INTRODUCTION TO SOCIAL RESEARCH
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STUDY MATERIAL
IV SEMESTER
CORE COURSE
BA SOCIOLOGY
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1.1 Social Research - Definition, Nature and Scope

Meaning and Definition of Research

Introduction

The desire to know has been innate in man since the beginning of the human race. Man has come to the present situation by finding answers to too many questions such as why a thing or a phenomenon occurs and how it happens. In other words, research is a way of discovering things that are known and unknown as well as that we can further develop knowledge through research. The beginning of scientific research has led to much change in society. It is therefore of great importance in social science too. In the case of sociology, it deals with society and the relationship between individuals in society. Therefore, research is essential for learning about a complex society. A systematic and planned research method is being used very effectively in all fields today. Primarily, so let’s get acquainted with what is research and social research.

Research is a planned and organized effort to explore a specific problem that needs to be addressed. It adds to the general database and corrects human knowledge. Research study is a method of finding a reliable solution to a problem through scheduled and organized compilation, review and evaluation of data. Research is the most critical way of developing science, it facilitates change and allows man to respond more efficiently to his surroundings in order to achieve his goal and to overcome disputes.

Meaning of research

Research is a planned and organized effort to investigate a specific problem that needs a solution. It contributes to the general body of knowledge. The term research consists of two words, ‘Re’ + ’Search’. “Re” means again and again and “Search” means to find out something. Research in common parlance refers to a search for knowledge. In simple words, research is a scientific and systematic search for pertinent information on a specific topic. It is an art of scientific inquiry. L.V. Redman and A.V.H. Morry has defined that “systematic effort to gain new knowledge we call research”. A few groups think about research as a movement from the known to the obscure.
It is really a journey of disclosure and findings of unknown facts. We as a whole have the crucial intuition of curiosity for, when the obscure stands up to us, we wonder and our curiosity makes us test and achieve full and more full comprehension of the obscure. This curiosity is the mother of all information and the technique, which man utilizes for getting the information on whatever the obscure, can be named as research.

It also corrects human knowledge. Research is actually the process of arriving at a reliable solution to a problem through the planned, systematic collection, analysis and interpretation of data. Research is the most important process for promoting progress, advancing knowledge, interacting more effectively with the human environment, fulfilling his purposes and resolving his inconsistencies. While this is not the only way, it is the most effective way to solve problems.

**Definition of Research**

- Black and Champion: “scientific research consists of obtaining information through empirical observation that can be used for systematic development of logically related propositions attempting to establish causal relations among variables’’.
- Emory: “Research as any organized inquiry designed and carried out to provide information for solving a problem”.
- Kerlinger: “Research as a systematic, controlled, empirical and critical investigation of hypothetical relations among natural phenomena”.
- P V young: “Research as a scientific undertaking which, by means of logical and systematic techniques, aims to: (1) discover new facts or verify and, test old facts, (2) analyze their sequences, interrelationships and causal explanations, (3) develop new scientific tools, concepts and theories which would facilitate reliable and valid study ‘of human behavior.”

**Characteristics of Research**

The above definitions reveal the following characteristics of research:

1. Research is a planned and critical investigation of a phenomenon.

2. Research is not just a collection of information or facts, but a deliberate inquiry; it aims to describe, interpret and explain a phenomenon
3. It adopts scientific method

4. It is objective and logical, applying measurable instruments and facts that can validate the conclusions reached.

5. It is based upon observable experience or empirical evidence.

6. Research leads to finding answers to relevant questions and finding solutions to problems.

7. It focuses on the formation of generalizations, concepts, or theories.

**Objectives of research**

The main aim of research is to use experimental or scientific procedures to find answers to questions. It aims to uncover the secret and hidden truths that have been discovered so far. Despite the fact that each research study has its own set of objectives, the research objectives include the following:

1. To become more acquainted with a phenomenon or gain new insights into it.
2. To broaden human understanding of social life and the environment.
3. To test or confirm a causal relationship between variables.
4. To create generalisations and general laws in a different field of knowledge.
5. To accurately represent the characteristics of a specific person, circumstance, or category.
6. To establish the frequency at which something happens or is correlated with something else.

The definition of scientific method is essential for a clear understanding of the word science. The terms "research" and "scientific method" are associated. In terms of sociology, humans and their social experiences are so complex that identifying or explaining their existence can seem difficult. In this context, Karl Pearson writes, “The scientific method is one and same in the branches (of science) and that method is the method of all logically trained minds … the unity of all sciences consists alone in its methods, not its material; the man who classifies facts of any kind whatever, who sees their mutual relation and describes their sequences, is applying the Scientific Method and is a man of science.”

The scientific method is the rationally decided quest for reality. Science's ideal is to achieve a well-planned connection of truth. As a result, it's a mix of experimentation, observations,
and reasoning. A scientific analysis framework sets criteria that ensure objective and reliable findings. Scientific methods provide limits and boundaries that help to concentrate and organize a study’s findings.

Kothari, in his book “Research Methodology; Methods and techniques, points out some postulates on scientific method, which can be stated as follows;

1. It is based on empirical data.
2. It makes use of relevant concepts
3. It is dedicated to objective considerations only.
4. It assumes ethical neutrality, i.e., it seeks to make only appropriate and accurate statements about population items.
5. It leads to probabilistic forecasts.
6. The approach is disclosed to all parties involved for critical review and to be used in replicating the findings.
7. It helps to formulate the majority of general axioms, also known as scientific theories.

The scientific method is an objective, rational, and systematic method of determining the obvious merits of a verifiable phenomenon that is free of personal bias or prejudice. The researcher is directed by the laws of logical thought, and the investigation is carried out in a systematic and consistent manner.

**Social science research**

Social science study entails a thorough examination of all facets of human behaviour and interaction. When it comes to conventional empirical topics, psychology looks at individual acts, while sociology looks at groups and their actions. Educational research may be thought of as an effort to broaden our understanding of cognitive, influential, and psychomotor domains in teaching and learning contexts, building on psychological and sociological knowledge. Many topics, including nursing, health sciences, business, economic, political science, and law, deal with similar issues and employ a variety of research methods.

