data Analysis:** Here, the amount of data is reduced to test the relationship between variables. Statistical tools, software programsetc are used in data analysis.
- **Findings:** It is the result of interpretation of data analysis. In the findings, the researcher will try to find a link between the determined hypotheses and the result of the research.
- **Writing Up the Research:** At last the researcher writes up his research in any of the forms like book, journal article, report, etc.

Stop to Consider:

Concepts and Their Measurement:

In the words of Bulmer, "Concepts are categories for the organization of ideas and observations". (Bryman, 2012) It means, concepts help us to understand how ideas are formulated.However, concepts are abstract categories. These exist in our mind. These are thoughts, ideas, and values of our mind. But in a quantitative study, everything has to be measured in numbers. Hence there is the need to develop measure to quantify the concepts. Through measurement of the concepts, independent and dependent variables are generated which helps to study a social reality quantitatively.

To measure the concepts, indicators are developed. Indicators can be direct or indirect. Direct indicators are closely linked to the concepts than an indirect indicator. The indicators can be developed by asking questions, structured observation, analyzing statistical report of government agency etc. Through the following example, I am trying to provide a clear picture of 'Concept and their Measurement':

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A social researcher is studying on women empowerment among the tribal women's of Assam. Women empowerment as a concept is so vast and people can have diverse opinions in it. To study this concept quantitatively, the researcher has to develop some indicators to measure the concept. The indicators for the concept can be developed through following questions:

(A) For You, Women Empowerment means:

- Having own livelihood for women
- Having own decision making capacity
- Freedom of choice in terms of dressing
- Having educational facilities

(B) Women empowerment is possible through:

- Government schemes
- Changing social mentality
- Educating girls
- Providing vocational training
- Abolishing social stereotypes against women

After collecting data by the above, the researcher can now measure the concept of women empowerment among the tribal women's of Assam.

2.5 Quantitative Research Designs

The major function of research design is to explain the ways to answer different research questions. There are two major quantitative research designs- Non-experimental Research Design and Experimental Research Design. These are again divided into different categories. These are as follows:

(A) Non Experimental Research Design:

Non-experimental research design consists of certain techniques to conduct quantitative research without manipulation of variables. The researcher do not intervenes in the natural situation of the study. Following are the different types of non experimental research designs-

- **Descriptive Research:** Its aim is to describe a situation, event, individuals, settings etc. In the process, the researcher does not manipulate any variable within the situation. For example a researcher is studying on relationship between political leaders and voters during election. He/she will only describe the relationship and will not add on treatments on any of the groups. It is again divided into two types:

  - **Observational Research:** Here, a particular situation is observed and quantified. It is different from qualitative observation, where observed situation is only interpreted in words. Quantification in observational studies is dependent upon criterions like frequency, accuracy, intensity, proficiency, mastery etc. (Cresswell, 2009)

  - **Survey Research:** In survey research, data is collected from the researched population to know the attitudes, opinions, behavior, experiences or other features. If the population is large, then sampling methods are used to reduce the population size. To make the samples representative, it is suggested to use random sampling. There are different ways to conduct survey research. These includes direct survey, mail surveys, telephone surveys, online and web based surveys, interviews, self administered questionnaire etc.Again survey research can be divided into three types. These are——

    - **Descriptive Survey:** It is to describe the features of sample at one point of time. For example, women's views on family planning.
    - **Cross- Sectional:** Here, features and differences of several samples or population are measured at one point of time. For example, when a research is conducted on views of women on family planning upon different samples of women belonging to rural, urban and semi urban areas.
    - **Longitudinal Survey:** In longitudinal survey same group of persons are studied over time to study the continuity

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and changes in opinions, attitudes and behavior. It has three types: Trend study, cohort study and panel study. For example, when the study in above example is done on rural women for a longer period of time with definite time gap between the studies, then it will become a longitudinal research.

Stop to Consider:

Sampling in Quantitative Research:

One of the major features of quantitative research is generalization of the research outcome to the whole population under study. To generalize a research, one has to study upon a large number of people. But it is difficult for a researcher to study each and everyone in the population due to time constraints. Hence the researcher takes the help of sampling to reduce the population size.

We have mainly two types of sampling techniques- Probability/ Random Sampling and Non-probability/non random sampling.

In probability sampling, everyone in the population has equal chance of representation. Here, samples are selected randomly. It has four types-

- Simple Random Sampling
- Stratified Random Sampling
- Systematic Random Sampling
- Cluster Sampling

In non-probability sampling, each one in the population does not have the equal chance of representation. Here samples are selected on the basis of researcher's convenience. It again has three types-

- Convenience sampling
- Snow-ball sampling
- Quota sampling

- **Correlational Research:** Through a correlational study, a researcher wants to measure the relationship between two or more

variables. However, there exist only a single group of people, so there is no manipulation of variables in one group by the researcher. The correlation is measured by correlation coefficient. An example of a correlational study is the impact of technology in creating political awareness among the youths. Here, the study is upon the single group (Youth) and the aim is to measure the relationship between two variables (technology, Political awareness).

- **Causal- Comparative Research:** In this research, a researcher studies the reasons behind the differences between two or more groups. It is also called as ex-post-facto research. It cannot describe cause-effect relationship as the researcher does not have any control over the independent variable. Because, it has already occurred. For example, impact of covid-19 on dropout rates of girls and boys from higher education. Here, the independent variable is Covi-19 which has already occurred and the researcher has no control over it. He/she can only study the effect or the dependent variable i.e. the dropout rates of girls and boys from higher education.

(B) Experimental Research Design:

In experimental research, there exists two groups- experimental group and control group. The researcher manipulates the independent variable in experimental group. It is also called as treatment variable. In the control group no manipulation is done. The researcher studies the effect of the manipulation of the independent variable in both the groups. For example, a researcher studies on the impact of vocational education in earning a livelihood for women. The researcher takes two groups of women- Group A and B. He imparts some vocational training in the first group for three months period. The second group does not receive such training. After the end of the training, it is seen that women in the Group A is now more capable of having a livelihood then women in Group B.

The population for the experimental study should be selected randomly. If the studied population is not assigned randomly, then such research is called as **quasi-experimental** research. For example if in the above study, the researcher takes only those women who are convenient to

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him, then it will be a quasi-experimental research. When individuals are randomly assigned to groups, the procedure is called **true experiment**.(Mertler, 2022)

Self Assessment Question:

1. Do you think quantitative research is suitable to understand social realities? Give reasons for your answer.

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2.6 Data Collection Methods in Quantitative Research:

Data or information is the necessary prerequisite for any study. It is the way to analyse or interpret phenomena. There are mainly two kinds of data- primary data and secondary data. Primary data is the data collected directly from the natural setting or from the field. Secondary data is the data collected from other sources like books, articles, reports etc. In quantitative research following are the sources of primary data and secondary data.

2.6.1 Sources of Primary Data Collection Methods:

Following are the primary data collection methods in a quantitative study:

- **Self Administered Questionnaire:** In this method a close ended questionnaire is provided to the research participants to collect the relevant information for the research. The participants have to fill up the questionnaire by themselves. Such questionnaire is provided to the participants by the researcher or appointed investigator in a face to face manner. In such situation, the investigators can help the participants in understanding the questionnaire. But these can also be sent through mail, post, vial link in website etc. In such situation there will be no one to help the participants in understanding the questions. So it is better to make the questionnaire as simple as

possible. Questionnaire should be of minimal length, with understandable language. It should not use jargons and technical terms.It should avoid controversial questions.

- **Interview Schedule:**In this method, information is gathered through face to face interaction or telephonic conversation with the participants. In this method interviewers asked the questions included in the interview schedule. The information is filled up in the schedule by the interviewers and not by the participants. It is a structured and systematic method. The interviewers are to be trained properly for the process. Interviewer should be polite towards the participants and at the same time should have the confidence to carry out the interview properly. He should not show his own viewpoints in front of the participants. There should be no manipulation or bias by the interviewer. Now a days interview schedule is also conducted through online mediums like web sites, e-mails etc.

2.6.2 Sources of Secondary Data Collection Methods:

Following are the sources of secondary data in quantitative research:

- Official publications of central government such as census report, Good Governance Report by NITI Ayog etc.
- Research and study reports by NGOs, international organizations like ILO, World Bank, IMF, UNO. For example: Human Development Report.
- Reports of Committees and commissions.
- Policy Documents.
- Journal articles, newspaper articles, books etc.
- Information contained in publications by research units like Observer Research Foundation.

2.7 Features of Quantitative Research:

Following are the features of quantitative research:

- **Measurement:** In quantitative research, social events, concepts, values etc are quantified and measured. Measurement helps in establishing reliability and validity of the research.

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Stop to Consider

Reliability and Validity of Quantitative Research:

Reliability:

Reliability implies the consistency of a measure of the concept. It testifies whether a measure of a concept is stable over time. There are three methods to test the reliability of a measure:

- Stability: In stability test, test-retest method is used. In this method, a particular quantitative data collection method is used to collect data from the population or samples of population. The result of such data collection is recorded. Again, the same procedure is applied upon the same group to collect data after a definite time gap. If the result of the two is same, then the measure of the concept is stable over time, hence it is reliable.
- Internal reliability: It is used in multiple indicator measure. When indicators are multiple in measuring the same concept, then it is seen that whether the response score of the participant in one indicator is related to response score in other indicators.
- Inter-rater reliability: It is to check whether there is consistency if different rater is available in the same study. Here rater may be any person- researcher, interviewer, coders.

Validity:

Validity is concerned with the capability of a measure to actually measure the concept it is meant for (measurement validity). It is of five types. These are:

- Face Validity.
- Concurrent Validity.
- Predictive Validity.
- Construct Validity.
- Convergent Validity.