Individuals are the focus of social science. Human nature and social situations are so perplexing that understanding and foreseeing human actions is more difficult than understanding and foreseeing natural wonders. It really is a deliberate technique for investigating, dissecting and
conceptualizing human existence to broaden, validate or correct information about human behaviour and activity. Social science aims to understand previously unknown phenomena as well as the dubious and perplexing aspects of human behaviour. In other words, Social science research “seeks to find explanations to unexplained social phenomena, to clarify the doubtful, and correct the misconceived facts of social life.”

Researchers must choose suitable testing instruments or equipment for particular questions in order to solve the problems. Individual researchers will focus on one aspect of the problem of interest and begin collecting resources on the topic.

Simply put, social science research is the application of scientific knowledge to a particular issue involving human behaviour and interaction. The quest or examination of or for a body of actual objects, events, or evidence is known as truth finding. The process of applying a scientific method to social inquiry is commonly referred to as truth finding in the social sciences. In theory, social science study is meant to be systematic. It is meant to be cumulative in the sense that a body of research on a specific issue, question, or phenomenon should yield facts or information that can be generalised or replicated in some way. The premise here is that the social sciences are capable of responding to socially significant questions that can be answered in a fairly conclusive manner.

When it comes to social science research, there are primarily two big issues to address. The first is that conducting social science research necessitates the consideration of several more variables, some of which are difficult to manage. This is unlike study in the natural sciences, which is typically conducted in a laboratory under controlled conditions, where control over potentially contributing factors is easier to exercise. Second, unlike natural science fields, the social sciences have less widespread consensus on fundamental ideas and relevant strategies for addressing problems. As a result, a broad range of measuring devices, testing methods, and methodologies are used.

**Definition**

- According to C.A. Moser: “Social research is a systematized investigation to gain new knowledge about social phenomena and problems.”
- According to P.V. Young: “Social research is a scientific undertaking which by means of logical methods, aim to discover new facts or old facts and to analyze their sequences, interrelationships, causal explanations and natural laws which govern them.”
Objectives of Social Science Research

The aim of social science research is to find new facts or confirm and evaluate old ones.

➢ It aims to comprehend human behaviour as well as its interactions with the world and social institutions.
➢ It seeks to establish a causal link between human activities and the natural laws that regulate them.
➢ To create new research instruments, principles, and hypotheses that will make the study of human behaviour and social life more accurate and legitimate.

Scope of Social Science Research

The scope of social science study is practically limitless, so too are the research materials. For social scientists, every category of social phenomena, every stage of human existence, and every stage of past and present growth is material.

The scope of social research includes:

- Social science elucidates the organised community and its social system in new ways.
- Social science also opens up new avenues for scientific explanation
- Experiments that aim to test or question current hypotheses and update them in light of new data
- Social science aids in the development of new theories
- Social research also contributes to the current foundation of fruitful theories, methods, and understanding of social life and problem solving.

Functions or Uses of Social Science Research

O R Krishna swami and M Ranganatham, in their book “Methodology of research in social sciences” points out some functions of social science research. They are:

1. Discovery of Facts and their Interpretation: Research answers the question of what, where, when, how, why, social life and institutions of man. Half-truths, falsehoods, and superstitions are all examples. Discovery and understanding of facts help to remove such distortions, to make us aware and to contribute to our understanding of social reality. Research intensifies our need for knowledge and reveals previously unseen social mysteries.
2. Diagnosis of Problems and their Analysis: Poverty, unemployment, structural imbalance, economic disparity, social unrest, low growth, technological backwardness, and other issues plague developing countries. It is necessary to diagnose and examine the existence and dimensions of such problems; social science research plays an important role in this regard. The identification of necessary remedial measures follows the review of issues.

3. Systematization of Knowledge: The body of information is established by systematising the facts discovered through study. As a result, research leads to the advancement of various social sciences and the creation of theories.

4. Control over Social Phenomena: Social science research provides us with firsthand knowledge of how society and its institutions are organized and function. This experience empowers us to exert greater influence over social phenomena.

5. Prediction: The aim of research is to establish a hierarchy of social facts and their causal relationships. In some instances, this provides a solid foundation for prediction. Despite the fact that the forecasts will not be perfect due to the inherent weaknesses of social sciences, they will be useful for better social planning and control.

6. Development Planning: Baseline data on various aspects of our society and economy, resource endowment, people's needs and expectations, and so on are needed for socioeconomic development planning. Systematic research will provide us with the information we need to prepare and design implementation schemes and programmes. Analytical studies may shed light on important policy issues and assess the validity of planning assumptions. Evaluation studies highlight the effect of plans, strategies, and programmes, as well as provide recommendations for their reformulation.

7. Social Welfare: The roots of social evils and problems can be unravelled and identified by social science. As a result, it will aid in the implementation of effective corrective measures. It can also provide us with solid recommendations for effective reform and social welfare initiatives.

**Nature of social research**

Social science research helps researchers understand why, where, when, what, and how social life is built and reconstructed by providing insight into social events. Since sociological
research offers insight into the presence or displacement of fixed truths, it helps to understand society's complexity. Social science is primarily concerned with social trends and the need to learn new information about social life. It's a research project that employs logical and systematic methods to learn new things about social phenomena or to confirm what we already know.

It aids in the comprehension of current theories as well as the creation of new ones. In-depth expertise and meticulous research on a related subject are needed for social research. Researchers use social science research as a strategic tool to question current expertise based on existing findings that go beyond previous understanding of social reality.

**Types of research**

While any classification of research is necessarily subjective, research may be categorized in a crude manner based on its main purpose or methods. Research can be divided into the following categories based on its purpose: Pure Research, Applied Research, Exploratory Research, Descriptive Study, Diagnostic Study, Evaluation Studies and Action Research.

According to the methods of study, research may be classified as: Experimental Research, Analytical Study, Historical Research and Survey

**A- PURE AND APPLIED RESEARCH**

**Pure Research**

Pure research is conducted solely for the purpose of gaining knowledge without any intention of applying it in practice. Pure research is often referred to as fundamental or basic research. It is done out of intellectual inquisitiveness or curiosity. It isn't all about solving problems. Its aim is to broaden awareness. It may result in the creation of a new theory or the improvement of an existing one. Pure research has played a significant role in the advancement of various sciences. Pure research results add to the storehouse of information that can be used to develop significant practical research in the future.

Natural knowledge sought for its own sake without regard for potential utility can often produce outcomes of the most surprising nature and of the greatest practical significance. Pure research thus serves as a base for applied research. Pure research results paved the way for a slew
of scientific and technical breakthroughs, including the steam engine, computers, cars, electronic gadgets, electronic data processing, telecommunication, and so on, all of which have revolutionized and enriched our lives.

**Applied Research**

Applied research is conducted to find a solution to a real-world issue that necessitates a decision or action. As a result, it is problem-focused and action-oriented. It is looking for a fast and realistic result. e.g., marketing research carried on for developing a new market or for studying the post-purchase experience of customers.

Applied research in the fields of technology, management, commerce economics, and other social sciences has a lot of potential. There are several issues in these fields. They need empirical research in order to find solutions.

Though the immediate goal of applied research is to find solutions to a practical problem, it may also be used for other purposes. It may help to improve theoretical knowledge by contributing to the discovery of new evidence, the testing of a theory, or the clarification of concepts.

Goode and Hatt have highlighted the mutual contribution between pure and applied research.

**Contribution of Pure Research**

1. Pure research provides solutions to many practical issues by establishing principles. Generalizations are useful in a variety of situations. In reality, nothing is more useful for diagnosis or treatment objectives than good theoretical analysis.

2. Pure analysis aids in the identification of essential elements in a functional issue. A common-sense solution to issues like communal unrest or ethnic violence, for example, fails to abstract the main causes. On the other hand, by delving deeper into certain social ills, it might be possible to better understand them and find a solution.

3. Pure research generates a large number of possible solutions, allowing us to choose the right one. Various appliances such as the radio, television, refrigerator, washing machine, and so on have been invented using scientific knowledge gained through pure research.
Continuous fundamental research in these fields has aided in the creation of more cost-effective and useful models.

**Contribution of Applied Research**

1. Applied research will provide new information. A realistic study aimed at increasing agricultural farm productivity may lead to a theoretical examination of extension technology, land tenure, and price parity between agricultural inputs and outputs, among other things. Applied science uncovers new facts that add to the body of information in question.

2. Applied science may be used to test theories. Applied science is a scientific endeavor in and of itself. It must be scientifically designed by the researcher. He must create a conceptual structure for his research and formulate hypotheses based on his theoretical understanding. As a result, his research provides an opportunity to evaluate the validity of current theories.

3. Applied research may help to clarify concepts. Many terms, such as "small farmer," "agricultural labourer," "social obligation," "social structure," and so on, are vague. They are described differently by different people, resulting in ambiguity and a lack of clarification. When we try to operationalize a concept for coping with science, the vagueness of the concept becomes more apparent. As a result, analysis helps to clarify concepts.

4. Applied research should incorporate hypotheses that have already been established. There are numerous facts in a realistic problem. It is impossible to solve it by applying abstract concepts from a single science. As a result, solving a practical problem can necessitate some incorporation of various disciplines' theories and principles.

**B- Exploratory or Formulative research**

**Meaning**

Exploratory research is a form of preliminary investigation into a new problem about which the researcher knows little or nothing. It's similar to a doctor's initial examination of a patient with an unknown illness in order to gather information that can help them identify it. "It's disorganized, and it's less focused on predetermined goals." It is normally conducted as a pilot study.

It is, however, a different form of study. It's best to think of it as the first step in a three-step process of discovery, definition, and experimentation.
The purpose of an exploratory study may be:

- To come up with new ideas or
- To improve the researcher's understanding of the issue or
- To formulate the problem in a precise manner or
- To collect data for the purpose of clarifying concepts or
- Determine if the study is feasible to carry out.

After devoting a great deal of time and effort to a research project, a scientist will discover that obtaining the necessary data is impossible. A preliminary investigation may help prevent such disappointment. For example, students decided to look into the marketing strategies of large manufacturing companies. The ability of marketing executives to divulge sufficient details about their marketing strategies was a crucial prerequisite for this report. They will not, according to an investigation.

The aim of an exploratory analysis is not to test a hypothesis. According to Daniel Katz It tries "to see what is there rather than predict the relationships that will be founded,” However, it should be structured in such a way that it provides as much specific information as possible for a collection of research objectives.

The Steps in Exploration

Seltiz and others° have suggested the following three steps/methods for the exploratory study:

(a) A review of pertinent literature

A review of related and relevant books, papers, and studies reveals a variety of leads and clues for further analysis that will help advance the project. A viable hypothesis can be created, and key variables can be established.

(b) An experience survey

Informal interviews with people who have worked in the field will aid the researcher in gaining insight into the topic and its different details. Different facts of experience should be represented when selecting the individual for this survey.
The interviewer should read an interview guide so that he or she has a good understanding of what problems and aspects of the problem to ask about. Naturally, this interview guide should be adaptable enough to allow for different paths to be explored during the interviews. This survey could produce a new hypothesis as well as details on the study's various dimensions, available facilities and cooperation, and the variables to be monitored.

(c) An analysis of insight stimulating cases.

An extensive analysis of a few selected cases in an unexplored field of study will yield stimulating insight. Sigmund Freud's remarkable theoretical insights into the human mind, for example, were the product of his extensive patient research. Anthropological case studies of primitive societies have shown profound insights into the relationship between the human and society.