- **Generalization of the outcome to different settings:** In quantitative research, result of a particular study is generalized across settings. It is done through sampling of population. Generalization

is possible only when large population is studied. But due to limitation of time and resources, large group of person cannot be studied. Hence, quantitative researcher takes the help of sampling.In the study of natural world generalization is easy because the objects and events of natural world are more or less same. But in social world, meaning changes with the change of the context. Only random selection of population cam help in generalization. However, there is a tendency among the quantitative researcher to generalize the outcome beyond the studied population.

- **Explanation of Cause-Effect Relationship:** Quantitative Research tries to explain the events, objects, concepts, behaviors etc in terms ofcause-effect relationship between independent and dependent variables. As it wants to explain the things, so it deals with 'Why' questions.
- **Replication of the Research Process:**In quantitative research, the research methods are clear and replicable. Here, the whole research is done in a sequential manner. The researcher has to put data of each step so carefully to maintain the objectivity of the research. Such documentation of data and methods help the succeeding researchers to replicate the study by a quantitative researcher.

2.8 Criticism Against Quantitative Research:

- **It takes both the Natural World and Social World as Same:** Quantitative Research fails to differentiate between the natural world and social world. The supporters of quantitative research in social sciences believe in external existence of social reality. For them, society, human values, their behavior, institutions and norms exist freely from our mind. Human have no impact on these. But it cannot be true. Social institutions, norms and values, behavioral patterns etc are impacted by individuals. Human impose meaning upon it. So these cannot be understood objectively. Subjectivity of human being is part of it.For example, Namghar as an institution has a

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meaning to the residents of social world. It may not exist in all societies. For another society, Mandir or the Masjid will provide the same meaning. It shows how diverse the social world is and how frequently meanings changes within it.

- **The Accuracy of Measurement Process is Artificial and Fake:** The aim of measurement is to numerically represent concepts. For measurement, various indicators are given in a questionnaire. But as human beings are subjective, so each interviewee may not interpret each indicator in the same way. In such situations, measurement will not be able to represent the concept accurately.
- **The Reliance on Instruments and Procedures hinders the Connection between Research and Everyday Lives:** In quantitative research, various data collection methods like interview schedule, questionnaire, observation in a controlled setting etc are applied upon the participants in an excessive manner to collect data. But it does not concern about whether the research area impacts the everyday lives of the participants, whether they are aware about these before, whether they are able to answer the questions and many other issues. For example, a researcher applies data collection methods to collect information about structural violence as a hindrance upon women empowerment in tea tribe women of Assam. But the studied population may not have any idea of the concept.

2.9 Similarities and Differences with Qualitative Research:

Quantitative and Qualitative Research- both aims at searching social realities in their unique ways. The two research methods have both similarities and differences. Following are the major similarities and differences of the two methods:

Similarities:

- Both quantitative and qualitative research aims to answer a specific research problem. The way to answer the problem differs, but the aim is similar.

- While conducting the research, both the methods collect numerous amount of information. It creates a problem for the researcher. Hence, in both the methods data are reduced to a relevant level by using different methods.
- Both the methods are concerned with exploring variation within the studied population on different grounds.
- Both the methods aim to be transparent in the using of research procedure, collection of data etc. It is important to replicate a study by succeeding researchers.

Differences:

- Quantitative research is concerned about words. It wants to represent social reality in a numerical way. But qualitative research is concerned about words. It wants to represent social reality in an interpretive way.
- In quantitative research, the researcher decides everything. But in qualitative research the point of view of the researched group is given importance.
- In quantitative research, the relationship between the researcher and the researched is distant. Here, researcher may not even see the faces of the researched if the interview is online or telephonic, or through postal questionnaires. But in qualitative research the relationship between the two is close. The researcher has to develop well acquaintances with the researched to know their real life situations, to know their perspectives.
- In quantitative research, the relationship between theory and research is deductive. Here, the whole research is guided by the theory concerned. On the other hand in qualitative research, this relationship is inductive in that theories and concepts may emerge as a result of the research process.
- Quantitative research is a structured research. The steps in quantitative research are strictly followed. Once the hypotheses or research questions are decided, these cannot be changed. But

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qualitative research is unstructured. Here, the steps are not strictly followed.

- The main aim of quantitative research is to generalize the findings of research to a larger population. However, the main aim of qualitative research is to understand the context of the society where the study is conducted.
- In quantitative research, the data is 'hard' i.e. vast and clear. On the other hand in qualitative research, the data is deep. It is because qualitative research deals only with a limited particular setting like a community, an organization etc where deep collection of data is possible. But in quantitative research, the researched population is large so it is difficult to collect deep information about a large group.
- In quantitative research, data is collected in both artificial and natural setting. But in qualitative research, data is collected only in natural environment of the participants.

Check Your Progress:

1. Write a note on Quantitative Research Design?
2. What are the features of a quantitative study? Discuss its drawbacks?
3. Write down the similarities and differences between qualitative and quantitative research?

2.10 Summing Up:

After going through this unit, you will be in a position to explain the meaning of quantitative research.The Unit also contains the stages of conducting a quantitative study. You can know about the steps within the structured pattern of quantitative study. By studying this unit, you can acquire the detailed knowledge about various research designs used in a quantitative study. These come mainly under two major heads- experimental research design and non-experimental research designs. Again, by thoroughly reading this unit, you will be able to learn the different characteristics of quantitative

research. The chapter included some of the criticism against the research method too. Now it is clear to you that quantitative research is different from qualitative research in many aspects. However, there are also some similarities between the two as both the methods aims to solve research problems.

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Unit- 3

Ethnography and Participant Observation

Unit Structure:

3.1 Introduction

Fieldwork means collecting information directly from the field. In any kind of research, fieldwork is very important to gather the information. In qualitative research, without getting into the field a researcher cannot have the knowledge of social realities in its natural settings. Ethnography and Participant observation are the two methods used by a qualitative researcher in social sciences to gather knowledge about the social setting of the research participants. Both the methods have quite similar characteristics. However, participant observation can be counted within the ethnographic research as a method of collecting data. In this module, both the methods are shown as two independent way of doing field research in a qualitative study. The module deals with the meaning and stages of field work, ethnography and participant observation as two important methods in qualitative field work.

3.2 Objectives

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

- Define field work in qualitative research and explain the stages of doing it.
- Define ethnography and trace its evolution.
- Explain the roles taken by a researcher in ethnographic study.
- List the advantages and disadvantages in ethnography.
- Explain participant observation as a method of fieldwork.

3.3 Meaning of Fieldwork in Qualitative Research

As you all know, qualitative research is all about understanding the social realities from the 'point of view' of the studied population. To understand the society in such way, qualitative researchers take the help of fieldwork. Here, fieldwork means studying the life and culture of the researched participants in their natural or actual setting. Society can be called as readymade laboratory for a social researcher and fieldwork is the way to collect information from that laboratory.

Fieldwork has its roots in anthropological studies of 18th century. During this period, anthropologists were interested in studying and exploring the new cultures in the colonized world. Colonization of the East, Africa and Latin America had brought access to previously unopened cultures, communities, societies and their social life. For example, the red Indians of America, the tribes of Mexico, the tribes of different African states etc. However, the anthropologists did not go to the field to get firsthand experience of these communities. Rather they collected the accounts of travelers, traders, colonial administrators, missionaries etc as secondary source of data and provided own interpretations to these. As they had continued their study from the comfort of their home, office or library, so they were called as 'Armchair Anthropologists.'

It was only towards the end of 19th century that the anthropologists started doing fieldwork in its actual sense. British and American scholars were pioneers among them. While British anthropologists believed in long term study of a particular social situation through immersion in the setting, the Americans preferred short term fieldworks with breaks in between.

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Fieldwork involves different ways of collecting data. One way of collecting data in fieldwork is participant observation. Here a researcher can take different roles to observe and participate in the social setting of the researched. Other ways to collect data in fieldwork are interviews, talking informally, taking photographs etc. Now the focus of field research has changed from isolated simple societies like tribes, communities etc to complex urban societies like different institutions, slums, streets, shopping malls etc.

3.4 Stages of Conducting a Fieldwork:

In fieldwork, an outsider i.e. the researcher tries to get insider's i.e. the participants' knowledge. To have knowledge like a insider and about the insiders, a researcher have to spend time in the social setting of the participants. Following are the stages of doing a fieldwork:

- **Selecting the Field:** Selection of the field and the population of the study is crucial in a field research. However, the selection of the site is not always dependent upon the research problem. In some cases, research problem is decided after data collection. Study of multiple sites is another feature of a qualitative field study to collect relevant data. For example, a researcher is interested in studying the social life of Mishing community of Assam. Now to study this community, a researcher has to collect data from multiple sites because their population is scattered in different districts of Assam although they are small in numbers.
- **Getting Access:** Access is important in qualitative field study. Access means getting permission to conduct a study in a particular situation or place. For Merriam et al. "the more one is like the participants in terms of culture, gender, race, socio-economic class andso on, the more it is assumed that access will be granted, meanings shared, and validity of findings assured."(Gray, 2014)There are mainly two types of settings where a researcher mainly conducts the field study. One is public setting and the other is private setting. Public setting includes areas like public places like a cinema hall, stadium; communities etc. The Private setting includes private organizations like school, family, restaurants,

factories etc. It is easier to get access to a public setting than a private setting. Because public spaces are open. However, in case of research, public setting also becomes a private setting and the researcher has to take permission before entering into it and collecting data. The access is also dependent upon the researcher's role in the field study. If the researcher takes an overt role then only he/she has to take permission. Overt role means when a researcher does not hide his/her identity as a researcher, then it is called as overt study. On the other hand if the researcher hides his/her identity as a researcher then it is called as taking covert role. In case of covert study, there is no need of access but there exists some complications in covert study.