The following are groups of individuals who can provide 'insight-stimulating' information:

1. People who are new to the scene.
2. Persons who are on the periphery of conflicting classes, such as foremen in an organizational hierarchy, who are neither managers nor employees but somewhere in the middle.
3. Workers in transition, such as those who have just been promoted or relocated.
4. Individuals in a society that hold a different viewpoint than the majority.
5. 'Pure' cases or cases that may be severe examples of the circumstances under review, such as the unhappy rural development scheme beneficiary.
6. Those who are a good match and those who aren't.
7. Those that embody the system's various categories.

C- Descriptive research

Meaning

A descriptive analysis is a fact-gathering inquiry that is properly interpreted. It is the most basic form of study. It is more focused than an exploratory analysis since it focuses on concrete aspects or dimensions of the issue under investigation. Its aim is to collect descriptive data and
provide information for the development of more complex studies. Data is gathered by one or more of the following methods: observation, questioning, and mailing a questionnaire.

**Objective**

A descriptive research seeks to classify the different characteristics of a group, entity, or issue under investigation, but it does not include hypothesis or proposition testing. It can, however, reveal potential relationships between variables, laying the groundwork for a more in-depth investigation later. A descriptive analysis often seeks to classify the various elements that make up the study's subject matter.

Two conditions must be met for the classification to be complete: (1) exhaustiveness and (2) mutual exclusivity. Exhaustiveness is achieved when all of the essential elements have been found. When each object in the system can be put unambiguously in just one group, it is mutual. Explanation, prediction, and understanding should all be possible with descriptive data.

**Usefulness**

The descriptive studies are useful in their own way.

1. They may make a significant contribution to the advancement of a young science by focusing descriptive knowledge on a theoretical stage. It may be beneficial for empirically verifying focal principles. "The better the description, the more likely the units extracted from the description would be useful in subsequent theory construction."

2. Descriptive data may draw attention to important methodological aspects of data collection and analysis. The processing of factual data raises our understanding of our measuring devices’ relative accuracy. As a result, our desire to learn more has greatly increased.

3. The descriptive data gathered during a study can be used to make predictions about aspects of social life that aren't covered by the study.

4. Descriptive research is useful for gathering information that can be used to organise social action programmes.

**Limitations**

1. The researcher might use definition as a means to an end. Facts must be discovered as a result of study.
2. Despite the fact that social science issues are ongoing and have a history and future, the researcher can become fixated on the present.

3. The researcher may have a tendency to use statistics excessively. It is important to consider the limitations of statistical analysis when performing it.

D- Diagnostic study

**Meaning**

This is similar to a descriptive analysis, but it focuses on something different. It aims to figure out what's going on, why it's happening, and what can be done about it. Its aim is to figure out what's causing a problem and how to fix it.

**Purpose**

A diagnostic study may also be concerned with determining and evaluating whether certain variables are related, such as whether people from rural areas are better suited to work in bank rural branches. Do villagers vote for a single group in greater numbers than city voters?

**Requirements**

Prior knowledge of the problem, its detailed formulation, a specific definition of the given population, appropriate methods for collecting accurate information, precise calculation of variables, statistical analysis, and test of significance are all criteria for both descriptive and diagnostic studies. Since the aim is to collect full and reliable details about a specific circumstance or phenomenon, the research design must provide much more safeguards against bias than an exploratory analysis. Furthermore, since the amount of work involved is significant, concern for the research effort economy is critical.

E- Action research

**Meaning**

A type of assessment analysis is called action research. It is an analysis of a parallel assessment of an action plan launched to solve a problem or improve a current situation. Governments, institutions, and non-profit organizations work together to achieve particular goals or objectives in the pursuit of growth, progress, excellence, and people's welfare. Some examples of intervention programmes include land reform programmes, agricultural extension programmes,
social welfare programmes, human resource development programmes, administrative enhancement programmes, rural development programmes, and programmes to enhance the quality of life in factories and offices.

Action research has gained traction as a result of the abundance of development programmes. With the urgent need to evaluate the relative efficacy of different approaches to the same goal, or the worthiness of one goal over another, study has been called upon to play a more direct and applicable role in action research. The criterion of significance for action is important in action research.

**Typologies of Action Research**

Prospero R. Covar categorizes action research into five types.

**Type I:** Classical design: Research and intervention are distinct and unrelated. The connection between research and action isn't intentionally pursued. It could happen by chance. The study findings may not be known or used by the action programme department. The researcher's work may not be purposefully geared toward improving the efficacy of an action plan.

**Type II:** Interdependence of action and research: Action is carried out by an agency not connected with a research institution. Affiliating with a research institute an independent research body can be entrusted with action research. For example, the government might start a development programme, and a university social scientist might be invited to look into it. The researcher could include a section on action consequences in his report and send a copy to the implementing agency, but he had no more responsibilities to the action programme.

**Type III:** Examine the study that has been incorporated into a plan of action: In this case, analysis is reliant on action, and the people who take action decide the scope of the study.

**Type IV:** Action for research: The operations of the action programme are planned and updated here in order to conduct research hypothesis tests. A researcher might, for example, compare the relative effectiveness of three different methods of implementing family planning information: personal contact with the wife, personal contact with both husband and wife, and impersonal contact via the mass media alone. For this study, a family planning programme must be launched that applies each strategy to various groups of couples with similar characteristics and living in
similar circumstances. As a result, how the operation will be carried out is dictated by the study requirements.

Type V: Research-cum-action: As a collaborative effort, action and study go hand in hand. Researchers and decision-makers collaborate to create and launch the action plan, as well as conduct analysis on it. They record what happens under defined conditions after the operational design is completed and action is launched. They have the option to change the conditions if they so choose.

The Phases in the Action Research

The different phases in the action research are:

(1) A baseline survey of the pre-action situation;

(2) A review of the proposed action plan's feasibility;

(3) The program's preparation and launch;

(4) Concurrent evaluation of the programme;

(5) In light of the study results, make adjustments and improvements to the programme and its process of implementation

(6) Final evaluation, if the programme is time-bound.

Limitations of social science research

When opposed to research in the physical sciences, social science research has certain shortcomings and issues. The following are some of them:

❖ Scientist- a Part of What is Studied

Since a social scientist is a member of the human community he studies, he is bound by certain constraints. As Julian Huxley pointed out, man must be his own guinea pig. This has a variety of analytical implications. It limits the reach of controlled experiments, for example. As previously stated, it restricts the space for objectivity in social science research. Complexity of the subject matter
Human culture and human nature, the focus of social science study, are much too nuanced, varied, and evolving to be subjected to scientific categorization, calculation, interpretation, and prediction. The experimentation method is difficult to implement due to the multiplicity and ambiguity of the causation. Only other humans can study human actions, and this often distorts the facts being studied profoundly, so there can be no objective method for achieving the reality.

❖ Human problems

A social scientist is confronted with such human issues that natural sciences are not. These issues range from failure to respond to questions misunderstood by them, memory loss, and a reluctance to provide certain details, to only a few. Both of these issues contribute to bias, invalidating scientific results and conclusions.

❖ Personal values

Subjects, customers, and investigators all have personal beliefs that are likely to influence the research process. It is not reasonable to believe that these are openly exploitable. The investigators must hold the client's values in high regard.

❖ Anthropomorphization

Another risk associated with social science research is the risk of "the temptations to Anthropomorphize regarding humans." It results in the conceptualizing and Anthropomorphic use of insights made by pure intuitions or empathy.

❖ Wrong decisions

The adequacy of the social scientist's decisions on critical stages of his research process, such as the specification of the unit of analysis, operationalization of definitions, sampling techniques, and statistical techniques, determines the accuracy of the research results. Any errors in any of these judgments would invalidate his conclusions.

Conclusion

Often research is conducted to demonstrate its characteristics, such as those of a person, a group, or a culture, or a specific circumstance or occurrence, or a phenomenon that has not been studied, etc. Research for the advancement of understanding by delving deeper into previously discovered information and theories. Although each study has its own set of objectives or framework.
Social science is the study of human life, human behaviour, social classes, and social structures by social scientists from different fields. Social study adheres to natural science's standards and tools, focusing on the phenomenon's validity, reliability, and confirmation.

1.2 Objectivity, subjectivity, ethical issues in Social Research

1.2. Objectivity

Introduction

While objectivity plays an important role in social science study, it is not a criterion for separating sociological studies. The objective of scientific inquiry is objectivity. It assumes the existence of a separate world in which objectivity can be comprehended. Objectivity is thought to be the most universal feature of science, separating it from nonscientific viewpoints. Simply put, objectivity, described as the absence of all subjectivity, is not limited to science; it can also be applied to everyday life.

Meaning

The scientific method requires objectivity as a precondition. It refers to the desire and ability to look at facts objectively. Objectivity refers to drawing conclusions based on evidence rather than on value judgments. One's personal views, likes, dislikes, and dreams do not influence the inference. The data, as well as the conclusions drawn from it, must be free of bias and prejudice.

Myrdal emphasizes that research has a built-in self-cleaning or self-healing capability. Facts kick in, and they do so with a lag when data is first compiled. Under categories that conform to the skewed methodology used, but are insufficient in practice.

In the evolution of research methodologies, objectivity in data collection and dismissal of preconceived ideas progressively took centre stage. It instilled in social theorists a deep belief that researchers must be ethically neutral and that their feelings should not taint the study process.

Factors Affecting Objectivity

In social science study, objectivity is extremely difficult to achieve. This difficulty arises out of the adverse influences of (1) personal prejudices and bias, (2) value judgement, (3) ethical dilemma and (4) complexity of social phenomena.
(1) Personal prejudices and bias: Personal prejudices and biases stem from thought patterns, temperamental flaws, scepticism, wishful thinking, special interests, and so on. “Prejudice and biases are like illusions- to believe what is comfortable to believe.”

(2) Value judgment: A value-related concern arises as a result of the social context in which research takes place. A researcher's views influence his attitudes toward social issues. Also the brightest social scientists incorporate their own views and points of view into their theories.

To quote Gunnar Myrdal, Even in the theoretical stage of developing information about facts and factual relations, value premises are needed. A view is difficult without a vantage point. A disinterested social science has never existed and will never exist — valuations are still inferred in our quest for facts for rational reasons.

Personal preconceptions may not only ‘have a distorting effect on the data but are also highly insidious, because they are so “ subtle, so implicit, so deeply noted that it is difficult for us to discern them in ourselves, or when they are called to our attention, to avoid rationalizing them, instead of examining them objectively.”

(3) Ethical dilemma: Ethical dilemmas occur as a result of the researcher’s interactions with other study participants. There are four different forms of interpersonal relationships that can lead to ethical issues;

1. Relationships with those funding the study, 2. Relationships with those granting access to data sources, 3. Relationships with the project's investigators, and 4. Relationships with the research subjects themselves

While strict objectivity is nearly impossible to achieve, a reflective social researcher can achieve a realistic degree of objectivity by analytical and systematic thought.

Achieving Reasonable Objectivity in Social Science Research
The approaches and measures mentioned below can help to achieve some objectivity.
1. Patience and Self-control: A researcher must be patient and self-controllable. Personal preferences, unbridled creativity, and wishful thinking do not overpower him. He must exercise self-control to avoid making assumptions about the phenomena under investigation.
2. Open mind: A researcher is prone to thought patterns and personal beliefs that lead him to believe that some things are “true.” To submit his research method and analysis to the objective scrutiny of other scientists, he must have an open mind. Corrections can only be made by such contact.

3. Use of standardized concepts: To prevent misunderstandings and uncertainty, the definitions should be clearly defined and applied consistently.