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Stop to Consider:

Gaining Access in a Field Study:

- Friends, contacts, colleagues and academics can help in gaining access.
- People within the closed setting can help the researcher to gain access to the setting. That person is called as 'Sponsor'.
- The people from top management within a firm or a top leader in a social movement can help to gain access. Such persons are called as 'Gatekeepers'.
- Offering something in return to access (ex: a report) will also help in gaining access.
- The researcher should provide the aims and methods clearly to the owner or any other concerned authority of the closed setting to gain access.
- In the open setting too, sponsors and gatekeepers can help in gaining access.
- The providing of something in return to gaining access in an open setting is called as 'Research bargain'.
- 'Hanging Around' is another method to get access in public setting. It means either loitering in an area until the researcher is noticed or gradually becoming incorporated into a group.

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- **Getting Informed Consent:**It means to have the permission of the participants before conducting any study upon their life, situation and behavior. For this, a consent form can be helpful. The permission for one point of time should not be taken as permanent. The participants can decide to withdraw their permission to the researcher at any time. However in some cases, informed consent is impractical because it is impossible to take. For example, in a large public gathering a researcher cannot take permission of everyone.Diener and Crandall (1978) suggest that fullyinformed consent should include:(Gray, 2014)
  - Describing the overall purpose of the research.
  - Telling the participants about their role in the study.
  - Stating why they have been chosen.
  - Explaining the procedures, including the amount of time required.
  - Clearly stating the risks and discomforts.
  - Stating that the participants may withdraw at any time.
- **Building Rapport:** It means building friendly relationship with the research participants. The researcher should maintain close interpersonal relationship with key informants. A key informant can be anyone who is well acquainted with the group under study. However it is not possible in covert study. Building rapport simply do not ensure honest response from the participants.
- **Getting Out:** It means to leave the field as soon as the objective of the researcher is fulfilled. It should be decided before the beginning of the study. The ending of the study depends on various factors. The availability of resources is one of the factors. The researcher may end the study when no new data emerges from the field. Researcher's personal issues like health and well being, family matters etc also influence the quitting of the field. Quitting the field is never easy in qualitative research as emotional connection develops between the researcher and the researched.When a researcher does not end any field study within the given time frame and become

identified more with the researched group and forgets his/her main objectives of doing research, then it is called as the '**problem of going native.'**

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Check Your Progress:

1. What do you mean by fieldwork? Discuss the different stages involved in conducting a fieldwork?

3.5 Meaning and Definition of Ethnography

Ethnography is a qualitative research method in which researcher tries to understand the life of the participants by immersing oneself in their natural setting for an extended period of time. Here, the researcher closely observes the day-to-day behavior of the studied population, participates in community life, listen to conversation, and directly interact with the people to have the knowledge of their natural environment.

In the words of Hammersly and Atkinson, "Ethnography is a particular method or set of methods. In its most characteristic form it involves the ethnographers participating overtly or covertly, in people's lives for an extended period of time, watching what happens; listening to what is said, asking questions…"

For Willis and Trondman, "Ethnography is a family of methods involving sustained social contact with agents , and richly writing up the encounter, respecting, recording, representing at least partly in its own terms, the irreducibility of human experience."

Ethnographers take both the emicand etic perspective. He/she spends a long period of time in a particular social setting and should produce a thick description of it. Here, thick description means a detailed ethnographic account of the setting.

The subjects of ethnographic study can be a distant tribe, community, organization, cyberspace etc. It should provide both descriptive and interpretive account of the setting. Descriptive account means the ethnographic account should contain a detailed objective description of the setting and the researcher wherever necessary should include his/her own interpretation of it.

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You have already known that ethnographic field studies are done in two settings- public and private setting. The researcher can have two roles i.e. overt (open) and covert(hidden) role. On the basis of the nature of setting and the role of researcher in that setting, ethnographic study can be divided into the following:

- **Overt Open Setting:** Here, the researcher done his studies in a public setting in an open manner. Here, the researcher reveals the identity as a researcher.
- **Overt Closed Setting:** Here, a researcher does his ethnographic study in an open manner in a closed setting.
- **Covert Open Setting:** Here, a researcher carries on the studies in a hidden manner in a public setting. Here, he/she do not reveal his identity as a researcher.
- **Covert Closed Setting:** Here, the researcher do his ethnographic study in a closed setting and also hides his identity as researcher.

Stop to Consider:

Problems in a Covert Ethnographic Study:

In a covert ethnography, the researcher hides the identity as a researcher. So, there is no question of access. It has both advantages and disadvantages.

Advantages:

- The problem of securing access is greatly reduced.
- Reactivity is not a problem because the researched group do not know that their behaviour is under scrutiny. So, they will not be conscious and the researcher can see natural behaviour of the group.

Disadvantages:

- It will be difficult for the researcher to take field notes as his identity is hidden. But, notes are very important for an ethnographer and it will be risky to always depend upon memory.

- The researcher, if take an overt role, will not be able to take information from other sources such as recorded history.
- The researcher will always be feared of revealing of his identity. Moreover, covert or hidden role is against research ethics.

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3.6 Evolution of Ethnography

As we have already studied in the beginning of the chapter that anthropologists were the early enthusiast of natural settings of different cultures, societies and communities. Like fieldwork, ethnographic study is also rooted in Anthropology. However, the credit for writing the first systematic ethnographic content goes to Bronislow Malinowski, who published his famous ethnographic content 'The Argonauts of the Western Pacific' in 1914. In this work, he emphasized on the immersion in a setting by an ethnographer to have proper understanding of the society under study. He also wrote about the importance of interview and observation in data collection in ethnographic research.

During the first half of 20th century, sociologist adopted the method of ethnography. Pioneering among them were the sociologists of Chicago School who believed that qualitative technique of naturalistic observation helps in the study of urban social phenomena. They associated ethnographic study with symbolic interactionism. Such association leads to the publication of classic texts such as WF Whyte's Street Corner, E. Goffman's Asylums etc.

In contemporary time we can see the use of diverse approaches in ethnographic study like long term in depth studies, condensed field work, consultancy work etc. The method is now used by other fields like education, health and social policy etc.

3.7 Types of Ethnography

Following are the different types of ethnographic study:

- **Positivist Ethnography:** It believes in objectivity. According to positivist ethnography, the researcher should detach oneself from

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the setting and the participants. It focuses on the facts collected from the field. Its main aim is to search reasons, causes generalizable laws to people's behavior.

- **Post Modern and Constructivist Ethnography:** For post modern ethnography reality is the result of people's interaction in the society and their experiences within it. They believed in multiple existence of reality. They emphasize on immersion in the setting by a researcher to know the multiple realities within a setting. Post modern and constructivist ethnography do not seek generalizable knowledge of settings.
- **Critical Ethnography:** It is influenced by the Critical theory. It studies how communities, participants are represented. It wants to decode the repressive aspects of the society, for example how injustice happens in a society, how oppression manifest in a society etc. Critical ethnography wants that there should be dialogue and collaboration between the researcher and the researched. It also has a political purpose and it is to change the society to and to challenge the power structure.
- **Feminists Ethnography:**Its main aim is the emancipation of women. One of the views is that if women conduct ethnographic study upon women, then it will be a non-exploitative relationship between the researcher and the respondent. There is a need of transparency by the feminist ethnographer's dealings with studied women as well as in the research process.
- **Online and Visual Ethnography:** Kozinet has coined the term 'Netnography' to refer to the ethnographic study of online communities (Ex: ethnographic study upon online fan club of Zubeen Garg in Facebook). It has another type in which ethnographic study is done upon communities that have a predominantly offline existence.Visual Ethnography means using of photographs in ethnographic study. The interpretation of the photograph will be different for different person.

3.8 Role of the Researcher in Ethnographic Study

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In an ethnographic field study, the role of the researcher is very important. The researcher is the sole collector of information in the study. After entering into a field, researcher should be very conscious. He should not be judgmental about the setting. It means the researcher should not judge different traditions, customs, behavioral patterns, food habits and other elements of culture of the studied group. For example, a researcher is studying about the tribes of North-East. He/ she may come across different uncommon practices which cannot be found in other parts of India. This may include the culture of head hunting, worshipping nature, practice relating to eating habits etc.

A researcher in afield study should not hurt the sentiments of the participants. If their culture or linguistic patterns or other core elements are look down upon by a researcher, then it will not be helpful. The researcher should give space to the participants in ethnographic study. While listening to an informal conversation, there should not be any interruption on part of the researcher. From such conversation, a researcher can get valuable insights for the study.

A researcher can learn the language of the participants to build friendly relationship with them. It may not be possible for a researcher to learn a new language in short period of time. However, he/she can learn certain words like words of greetings or other words used in day to day conversation. It will not only help in building friendly relationship, but also shows that the researcher is respectful towards the life of participants. For example, a researcher who wants to study the Bodo community of Assam, he/she can learn daily usable terms like 'Khulumbai' (Hello, Hi) 'Ma Khbr'(How are you?) etc. to interact with the members.

The researcher should keep a notebook with him/her to note down all important information in the field. Field notes are crucial for an ethnographer as it becomes the basis of the ethnographic account produced by the researcher. However, field notes itself cannot provide complete information of the setting. Hence the researcher has to take the help of other methods to collect data which we will discuss in the next section.

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There are mainly six roles for an ethnographer. This is based on the levels of participation in the life and core activities of the group or social setting being investigated.