4. Use of quantitative methods: Since they are free of human bias, effective statistical and mathematical methods of analysis can be used.

5. Cooperative research: Personal bias may be less pronounced as a result of group interaction.

6. Use of random sampling: Research on individuals will be more objective than research on communities. As a consequence of group activity, personal bias can be less pronounced.

Subjectivity in social research

Introduction

Social Science is rather than the things, images, or abstractions sought in natural science, the inquiries concentrate on common human subjects. In the social sciences, subjectivity is crucial because many researchers fundamentally want to know and understand how the social world feels, thinks, and produces.

Subjectivity in social research

Subjectivity's role in relation to the sociological approach is crucial. Subjectivity is a commonly used concept that has taken on a variety of meanings. The inner state of the self-constituted by thought, experience, sentiment, belief, intentionality, self-knowledge, and the awareness of others, is the most value-neutral concept.

The general issue is the importance of the researcher's subjective status. The researcher does not present research results in a hypothetically relevant way, which is a significant fact. However, qualitative research's increasing prominence in the social sciences provides a reason for the researcher's belief that goals, experiences, and decisions are unavoidable throughout the research phase. If it can be summarized, you will be able to concentrate on the research's purpose and results.
The importance of taking into account subjective variables is demonstrated by breaking the process down into stages, particularly in qualitative research. The research subject must be chosen early on, as it arises from discussions about research possibilities, discipline, values, and value commitments. Option segments and data collection are the product of the dynamic method, and it is a mistake to believe that subjective variables do not play a role. When conducting qualitative research, the researcher must relate to interpretive transparency through a method that aims to recognize the researcher's preconceived perceptions, biases, and assumptions, through which he or she establishes the perception of the topic revealed by the lens. In the end, one wonders how open one can be regarding one's own subjectivity.

Most importantly, the type of data collected and how it is collected would have a big impact on how the researcher communicates with his subjects. To some degree, the study findings will cover a variety of arbitrary and conflicting interpretations, such as researchers, research subjects, and sponsoring organizations. It can become a dynamic field at each point of the study, requiring careful consideration and public reaction to the researcher’s internal experience and its translation into the external context of the research - bringing us back to subjectivity and social research.”

It's worth noting that the understanding of subjective experience is one of the key objectives of a lot of sociological study, which adds more dimensions to the subjectivity-qualitative research relationship.

The use of something that is supposed to create legitimacy through a kind of consensus appears to have a very positive and quantitative effect on qualitative data interpretation. In this case, a researcher can seek a number of different objective opinions on how to interpret textual data.

Objectivity is seen as an essential element in conducting academic research and conveying a general view of a field in the conventional research paradigm that originated from the natural sciences, as well as the fact that subjectivity should be limited to the greatest degree possible. In light of the results, a number of generalizations can be made. Human beings are usually treated as subjects to be studied when they become part of an experimental study process, contrary to popular belief, and they are socially situated and revealed.
Ethical Issues Relating to the Respondents/Subjects

The ethical concerns about the respondents are much more relevant than the other ethical concerns. The respondents are the study's participants. They are the people from whom data is collected. The following are the main types of ethical concerns regarding research subjects:

1. People are often forced to engage in studies without their knowledge or consent. For example, in social-anthropological studies of rural or tribal societies, the researcher might perform his research without informing the participants, fearing that their understanding of the study will influence the naturalness of their responses or behaviour. The researcher who includes the research subject in research therefore violates their right to choose whether or not to engage in the study.

   The consent of the research subjects should ideally be obtained after providing them with sufficient information about the proposed study. However, consent is often coerced, either entirely or partly. For example, an employer may instruct his workers to "cooperate" with a research project, or strong incentives may be given to persuade participants to agree. Such 'coercions' limit the right of research subjects to choose whether or not to engage in a study.

2. In certain studies, respondents' consent is obtained without them being informed of the study's intent. The respondents' freedom of choice is naturally hampered by such concealment.

3. In some studies, it may be appropriate for the researcher to give prospective subjects false information about the proposed study in order to influence their perceptions and behaviour. Deceptions like these are considered as unethical.

4. In studies of human values, social scientists can give research subjects opportunities to lie, steal, or cheat. Is it ethical to subject study participants to such moral risks? Different people have different viewpoints.

5. Exposing subjects to physical or emotional stress in order to study their responses is another questionable/unethical activity. People are subjected to physical or mental stress in a mock-hijacking of an aircraft or a mock-panic situation in a crowd without prior notice.

6. Using participant observation, in-depth interviews, or a hidden projective examination, a behavioural scientist may elicit information from respondents on private or personal matters such as marital life, religious faith, or personal opinions. Invasion of privacy is the product of such practices.

7. Finally, there is the ethical question of protecting the privacy of study respondents and maintaining the confidentiality of research results. Anonymity can be compromised as a result of
news and publications. Despite the use of pseudonyms, the community's or organizations' identities are revealed indirectly.

**Ethical Dilemmas or Benefits of Research**

In social science research, the above types of ethical issues occur. “Should a social scientist follow any unethical activities out of necessity or abandon his planned research?” is the critical question that emerges. This is a difficult question to answer. Either of the options — ethics or science — must be given up. However, it is important to strike a balance between the moral cost of unethical activities and the possible advantages of study in the greater interest of gaining practical information. There is no question that researchers owe a duty to their research subjects. They do, however, have a greater social duty to identify evidence that is important to solving pressing human issues and, as a result, to encourage social welfare. An assessment of the possible advantages of study versus the moral cost of unethical activities will help guide the decision. When the advantages outweigh the moral costs, it is preferable to proceed with the study, even though it necessitates unethical practices such as concealing information, invading respondents' privacy, and so on. Participants should not, however, be subjected to physical or mental discomfort. Professional organizations must develop codes of ethics to be practiced when collecting data from individuals.

**1.3 Qualitative and Quantitative distinctions in social research**

**Qualitative Research in social science**

Qualitative research is a general term that refers to a number of interpretive research methods. It can be historical, sociological, educational, and a variety of other topics. In social science, qualitative research is less concerned with scientific logic and more concerned with the world around us. Quantitative research focuses on human nature in order to get a deeper understanding of the environment. Quantitative researchers place a strong focus in their studies on examining people's or groups' viewpoints, such as their thoughts, beliefs, motivations, and intentions.
The primary aim of qualitative research is to gain a better understanding of social processes rather than to collect a representative sample. The investigation of a single or limited number of cases over a long period of time.

Some of the features of qualitative research approaches such as in-depth interviews and participant observation are as follows: The research is done in a secure environment. The goals of qualitative research are to collect accurate accounts of people's actions and thoughts.

During the research process, the research emphasis can change. Rather than theory research, the qualitative approach focuses on theory development.

**Quantitative research in social science:**

In social science, quantitative methods are often correlated with positivist viewpoints. Hamersley provides a useful definition of this approach. “The term quantitative method refers in large part to the adoption of the natural science experiment as the model for scientific research, its key features being quantitative measurement of the phenomena studied and systematic control of the theoretical variables influencing those phenomena”. As a result, the most important characteristics of quantitative research are,

I. Collecting data using structured methods.

II. Identifying and elucidating causal relationships between variables.

III. Puts assumptions or theories to the test.

IV. Extensive pre-conceptualization.

V. primarily consider theory and then research

The sample survey and experimental method are the most typical examples of quantitative research. Sample survey is the most commonly used technique with specific tools and methods to gather information about a particular question. Quantitative approaches differ from qualitative approaches in a number of ways. E.g. in terms of objectives of the study, research design, tools and methods etc.
The quantitative and qualitative approaches to research are the two most common types. The former entails the collection of quantitative data that can then be subjected to rigorous quantitative analysis in a systematic and rigid manner. Inferential, experimental, and simulation approaches to research are sub-categories of this approach. The aim of an inferential research approach is to create a database from which to infer population characteristics or relationships.

This generally refers to survey studies, in which a subset of the population is examined (interviewed or observed) to establish its characteristics, and then the population as a whole is assumed to have the same characteristics. The experimental method is distinguished by a greater degree of control over the testing environment, and in this case, certain variables are manipulated to see if they affect other variables. The simulation approach entails creating an artificial environment in which relevant data and knowledge can be created.

This allows for the study of a system's/ a sub-system's complex behaviour under controlled conditions. In business and social science applications, the term "simulation" refers to "the execution of a numerical model that reflects the structure of a dynamic process." A simulation is run to describe the behaviour of the process over time given the values of initial conditions, parameters, and exogenous variables." The simulation method can also be used to construct models that can predict future conditions.

The subjective evaluation of perceptions, beliefs, and behaviour is central to the qualitative research approach. In this case, analysis is based on the researcher's observations and experiences. Such a method of study yields findings that are either non-quantitative or have not been subjected to detailed quantitative analysis. Focus group interviews, projective approaches, and depth interviews are commonly used techniques.

Some scholars equate qualitative analysis with participant observation as a single methodology. Other authors broaden their definition of qualitative research to include interviewing. However, study of experimental natural environments, photographic techniques (including videotaping), historical analysis (historiography), record and textual analysis, Sociometry, Sociodrama, and other Ethnomethodological exploration, ethnographic research, and a variety of unobtrusive techniques are all used in common qualitative research.
Advantages and disadvantages of qualitative and quantitative research

The appropriateness of qualitative or quantitative research methods in performing social research has been the subject of controversy and contention over the years. Among constructivists and positivists, there has been a paradigm battle. However, the two approaches are incompatible in that they both have their own distinct methods for collecting and analyzing data. Despite their differences in strengths and reasoning, the two approaches are instruments used to accomplish the same purpose using different strategies and procedures.

Both research methods are part of a larger research spectrum. It's worth noting that the key terms describing phenomenon are used in all research methods, whether qualitative or quantitative. In fact, neither constructivists nor positivists have argued that their instruments are more accurate and legitimate than the other, indicating that they are intended to accomplish the same purpose. Since qualitative and quantitative research methods are focused on different hypotheses and assumptions, one may be more beneficial than the other, depending on the nature of the research and data collection methods.

Advantages of Qualitative Research Approach

- Qualitative research includes all of the tools needed to elicit recall, which helps in problem-solving. To gather data from participants in their natural environments, qualitative data instruments such as evaluation, open-ended questions, in-depth interview (audio or video), and field notes are used.
- The data collection methods used provide a complete overview of the study in terms of the participants.
- The qualitative research approach allows for a deeper understanding of actions as well as a variety of data regarding particular individuals and circumstances.
- In this approach, theory emerges from data and helps us to understand the independent existence of the social phenomenon by relying on the collection of non-numerical primary data such as words and pictures, which are well-suited for providing factual and descriptive information.
- Even when there is little or no detail about the participants, their expressions and perceptions are easily understood.
- In this approach, the close interaction that occurs between the researcher and the participants makes it possible for the participant to contribute to the research’s shaping.
Disadvantages of Qualitative research Approach

- Qualitative approach could have been good method for the study if its finding are reflective of a wider population
- Problem of replicability
- The subjective method employed by the qualitative approach users may be wrong, inaccurate and misleading
- Non-use of numbers by qualitative researchers makes it difficult and impossible to simplify findings and observations. Qualitative researchers believe that the social world (phenomena and experiences) has many dimensions, hence explanations are based on the interpretations of the researcher

Advantages of Quantitative Research Approach

- The use of statistical data as a tool for saving time and resources.
- The use of scientific methods for data collection and analysis make generalization possible
- Replicability
- This approach gives room for the use of control and study groups.
- The objectivity of the researcher will not be compromised since it is based on positivist paradigm of measuring variables