- **Covert Full Member:** Here, the researcher becomes a full member of the group in which the study is done. He/she takes part in all the activities of the group, but his/her identity as a researcher is hidden. For ex: When a researcher doesa research on Rabha community by living in Rabha society for a long period, adopting all its traditions but hides his/her identity, then his/her role can be called as covert full member.
- **Overt Full Member:** Here, the researcher takes full membership of group and also reveal his identity as a researcher.
- **Participating Observer:** Here, the researcher participates in group's core activities but not as a full member.
- **Partially Participating Observer:** Here, the researcher participates in group's core activities to gather information. However, he/she also takes the help of structured interview and recorded document.
- **Minimally Participating Observer**: Here, the researcher observes but participates minimally in groups' core activities. Along with observation, interview and documents become the source of information.
- **Non-Participating Observer With Interaction:** Observes (sometimes minimally), but not in core activities of the group. Interaction with group members occurs through interview.

Stop to Consider:

Field Notes and its Types:

Field notes are the writings produced in the field by an ethnographer. Field notes are important for an ethnographer as they cannot depend only upon memory. The field notes should be detailed summaries of events and behaviour and the researcher's immediate reflection on

them. The field notes must be vivid and clear. The ethnographers can also use digital voice recorder to record field activities. However, due to extraneous noise it is difficult to be used.Field notes must be examined and revised before they are used in ethnographic account. This is necessary to maintain the confidentiality of individuals who are included in the account and to make sure that unnecessary information is removed. However, they are also changed to make them more understandable to a larger audience.

Types of Field Notes:

- **Mental Note:** Notes taken by the researcher's memory, who said what to whom, name of a person
- **Jotted Notes:** These are very brief notes written on pieces of paper or in small notebooks to jog one's memory about events that should be written up later. Keywords and phrases for example
- **Full Field Notes:** Detailed notes which are to be prepared as soon as possible. These are to be main data source for the researcher.
- **Methodological Notes:** Notes on observations about methodological decisions, experiences in the field, and 'barriers and breakthrough

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3.9 Data Collection in Ethnographic Research

In ethnography, researcher mainly depends upon the primary data collected from the field. As secondary source, different documents like recorded history of studied population, ethnographic accounts of other researchers are taken into account. So, there are mainly three kinds of data collection methods in ethnography. These are Participant Observation, Qualitative Interview, and Document and Digital Media based Data.

In Participant Observation the researcher both observes the social setting of the researched population and participates in their social life to collect information. Here the researcher can take a role ranging from complete observer to complete participant. In the next section, we will have a brief description of Participant observation.

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Interview in ethnography is different from other forms of interview. Here, the interviewee can shape the questions asked to them. Interviewing is more like a conversation in ethnographic research. It is a conversation regarding the participants' viewpoints on actions and events of their social life. Origin of such approach to interviewing can be traced back to Chicago School of Sociology. It is characterized by empathy and egalitarian relationship. It means, the relationship between the researcher and the researched is equal. The researcher cannot show superior attitude towards the participant. He/she should show empathy towards the participants to collect the information as much as possible.

However, both interview and participant observation may only give partial knowledge of the setting to the researcher. Hence, he/she can also take the help of already published documents to collect further information about the settings. The documents may include published ethnographic accounts by other researchers, memoirs of person within the researched community, recorded history etc. He/she can also take the help of digital media based data like photographs, video and audio recordings etc.

3.10 Advantages of Criticisms against Ethnographic Research

Following are the advantages and criticisms against ethnographic research—

Advantages:

- Ethnography helps to **understand social reality from a close perspective**. As it involves immersion of the researcher in the social setting being studies, so the realities of the setting can be understood like an insider. The researcher can see and understand the behavior, norms, culture of the community as a member of the group.
- In ethnography, researcher can have contextual understanding of social realities. Social behavior can have different meanings for different communities. If we look it from universal perspective, we may negate or judge the social behavior. But those behaviors can have a significant position in particular's communities' life.

- Ethnography helps in writing **'thick description'** of the settings. It means, a researcher writes the ethnographic account of a setting in a detailed manner. It includes both the description of the setting in an objective way as well as the researcher's interpretation of it.
- Ethnography also **helps policy makers**. The ethnographic study of a society gives firsthand experience of a social setting and help to understand the problems faced by the participants. The ethnographic study of marginalized and unrepresented groups can help to decode their necessities. The policy makers can make changes in policy or create new policies to solve the problems of these communities and groups.

Criticisms Against Ethnography:

- First and foremost criticism against ethnography is that the **result of ethnographic study cannot be generalized across settings.** It involves an in depth study of a particular setting. So it a narrow approach. Even the findings of a study upon the same community living in different geographical location cannot be same. For example, the findings of an ethnographic study upon the Punjabi people living in Ludhiana and Delhi may be different.
- Second Criticism against ethnography is that it is **difficult to replicate.** The study area of ethnography is society and community which changes with time. Even if the same researcher conducts the same study in same location in different time periods then also result will not be similar.
- Another criticism against ethnographic research is that, it is **more time consuming.** Researchers have to be highly patient about the study. He/she should not look for quick data as only natural happenings are to be counted as ethnographic data. It demands more effort, commitment and sincerity in part of the researcher.
- **Breach of privacy** is another issue related with ethnography. When the participants are unknown about the research and tells their confidential information to the researcher, and the researcher breaks their privacy by revealing this information in the written ethnographic

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account in a recognizable manner, then it is called as breach of privacy. Undertaking an overt research can help in this regard to some extent. But it will be go against researcher's interests. Because in some cases, if the researcher's identity is known, the participants cannot open up naturally. For example, female participants may be uncomfortable to open up about them before a male researcher; a black person may not want to convey their social situation before a white researcher.

- Another criticism against ethnography is that it may **threat the life and security of the researcher** if the study is done upon criminal groups, drug mafias etc.

Check Your Progress:

2. Define ethnography? Discuss the evolution of ethnography as a method of qualitative field study.
3. What are the different types of ethnography? Explain.
4. Discuss briefly on data collection in ethnographic research?
5. What are the advantages of ethnography? Discuss the criticisms leveled against ethnography?

Self Assessment Question:

1. Do you think there is some link between Critical Ethnography and Feminists Ethnography? Give reasons for your answer.

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3.11 Participant Observation as a Method of Fieldwork:

Participant observation is one of the methods of fieldwork. In ethnography too, participant observation is used as the foremost way to collect data from the natural setting of the researched. In participant observation the real life world of people in their real life role is studied. The

method has been used in anthropology and sociology for over 100 years. Participant observation can be done upon individuals or group of individuals, communities, organizations like school, hospital, community centre etc. According to Bruyn, the term participant observation was probably first coined by Edward Lindemen and Kluckhohn. In the words of Emerson, Participant Observation means, "Close, intimate and active involvement, strongly linked with the goal of studying other's culture."

In Participant Observation too, the role of the researcher is the same as ethnographic research. In participant observation too, the researcher can take overt or covert role. However, to build field relationship, it is advisable that the researcher should show his/her authentic self to the people being studied. If the researcher takes an overt role, then following points should be clearly stated before the researched population:

- The end product of the research i.e. the written account after the completion of field study.
- How the end product of the research will be shared with the participants
- The degree to which the researcher can hide the identity of the researched in the written account.

If the researcher wants to take covert role, then he/she has to choose an authentic alternative which is related with the research. For example, if a researcher wants to study factory workers through participant observation in a covert way, then he/she can become a worker of the factory to build personal ties with the workers to get the information.

The researcher should be polite and respectful towards the participant. He/she have to be very active in the field situation. Small minute details can have significant impact on the whole study. However, the participant observer or the researcher should not put own opinion in every instance as it may influence the opinions of the studied population. It will hamper the flow of natural picture of the real world of the participants.

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The researcher should be very cautious. His/her body language, pauses and hesitations, facial and verbal expressions all convey information.

Small favors can be provided to the participants like giving small loans, watching after a child etc. to build friendship and personal connection with them. However, larger favors should be avoided.

The researcher should be prepared for unexpected events. These may include questions from other side about the personal information of the researcher. So he/she must be prepared to answer. The researcher should be prepared for any other situation where threat may come to his existence in the setting.

For a researcher who conducts a participant observation, no tools exist. He/ she is the sole research instrument here. One can take questionnaire as part of fieldwork, but direct observation and recording of the actions, and conversations occurred in the field is the major source of information in Participant Observation.

What to observe in a Participant Observation: (Mack, Woodsong, MacQueen, Guest, & Namey, 2005)

Observable Aspects	**Things to observe**
Appearance	Clothing, age., gender, physical appearance
Verbal Behavior and Interaction	Who speaks to whom and for how long and the like.
Physical Behavior and gestures	What people do, who does what etc.
Personal Place	How close people stay to each other and the like.
Human Traffic	People who enter, leave, spends time in the site etc.
People who stand out	Who gets a lot of attention within the group

Four Roles of Participant Observer in the Field:

- **Being a Participant Only:** In this role, the participant observer becomes a full member of the group under study. In this role, observer activity of a researcher becomes hidden. A researcher cannot openly observe or take the necessary notes. It creates limitation for a researcher.
- **Being a Participant who also observes:** In this role, the researcher gets a partially hidden observer status. In this role also all secrets of the group cannot be obtained.
- **Being an Observer who also participates:** In this role, observer activities of the researcher are openly showed. Hence, a researcher can have access to wide range of information if this role is taken.
- **Being an Observer only:** This role is only good in imagination. It is not possible in the actual scenario to take the role of an observer only. For this to happen, a group is needed for study which has no secrets with perfect communication.

Stop to Consider:

To be a Good Participant Observer, a Researcher should remember the following:

- The researcher should know the research very well. It means he should be well acquainted with the topic of the research.
- He/she should know the research site very well. Hence, before beginning participant observation, the researcher should visit the location of the study.
- The researcher should be ready with his/her personal information to introduce oneself.
- The researcher should make abbreviations for the field notes before going to the study.
- The researcher should know the meaning of behavior and cultural symbols, gestures of the community under study.
- Field notes should be expanded within minimum 24 hours of the study. Otherwise important points might be forgotten from mind.

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Check Your Progress:

6. What Do you mean by Participant Observation? What should be the role of the researcher in a participant observation?

3.12 Summing Up

From this unit, you will have the general idea of ethnography and participant observation. Ethnography and participant observation, both are two methods of field work in qualitative research. Both the methods help a researcher to know the life, perspective, behavioral patterns of participant in their natural setting. In doing ethnography and participant observation, a researcher has to take the permission from the participants. If the participants are not informed, then it will be a violation of ethics in research. However, in some cases a researcher may not want to convey his/her identity as a researcher. In such case, the ethnographic study is called as covert study. While doing studies in field settings, researchers have to be very conscious. He/she has to listen more. The participants should be given comfort so that they can speak up or show their natural behavior. The researcher has to take field notes so that after doing an ethnographic study or participant observation, he/ she can write the account.

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Unit - 4

Case Study

Unit Structure:

4.1 Introduction:

In the previous chapter, you have read about field work. Fieldwork is an important part of both qualitative and quantitative research. In fieldwork, a researcher has to observe, participate and immerse oneself to study the setting as it is. One of the ways to do field research is Case Study. In case study, one or multiple cases (Within a single unit) are studied in an intensive manner for a definite time period to answer research questions regarding a particular topic of interests. It is also used to do preliminary research or pilot study by some researcher. In this unit we are going to discuss the meaning and definition of Case Study research, the evolution of the method of case study in research, the different stages involved in doing a case study, and the advantages and limitations of the method.

4.2 Objectives:

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

- Define the meaning of case study research method.
- Understand the evolution of case study in research.
- List the stages of doing a case study.
- Explain the data collection method used in the case study research.
- List the advantages and limitations of the method.

4.3 Meaning and Definition of Case Study:

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The aim of any research is to gain genuine knowledge regarding the topic of interests. In pursuit of knowledge, researchers in both natural and social sciences use different methods. One of the methods used by the researchers to gain realities "as it is" is the case study method. Before understanding the meaning of Case Study Research method, you should understand the meaning of 'Case'. A case refers to a particular event, program, activity, individual or group, community etc which creates curiosity in the mind of the researcher and becomes a topic of research. However, sometimes it may be a need too, to understand a specific program, activity, group to understand their realities and to change it. For example, in public policy research it will be a need to understand why a specific group lagged behind despite the existence of numerous policies for public welfare and development. In the words of Stake, the case is "a specific, a complex, functioning thing," more specifically "an integrated system" which "has a boundary and working parts" and is purposive {in social sciences and human services}."

In case study research, single or multiple cases (within single unit) are analyzed in an in depth manner to delve deep into a particular research topic. The case or cases chosen for a case study should be bounded by time and space. It means case study is done for a definite period of time and within a definite setting. For example, a case study on the failure of public policy welfare measures in enhancing the life of women in rural Bihar in the last decade. Here, the study is limited to rural women of Bihar from 2011-2020.

The Case Study should be conducted in the natural setting of the participants. According to Yin, Case Studies are preferred strategy when "the investigator has little control over events." It means, case studies are naturalistic inquiry. Manipulation of variables is not a feature of case study. In case study, the researcher has to observe the situation, can take interviews to collect data and also use other method to do so, but in the natural setting of the researched participants

.In case study research, a researcher can use multiple methods of data collection ranging from observation, interview, document analysis,

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artifacts etc. The case study research depends mainly upon three factors- the types of research questions used in the study, the researcher's power to control the actual situation and the degree of focus in contemporary events. Yin defines a Case Study as, "An empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident."

The case study method is used in psychology, sociology, political science, social work, business, economics, and many other disciplines. Case studies help a researcher to understand the complex phenomena of society. Through case study, a researcher can have holistic understanding of events, programs, situations and any other cases in their natural setting.

The case study method is a systematic way to achieve knowledge as it involves certain steps to be followed in the research process. Following are some definitions of Case Study Research:

For Eisenhardt,"Case Study is a research strategy that focuses on understanding the dynamics present within single settings and aims at providing a description, testing theory, or generating theory. (Patnaik & Pandey, 2020)

According to Stake,"case study research is the study of the particularity and complexity of a single case, coming to under-stand its activity within important circumstances."(Patnaik & Pandey, 2020)

According to Gerring,"Case study is an intensive study of a single unit for understanding a larger class of (similar) units where the unit connotes a spatially bounded phenomenon observed at a single point in time or over some delimited period."(Patnaik & Pandey, 2020)

For Creswell, "Case study is a good approach when the inquirer has identifiable cases with boundaries and seeks to provide an in-depth understanding of the cases or a comparison of several cases."(Patnaik & Pandey, 2020)

4.4 Stages of Doing a Case Study Research:

You have seen earlier that the case study method is a systematic method. It is because the method follows definite steps to arrive at a conclusion. Following are the stages of doing a case study research:

- **Setting the Stage:**

  In this stage, a researcher has to set the stage for doing the case study. It means, the researcher has to choose the topic of interests at the first instance. A researcher can choose from a wide range of topics for case study on the basis of his/ her interests. He/she should also consider the relevance of the topic for the society, discipline from which he/she belongs to etc. The researcher has to decide whether to focus on the whole case or a particular individual representative of the case. For example, a researcher wants to on insurgency in North-East India. For this, he/she can study on insurgency issue of all the North-Eastern states or choose a particular state (for instance Assam or Meghalaya) as individual representative of it.

  Likewise, the researcher has to decide on the scope of case study. He/she has to decide the time and space limitation of the study. For instance, in the above example, if the researcher decides to study insurgency in Assam as representative of Insurgency in North-East India, now the researcher has to decide the time period of the study and the location of the study within the state, because, in Assam too there are many version of insurgent groups like ULFA (demanding an independent Assam), NDFB (demanding separate Bodoland) etc.

- **Determining What is Known about the Research:** In this stage, the researcher has to determine the known and unknown aspects of the case being studied. It is done through reviewing the literature on the topic. The review of literature helps in the following:
  - It helps to establish the conceptual foundation of the topic.
  - It helps to identify the possible hypothesis or research questions regarding the topic of interests. The researcher has to identify 'Good' research questions.'Good' research questions arethose which will enable researchers to achieve theiraim and which are capable of being answered in the research setting. (Gillham, 2000)
  - It helps to signify the research design for the study

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- It helps a researcher in learning the procedures and formats of writing the findings of the research.
- Through the review, aspects in the topic can be identified which are not studied enough.

At first, a researcher should review the recent literature on the topic, because it can provide insights on recent developments as well as researches on the topic. From this, the researcher can choose his/her own specific research area within the topic having relevance in current scenario. For example, the researcher who wants to study on Insurgency Issues in North-East can now shifts his/her focus from studying insurgent groups, to peacemaking process on the same issue.

- **Selecting a Design:** Selecting a research design is the most important step in any kind of research, particularly in a case study. Research design is the logical plan for getting to conclusions of the research from the initial research questions. While choosing a research design in case study, following components are taken in mind(Yin, 2003):
  - The research questions used in the study.
  - The propositions of the study, if exist. Proposition is like the hypothesis. It is an assumption.
  - The Unit of analysis in the study. It depends upon the research questions. Previous literature on the topic can also guide in choosing the units of analysis. Unit of analysis can be anything, an individual, a group of individuals, a whole community, particular members of the community, an institution or group of institutions etc.
  - The logic linking the data to the propositions. There are number of ways to analyze how data is linked with the propositions.
  - The criteria for interpreting the findings.

Stop to Consider:

Different Types of Case Study Design:

We can find different case study designs used in different disciplines. Following are some case study designs used in different disciplines:

- **Ethnographic Design:** It is originated in anthropology. Here, researcher immerses in the setting of studied group for extended period of time. It is used to explore the patterns of behavior, customs, and ways of life about different communities.It involves holistic description of the group.
- **Historical Analysis:** Here, events, programs, organizations etc are studied as these evolved over time. It is more than a chronological study.
- **Psychological Case Study:** Individuals, organizations etc are studied by using theories and concepts in psychology.
- **Sociological Case Study:** In sociological case study, issues relating to religion, family, politics, health care, demographics, urbanization, gender, caste, race etc are studied. It studies the structure, development, interaction, and collective behavior of organized group of individuals.Stake has identified three types of Case Study Designs, these are as follows:
- **Intrinsic Case Study:** When a researcher wants to study about a particular individual, organization, event, phenomena in an in depth way, then he/she takes intrinsic study. It does not deal with general phenomena but specific ones. It does not want to generalize the findings to broader populations. For example, when a researcher wants to study about how Naga Mother's Association helped in bringing peace when insurgency was at peak in Nagaland, he/she will study the activities of the association only.
- **Instrumental Case Study:** It wants to understand a theoretical question or problem in a better way. The case helps in understanding the theoretical problem or issues.
- **Collective Case Study:**Here, to illustrate one issue, multiple cases are studied in different research sites. It is taken to show

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the diverse perspective on the same issue by the subjects. Yin has identified another three case study designs, these are as follows:

- **Exploratory Case Study:** It attempts to answer what questions. For Yin, such questions can be answered by applying other methods of research like survey research, experiment, archival analysis etc. It also provides rules for the subsequent study in a research. It means, general questions in an exploratory study may provide scope for further study in the same field. It involves fieldwork and information collection prior to the definition of research questions.
- **Explanatory Case Study:** It seeks to establish cause-effect relationship. It aims to study the occurrence of events and how particular events may lead to generation of particular outcomes.
- **Descriptive Case Study:** It aims to provide a complete description of a phenomenon within the context where it occurs. It aims to describe the phenomena as these occur in the natural setting. Here, the researcher should begin with a descriptive theory to support the description of the event under study.

- **Gathering Information:** In Case Study Research, different methods can be used by a researcher to gather the relevant information. These methods include interviewing of the participants, observation of the natural setting, collection of documents and physical artifacts etc. While gathering information, the researcher should focus only on the relevant one for the topic of interests. Otherwise information will overload and it will lead to difficulty in the next step i.e. summarizing and interpretation of data.

- **Summarizing and Interpretation of the data:** In this step, a researcher tries to make the information meaningful. For this, a researcher has to interact with the information collected from different sources. In case study research, data collection and interpretation go on simultaneously. In this stage, the vast amount

of data collected from different sources should be examined in light of the research questions in the study. Research questions can be redefined on the basis of the data collected early in the investigation. The researcher should create sound information management system in a case study research. It means creating lists regarding the time, location etc of collected information, researcher's own interpretations on it etc. For interpretation of data, all available resources should be used like independent experts, computer softwares etc.

- **Reporting the Findings:** In this stage, the information collected from various sources is synthesized to write the findings of the case study research. There exist different strategies to report the findings ina case study research. These include thematic analysis, categorical analysis, narrative analysis etc. The strategies are dependent upon the discipline in which the method is used. The common process in all the method is to identify themes, patterns, categories by reviewing the information repeatedly.

  A report in a case study should include the following:
  - The topic of investigation.
  - The site and time of data collection.
  - Researcher's relationship with the setting and the participants.
  - The personal biases of the researcher
  - Reviewed literature and how it helped in forming the research questions or hypothesis.
  - Research Design and data collection methods.

- **Confirming the Findings:** In this stage, the researcher doing a case study has to confirm the findings of the study through various ways. These ways are as follows:
  - The researcher can confirm the findings of the research by sharing it with the participants. They can ensure the validity of the account- whether it reflects their life or not.

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- It can also be confirmed by sharing the research report with fellow case study researcher. They can examine the process of the research in a systematic way and find out the drawbacks of the research.
- It can also be confirmed if experts in the field under study scrutinize the report.
- The researcher can acknowledge the biases of him/her in the research and give the ways to mitigate them. In this way, he/she can confirm the credibility of the report.
- Triangulation is another method to confirm the report where the similarity of the results is tested by using different data collection methods in a case study. If a researcher finds the same information from all the methods used in data collection, then the research report is more credible.

Check Your Progress:

1. What is Case Study Research? Discuss the evolution of Case Study research?
2. Discuss the Stages of Conducting Case Study Research?

4.5 Data Collection in Case Study Research

A research can be based on two types of data- Primary Data and Secondary Data. Primary Data is the directly collected from the field by the researcher or any investigator appointed by him/her. On the other hand, secondary data is collected from already available sources like published research reports, articles, census report, reports from government and non-governmental bodies etc. Following are the main methods used for data collection in Case Study method:

- **Interview:** The most common form of data collection in a case study research is interviewing the participants. According to Mason, "Interviews of individuals or groups allow the researcher to attain rich, personalized information." The researcher can take both individual and group interviews in a case study. Individual interviews

provide in depth account of a particular person's perspective. Group interviews,, although may lead to sharing of new ideas but it lacks the in depth personalized account of members of the group.

In a case study interview, open ended questions should be asked to the participants. For each participant, the open ended question may differ. For example, in the research regarding insurgency in North-East India, the researcher may take interview of victims of insurgent activities; families of insurgent, locals of the place being studied, intellectuals, peace activists, journalists etc and for each type of interviewee open ended questions will be different.

For a case study interview, private, neutral and distraction free environment is needed. It will enhance the comfort of the participants being interviewed and thus may lead to the coming of genuine response.

The interviews should be recorded so that the researcher can use the information in writing the findings. It can be done through handwritten notes, tape recorder (with interviewees permission) etc.

While conducting an interview, the researcher should take into account the legal and ethical aspects linked with it. The participants should know about the objectives of the research. The secrecy of their personal information as well as any other information should be maintained when the research report is written.

Semi-structured interviews are seen as best for conducting a case study. In semi-structured interview, the questions are determined before the interview, but the wording of the question is flexible. Here, follow up questions can also be asked by a researcher to know more about a particular topic. While taking an interview, the researcher should be a good listener and do not interrupt participants while they are answering.

- **Observation:**In observation, a researcher observes the setting or the environment where the case study is done. It can provide more objective information of the setting. Whenever a researcher

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observes a situation, he/she should note down the date, time, location of observation; the person, thing or the situation being observed, the insights from the observation. These are called field notes in an observation. For observation to be done in a setting, the researcher must gain access to that setting. The researcher should avoid his/her personal biases while observing a setting. Ethical principles, maintenance of secrecy regarding the information provided should be maintained by the researcher in observation too.

There are mainly two kinds of observation, detached observation and participant observation. Detached observation is mainly used in quantitative nature. It is objective and more systematic in nature. Participant observation is mainly used in quantitative research and unstructured in nature.

- **Documents:** It is a source of secondary data in case study research. When the data collected from field is inadequate to answer the research question or the researcher wants to study some aspects in more intensive manner, then different documents are collected on the topic. The documents include materials extracted from internet, private and public records, physical evidence or artifacts, instruments created by the researcher etc.(Hancock & Algozzine, 2006)

  When materials are extracted from internet, the researcher should verify the authenticity of the source. Private records include anything created by an individual, which shows his/her beliefs, attitudes, perspectives etc. For example, diaries of individual, personal letters, notes, family picture etc. On the other hand public records show beliefs, values, attitudes, perspectives hold by group of individuals in a society. These include court records, license, certificates of birth and death etc. Instruments created by researcher include surveys, questionnaires used by a researcher in the case study. These can also serve as a valuable source of document in case study research.

Self Assessment Question:

1. Suppose you are doing a Case Study Research. For you,what method will suit your study in the best manner? Give reasons for your answer.

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4.6 Advantages and Disadvantages of Case Study Method

Each research method has both advantages and disadvantages. Following are the advantages of Case Study method:

Advantages:

- **Intensive Study:** In case study research, a particular case or unit is studied intensively. It investigates an event, a situation, a person, an activity or group dynamics thoroughly and deeply. It is possible in a case study because, it is time and space bound. It does not focus on generalizing the findings in a statistical way but in theoretical way. Its aim is not to generalize the results across settings, but to understand a particular phenomena in an in depth manner to know all its aspects.
- **Development of New Research:** Case study is the best way to generate new research. When case studies are used as explorative research, it leads to the emergence of new studies. It means when a case study is completed and valuable findings are gained, then these findings can lead to advanced research on the same area or topic of interests. For example, a student does a case study research on the voting behavior of college students based on the benefits they gained as student (Whether scholarship of different kind impacts their voting or any other socio-political issues). This study can later be extended to do a serious research on clientalism or patron-client relationship that governs voting behavior at large social scenario.

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- **Inclusion of Multiple Perspectives:** In Case study research, information is collected from different parties involved in the case being studied. Thus, multiple perspectives can be included in the findings of the case. A researcher can also show the areas of conflict and consensus within the studied case. For example, in the above example of college students voting behavior, a researcher can include the perspectives from different parties as students are different in their gender, age, caste, income status. So viewpoint of a male student will be different from female student, an Adivasi student from a caste Hindu student, a middle class student from a poor or rich student.
- **Flexibility in Data Collection:** In case study, there is flexibility in data collection because a researcher can use wide range of methods available for the task which we have already discussed.

Disadvantages:

Following are the disadvantages of case study research:

- **Lack of Detailing in the Research:** Many a times, researchers in case study research do not follow the systematic procedures. They do the study in an unorganized manner. The researcher also allows biased views and unclear evidences which affect the findings of the research. Lack of academic works on case study research is one of the reasons behind such errors.
- **Findings of the Study cannot be Generalized:** Case study findings are not generalizable across settings. Case Study focuses on detail description of particular events or phenomena. For this, researchers study cases in context and context cannot be same in every situation.
- **Time and Resource Consuming:** Case studies are time consuming research. It takes long time to study a particular case in an in depth manner. The data collection process may be very lengthy as it involves multiple methods. It is also resource consuming in that it will be expensive to spend time in setting and to apply different methods to collect data.

- **Chances of Occurrence of Researcher Bias:** Case Study may be influenced by the biased view of researcher. The biasness can be seen in interpretation of data, in behavior with the subjects etc. For example, a white researcher doing a case study on black people may have biased view on their attitudes, behavior, and any other aspects of life.
- **Difficult to Replicate:** Case Studies can be difficult to replicate if the procedures followed by the researcher is not recorded properly. Another reason behind such difficulty is the nature of unit of analysis in case study. For example, unit of analysis in a case study like individuals, social groups etc are ever changing. Hence same result is not possible even when replication is done by the same researcher.

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Check Your Progress:

3. What are the two types of data used in research? Discuss the methods used for Data Collection in Case Study Research?
4. What are the benefits of doing a Case Study Research? Discuss the limitations of this research Method?

4.7 Summing Up

After reading this unit, you will have the basic ideas relating to case study as a research method. In case study method, a researcher examines a particular case or group of cases (within the same study). The main aim of case study is to study a particular case in an in depth manner. It is a systematic method as it involves a number of steps to be followed by the researcher. In case study one can use multiple methods of data collection like observation, interview, documents etc. Like other research methods, case study also has its benefits and limitations. So it is not free from faults.

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Unit- 5

Content Analysis

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Unit Structure:

5.1 Introduction:

You have already come across the nature of mainstream research methods and data collection techniques. In the broad ambit of research methods, content analysis occupies a significant place. Content Analysis enables a researcher to indirectly collect data on various topics. We can call content analysis as analysis of secondary source of data to solve a research problem. In some studies, it is applied as the sole research method to answer the research questions. On the other hand, some researcher uses this in conjunction with other research methods. In this module, we will discuss different aspects related with content analysis- its meaning and definition, steps in Content Analysis, its advantages and disadvantages, difference between qualitative and quantitative variants of the method etc.

5.2 Objectives

In this unit you will understand about content analysis as a technique of research. After reading this unit, you will be able to:

- Define the meaning of content analysis.
- List the steps to be followed in a content analysis.

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- List the advantages and disadvantages of content analysis as a research technique.
- Differentiate between qualitative and quantitative analysis of content.

5.3 Meaning and Definition of Content Analysis

Content analysis is an objective, systematic and an indirect way of conducting research. It is an objective method because it provides clear rules to categorize the contents relevant for a study. The method is systematic as it applies these rules in a consistent manner. It is indirect because the researchersinvolved in a content analysis do not indulge in real world situations like an ethnographer. There is no face to face interaction with the research participants like in an interview. In this method a researcher collects data by analyzing different contents. The word 'content' here refers to anything ranging from books, newspaper and journal articles, images, songs, audio recordings, movies or web series, social media post, blog post etc. A researcher can either use content analysis as the sole way to do the research or to cross check the data collected by other data collection methods like interview, observation etc. Content analysis helps a researcher to study individual or group behavior, their values and beliefs, their norms and ideas through the study of available contents.

Contents are of two types: Manifest Contents and Latent Contents. In Manifest Content, the messages can be seen through naked eyes. In Manifest content, we cannot find any hidden and symbolic meanings. For example, a newspaper article about deforestation and its impact in environment and human life, a picture of a great leader etc. In Latent Content, what is seen through the naked eye is not the real meaning of the content. It uses symbols; metaphors etc and we have to decipher these to understand the actual meaning of the content. For example, in the movie 'Thappad' a slap by the husband leads to divorce. The slap is symbolic to domestic violence or any kind of atrocities against women and the divorce is symbolic to the view that women should not tolerate any kind of ill treatment even if it is only a slap. It is against their self respect and dignity.

Following definitions will clearly show the above mentioned aspects relating to content analysis:

In the words of Berelson, "Content analysis is a research technique for the objective, systematic and quantitative description of the manifest content."(Bryman, 2012)

According to Holsti, "Content analysis is any technique for making inferences by objectively and systematically identifying specified characteristics of messages." (Bryman, 2012)

According to Nachmias and Nachmias, 1976, "Broadly content analysis may be seen as a method where the content of the message forms the basis for drawing inferences and conclusions about the content." (Prasad)

In the words of Krippendorff, "Content analysis is a research technique for making replicable and valid inferences from data to their context." (Prasad)

Content analysis has been widely used by researchers in the fields of social sciences like anthropology, sociology, political science etc and mass communication. It is used to study and understand a wide range of themes such as social change, cultural symbols, changing trends in the theoretical content of different disciplines, verification of authorship, changes in the mass media content, nature of news coverage of social issues like atrocities against women, dowry harassment, social movements etc. (Prasad)

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5.4 Evolution of Content Analysis

The term content analysis appeared in English only in 1941. But the roots of the method can be traced back to analytical attitude of church in 17th century Europe. During that period non religious contents were published by the printing press and the church was worried about it. Hence it examined the non-religious content in moralizing terms. Then, in Sweden, first well documented content analysis of printed material occurred. Here, 'Songs of Zion', a collection of 90 hymns by unknown author was examined to see whether it had questioned the authority of the church. In Germany also, certain attempts were made by Max Weber, Andrew Markov and others with regards to content analysis of printed materials.

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The evolution of content analysis can be divided into four phases. These phases are the phase of quantitative newspaper analysis, propaganda analysis, social scientific use of content analysis and computer text analysis and new media.

The first phase development of content analysis can be traced back to 20th century USA where newspapers were published in a great quantity. However, the quality of the news items was questioned. In one of the quantitative newspaper analyses, the analyser examined how the newspapers in USA had published contents related with sports, scandals, and gossip instead of religious, scientific and literary content between the years of 18881 to 1893. The content analysts during this phase mainly gave emphasis on degrading nature print media. However, new form of Medias like radio emerged during this time, and thus content analysis shifted its attention to analyse contents in these new media.

The second phase of evolution of content analysis could be seen in the 1930s and 1940s. The factors that affected content analysis during the phase were development of new media besides printing press, new political challenges as a result of strong use of mass media(fascism), rise of behavioralism etc. In the second phase, interests of content analysis shifted to political symbols. The emergence of a new concept in psychology i.e. the concept of attitude also added a new dimension to content analysis. It is the evaluative dimension. In USA, content analysis was widely used during the second world war to study the war propaganda of enemies. For this two groups were developed under the leadership of Harrold Lasswell and Hans Speier. The propaganda analysts used tactics like "name calling", "glittering generalities", "plain folks", "identifications", "card sticking" etc.(Krippendorff, 2013). The wartime efforts later culminated into a book named 'Propaganda Analysis' by Alexander L. George.

The third phase of evolution of content analysis began after the end of Second World War. During this time, content analysis was spread to numerous disciplines like psychology, anthropology, history, literature. etc. In psychology it is used to analyse verbal records to know mental, personal traits of individual. Likewise it is also used for data analysis of the information gathered from interviews and questionnaires. In Anthropology the method

is used in the study of myths, riddles, folktales etc. It is also used by the ethnographers in analyzing documents collected from the field. The historians used it as a systematic way to analyse documents.

The fourth phase of content analysis began with development of software for literal data processing. The first computer aided content analysis was reported by Sebeok and Zeps. The use of computers make it easier for the researcher to analyse large quantity of written documents, in developing the coding schemes, in indexing and developing concordances etc. Conferences were also held on the subject of content analysis. During this phase, customizable content analysis packages were developed by some software houses like General Inquirer, TextPack etc. The development in word processing softwares helped the researchers in word counting, KWIC (Keyword in context) analysis etc. The digital presence of content is another development which is also helping in content analysis.

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Check Your Progress:

1. What do you mean by Content Analysis? Discuss the evolution of Content Analysis?

5.5 Steps in Content Analysis

Content analysis is a systematic technique to find answers to research questions. Researcher in a content analysis has to follow certain steps. Following are the main steps followed in a content analysis research(Fraenkel, Wallen, & Hyun, 2012):

A. **To Determine Objective:** In content analysis, a researcher has to determine the objectives of study before conducting the actual study. It provides direction to the study. All other aspects of content analysis like selection of relevant content, devising categories, creation of coding schedule etc. are dependent upon the objectives. Objectives of a content analysis study differ from researcher to researcher. These include:
   - To obtain descriptive information about a topic.

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- To develop themes that helps to organize and make sense out of large amounts of descriptive information.
- To check the validity of research findings based on other research methods.
- To test hypothesis.

B. Define Terms: Important terms, words, phrases etc within the study area should be defined clearly before beginning the study. For example, if a content analysis is done on Effect of Green House Gases emissions on human health, the researcher must clearly define the terms like Green House Gases before beginning the study.

C. To specify the Unit of Analysis: In content analysis, 'Unit of analysis' refers to the major focus area within the content. The selection of 'unit of analysis' in a content analysis is dependent upon the objectives of the study. In content analysis, unit of analysis can be words, sentences, phrases, paragraphs, images etc. The researcher should decide the 'unit of analysis' before conducting the study. We can have two kind of 'unit of analysis'- Recording Units and Context units. Recording Unit is the specific segment of a content whose occurrence can be counted. It may be a specific word or phrase frequently used in the study. For example the term Green House Gases in the research topic mentioned in previous example.On the other hand, a context unit is the large segment of the content, for example a whole paragraph, a whole chapter or part in a book. The features of a recording unit can be searched in content unit.

D. Locate Relevant Data: In this stage, the researcher has to decide the relevant source of data. The sources of data in a content analysis can be textbooks, magazines, books, songs, movies, advertisements, newspaper and journal articles, poems or any kind of written, unwritten, visual documents, audio-video recordings etc. It should be relevant for the objectives of study.

E. Develop a Rationale: In this phase, the researcher has to develop reasons behind choosing a particular type of data source as relevant for his/her study. For example, articles, blogpost, books, reports or any other documents relating to environmental degradation, green house gas emission and its impact on human health will be helpful for the content analysis on the topic.

F. Develop a Sampling Plan: Sampling will help a researcher to reduce large amount of data sources in a single topic. It is impossible for a researcher to go through all the available documents in a particular subject area. However, samples should be representative of large amount of existing source. For this reasons probability sampling methods should be used while selecting the contents. The probability sampling methods ensure the equal representation of each source of data.A researcher should avoid using convenient sampling. It makes an analysis meaningless as samples are taken in accordance with the convenience of researcher. It makes the analysis non- representative.

G. Formulation of Coding Categories: Coding is an important step in content analysis. In content analysis, various contents like news items, blog post, images, songs, social media posts, articles, speeches, voice records etc are objectively studied and analysed to gather relevant information. This information helps a researcher to fulfill the objectives of research. However, these sources of data may be transient and unanalysable. To make contents analyzable representation, a researcher takes the help of coding. There exist two important elements of content analysis coding scheme. These are 'Coding Schedule' and 'Coding Manual'. 'Coding Schedule' is like a form. Here all the information relating to the coded content is entered. Different dimension in which data is gathered, are included in the 'Coding Schedule'. The 'Coding Manual' can be called as an instruction manual for the coders. In 'Coding Manual', all the possible categories for each dimension in the coding schedule are given. It includes the list of dimension for coding of content, all the possible categories for each dimension, the numbers/codes for each

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category, guidance relating to coding etc. Thus, with the help of 'Coding Manual and Coding Schedule' information is coded in a content analysis.

H. Check Reliability and Validity: In content analysis, inter rater reliability and stability (test-retest method) should be tested. Testing of inter rater reliability is necessary as coding may involve a number of coders. The consistency of usage of same code for same dimension by each coder available for the work will ensure inter rater reliability. On the other hand, by applying test-retest method stability of the result of a particular content analysis by the same researcher will be tested over a period of time.

To check the validity manifest and latent content are to be tested by using different instruments.

I. Data Analysis: The most common way to interpret content analysis data is the use frequency. Frequency refers to number of occurrence of a specific segment (word, sentence, and phrase) within the content. A content analysis contains the percentages/proportion of such frequency of a particular term or phrase in the whole content. Those content analysis which deals with exploring relationships, cross break table and chi-square analysis is used for data analysis. Some researchers use codes and themes to write a narrative description of findings.

Stop to Consider:

Important things to remember while coding:

While making coding scheme, a researcher should aware of the following:

- The dimensions in a coding manual should not overlap one another. These are to be separate and distinct.
- Categories for a dimension should also be discrete. According to Chadwick et al, "Categories must be mutually exclusive, so that a word, a paragraph or a theme belongs in one and only one category"

- For each dimension, as many category as possible should exist.
- Instructions for coding should be clear. These include- how to interpret each dimension? What factors should be taken into account while assigning codes to each category? etc.
- Pilot study of some contents for the research topic should be taken. It will help in deciding relevant content, in reducing mistakes in making coding schedule and coding manual etc.

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5.6 Types of Content Analysis:

Traditionally content analysis mainly revolved around counting the number of occurrences within given text or any other content source. With the advance of time, the way of doing analysis of the content as well as units of analysis has also changed. Now we can have following variants of content analysis:

- **Conceptual Analysis:** We can call it the traditional variant of content analysis. Conceptual analysis wants to determine the words or concepts present in a given text or series of texts. In this type of analysis, researcher tries to extract two types of concept- explicit concept and implicit concept. Explicit concept is any word or sentence which is directly present in a text. On the other hand implicit concept is not directly present in a text. It may be hidden under symbols or have some relations with the implicit concept. For example, India sent a peace keeping force to Sri Lanka in 1987 during civil wars.. It is a sentence which conveys an implicit concept. The explicit concept which one may understand from it will be that India intervened in the internal matters of its neighboring countries. To know implicit concepts from a given content, a researcher must have extensive knowledge of socio-cultural environment where such contents are generated.
- **Procedural Analysis:** It focuses on the procedures and actions that are contained in a text or any other source of content. It emphasizes on process and treats the content as an action. A procedural content analysis looks for action sequences in content. There are mainly two approaches to procedural content analysis-

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decision based approach and plot based approach. In decision based approach, the researcher looks for instances where a character within a content takes decision while doing a task. On the other hand in plot based analysis, the plot of articles, stories, books etc is focused.

- **Relational Analysis:** It focuses on both concepts and relations between them. Concepts are treated as meaningless until these are connected to other concepts. There are different techniques which can be used by a researcher while doing a relational content analysis. These are- Affect attraction, proximity analysis, cognitive mapping etc. In Affect Attraction, text is evaluated emotionally on the basis of relationship between concepts that are explicitly present in the text. In proximity analysis, co-occurrence of explicit concepts in a text is sought after.
- **Emotional Analysis:**In emotional analysis, emotional content within the contents is analysed. Emotional content refers to the words or phrases which shows the internal mental conditions of a person. Two approaches can be taken in emotional analysis of content: Categorization approach and Dimensional approach. In categorization approach, emotions are break down into categories like love, hate, anger, fear etc. In dimensional approach emotions are categorized into dimensions within which small categories come. For example positive emotions (love), negative emotions (anger, fear, hatred etc).

Check Your Progress:

2. Discuss the Various stages involved in doing a Content Analysis?

5.7 Advantages of Content Analysis

Following are the major advantages of content analysis:

- **Transparent Research Method:** Content analysis is a very transparent research method. The coding scheme, sampling procedure etc are clearly set out which help in replication of the

study by the succeeding research method. It is an objective method of analysis.

- **Unobtrusive:** In content analysis, there is no direct interaction between the researcher and researched. The researcher, here, collects all the relevant information without being observed by the participants. In other methods like interview or direct observation, researcher's presence may hamper data collection process. Participants may not be willing to provide all necessary information for the study. But in content analysis there is no such issue as the texts or any other kind of document cannot maintain secrecy.
- **Helpful for Student Researcher:** Content analysis is helpful for student researcher i.e. those who make MA dissertation, college projects etc. It is relatively free from ethical scrutiny than other forms of research techniques because it does not need research participants.
- **Flexible Method:** It is a flexible method. It can be applied to wide variety of different kind of unstructured textual information.
- **Helps to get Information from otherwise inaccessible groups:** In other research techniques data collection requires direct interaction. Without getting access to a setting, it is not possible. But in content analysis, as there is no direct interaction between researcher and the researched, so information which are otherwise inaccessible can be gained through in the form of written documents, images, recordings etc.
- **Economic:** It is an economic method both from the aspect of time and money resources. The researcher does not have to spend money and time in doing interviews or printing questionnaire to collect data. Newspapers in household, books or journals in a library, websites or blog post can provide enough content for a study.

5.8 Disadvantages of Content Analysis:

Following are the disadvantages of Content Analysis:

- **Not Free from Coder Bias:** In content analysis coding is done by human coders. Human beings are not free from own pre conceived

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notions. Hence, the coders may interpret the categories in coding manual by themselves and will code accordingly.

- Particular problems may arise in case of latent content as it is difficult to know the underlying meaning. In case of analysis of latent content, there is potential for emergence of unreasonable speculation.
- It is **difficult to answer the why questions** through content analysis. In such cases only speculations can be made without having any evidence. For this, the researchers can use other data collection methods like interviews, qualitative content analysis etc to collect more evidence to answer 'why' questions.
- Content analysis is being accused of being **atheoretical**. In content analysis measurement is given more importance. Hence only those aspects which are measurable is given more importance than those aspects which are theoretical.
- In content analysis researchers mainly use recorded information to solve a particular research question. But it will be not helpful to study areas like frequency of domestic violence in urban households, proficiency of students in speaking English etc, as these require demonstrated behavior in part of the study population.

5.9 Difference between Quantitative and Qualitative Content Analysis:

Content analysis is basically a quantitative exercise. However qualitative researchers also use this technique to understand the context of study in a better manner through analysis of documents relating to participants in a study. Qualitative content analysis goes beyond merely counting words or extracting objective content from texts to examine meanings, themes and patterns that may be manifest or latent in a particular text. It allows researchers to understand social reality in a subjective but scientific manner.(Zhang & Wildemuth)Smith has described the difference between the two methods through the following quote:

"Qualitative analysis deals with the forms and antecedent-consequent patternsof form, while quantitative analysis deals with duration and frequency of form."(Zhang & Wildemuth)

Following are the major differences between qualitative and quantitative content analysis:

- Both quantitative and qualitative content analyses are developed from different research areas. Quantitative content analysis is developed in mass communication research to study the wide range of manifest textual elements. However it is also criticized for avoiding symbolic elements contained in texts. On the other hand, qualitative content analysis is primarily evolved in disciplines like anthropology, qualitative sociology and psychology which aim at exploring the meanings behind physical messages.
- Secondly, quantitative content analysis is deductive in nature. It wants to test hypotheses or answer research questions based on theories or previous studies. On the other hand, qualitative content analysis is inductive in nature. Here, topics and themes, and the inferences drawn from them are grounded on the data. It also attempts to generate theory.
- Thirdly the sampling techniques used by the two methods are different. In quantitative content analysis probability or random sampling methods are used to ensure the validity of statistical results. On the other hand, in qualitative analysis non-random sampling methods are used. It mainly aims at answering the research questions or to fulfill the objectives of research. As it does not deal with statistical data, so there is no need to ensure statistical correctness of inferences.
- While quantitative content analysis produces numbers, qualitative content analysis produces description or typologies which contain expression of the participant's view of the world. The researcher or any investigator can understand the viewpoints of producers of contents in a better manner in qualitative content analysis.

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- In quantitative content analysis uses physical linguistic unit like words, sentences, phrases etc as unit of analysis. But in qualitative content analysis individual themes are used as unit of analysis.

Check Your Progress:

3. Discuss the advantages and disadvantages of Content analysis?
4. How qualitative Content Analysis is different from Quantitative Content Analysis? Discuss.

Self Assessment Questions:

1. How Content Analysis will help a student researcher? Discuss.

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5.10 Summing Up

After reading this unit you will be able to define content analysis. Content analysis is a research technique in which different documents, visuals, pictures etc are analyzed to answer research questions in a particular topic. Its evolution can be traced back to 17th century Europe where Church examined the morality of non-religious materials. However, proper content writing only developed in the 1930 and 1940s due to different reasons ranging from rise of new media to behaviorism in social science research. In content analysis, a researcher follows a series of step during the study. We can find different types of content analysis which include conceptual analysis, procedural analysis, relational analysis and emotional analysis. Like other research methods, content analysis is not also free from limitations. However, it has benefits too which makes it one of the sought after research methods.

5.11 References and Suggested Readings:

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