Disadvantages of Quantitative Research Approach

- Researcher detachment from the participants is a weakness within the quantitative research approach. It has not been possible to take information deeply; rather, it has given the overall picture of the variables.
- The participants have no room to contribute to the study. Data is summarized collectively and does not look at individual responses
- the positivism cannot account for how the social reality is shaped and maintained, or how people interpret their actions and others
- Lack of depth. Quantitative methods sometime do not give people opportunity to say what they really mean.
Difference between qualitative and quantitative research

<table>
<thead>
<tr>
<th>Quantitative Research</th>
<th>Qualitative Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involves a deductive approach to the relationship between theory and science, with the emphasis on theory testing;</td>
<td>Emphasizes primarily an inductive approach to the relationship between theory and science, with a focus on the generation of theories;</td>
</tr>
<tr>
<td>It integrated the natural science model's practices and norms, especially positivism and reality.</td>
<td>Rejected the natural scientific model's practices and standards in general, as well as positivism in particular, in favour of a focus on how people view their social environment.</td>
</tr>
<tr>
<td>Embodies an external, objective perception of social reality</td>
<td>Embodies the idea of social existence as an ever-shifting emergent property of people's development.</td>
</tr>
<tr>
<td>Numerical data; How many people are affected by how many events?</td>
<td>Understanding of dynamic systems from a holistic perspective</td>
</tr>
<tr>
<td>Questionnaires are used in large-scale surveys.</td>
<td>Participant evaluation and informal interviews were used to create micro case studies.</td>
</tr>
<tr>
<td>At the start of the investigation, hypotheses and observable measures (variables) were determined.</td>
<td>Open ended and cumulative formulations of research and scope</td>
</tr>
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</table>

**Conclusion**

The emerging consensus is on multidisciplinary approaches to science, stressing the use of a range of tools, due to the complexity and multi-faceted existence of social phenomena. The eclectic-mixed-methods-pragmatic model recognizes that all instruments of inquiry have flaws, necessitating the use of both quantitative and qualitative methods to investigate social realities. This method concentrates on real-world issues. The eclectic-mixed-methods-pragmatic paradigms combine elements of both paradigms to gather data and provide realistic solutions to social problems. Knowledge and assumptions about complex phenomena may be "triangulated" or "bracketed" using several viewpoints.
MODULE II

PRELUDE TO SOCIAL RESEARCH

2.1 Research Design: Exploratory, Descriptive, Longitudinal

Research design

Introduction

In an empirical research project, research design is a systematic strategy for data collection. It's a "strategic plan" for doing empirical research to address basic research questions or test specific theories. A study design is a method used by a researcher to answer questions in a true, analytical, precise, and cost-effective manner. A research design allows you to make decisions about yourself and explain them to others about what study design you want to use, how you want to gather information from your respondents, how you want to pick your respondents, how you want to interpret the information you collect, and how you want to communicate your conclusions. In addition, the reasoning and logic for each judgement that forms the answers to the 'how' of the study journey must be detailed in your research design.

Meaning of research design

The process of identifying the research problem is followed by the daunting task of preparing the research project plan, popularly known as the “research design”. A research design is a set of decisions on what, where, when, how much, and how an investigation or research analysis will be conducted. A research design is the set of conditions for data collection and interpretation that seeks to blend importance to the research intent with procedural economy. The strategy is the research's whole scheme or programme. It outlines what the investigator can do, from writing theories and their organizational consequences to data collection and interpretation.

A typical research design is a model or systematic strategy for how to conduct a research project, including operationalizing variables so they can be assessed, choosing a study sample, gathering data to test theories, and reviewing the findings. According to Selltiz, Deutsch and Cook, A research design is an arrangement of conditions for data collection and interpretation with the aim of combining significance to the research intent with procedural economy.
In reality, the study design is the philosophical framework for conducting research; it is the model for data collection, measurement, and analysis. It is a blueprint of the whole research process. As a result, the specification provides an overview of what the researcher can do, starting with writing the theory and its organizational consequences all the way through to data analysis. It responds to the following questions:

(i) What is the study about?
(ii) Why is the study being made?
(iii) Where will the study be carried out?
(iv) What type of data is required?
(v) Where can the required data be found?
(vi) What periods of time will the study include?
(vii) What will be the sample design?
(viii) What techniques of data collection will be used?
(ix) How will the data be analyzed?
(x) In what style will the report be prepared?

With the above-mentioned design decisions in mind, the overall study design can be divided into the following sections:

(a) The sampling design: which is concerned with the process of choosing objects to observe for the purposes of the provided research;
(b) The observational design: that refers to the circumstances under which the conclusions would be made;
(c) The statistical design: which is concerned with the number of objects to be observed and the manner in which the information and data collected will be analysed
(d) The operational design: which is concerned with the methods for carrying out the procedures defined in the sampling, methodological, and observational designs.

The following are the key characteristics of a research design:

- It's a plan that identifies the origins and forms of data that are important to the research problem
- It is a method that specifies the data collection and analysis method to be used.
• It also includes time and expense budgets, since most experiments are completed under these parameters.

Need for research design

Research design is important because it helps the different research operations run smoothly, resulting in research that is as effective as possible, yielding maximum knowledge for the least amount of effort, time, and resources. We need a research concept or a plan in advance of data collection and analysis for our research project, just as we need a blueprint well planned out and prepared by an expert architect for better, affordable, and attractive house construction.

The term "research design" refers to the preparation ahead of time of the methods to be used for gathering relevant data and the strategies to be used in their study, bearing in mind the research's goal as well as the availability of personnel, time, and money. The study design should be prepared with extreme caution, since any errors could jeopardise the whole project. In reality, study design has a significant impact on the reliability of the findings obtained, and as such, it serves as the solid basis for the whole research project.

Many people are unaware of the importance of a well-thought-out research design. As a result, several studies fail to achieve the goals for which they were produced. In reality, they can come to incorrect conclusions. The research exercise could be rendered useless if the research project is designed carelessly. Thus prior to beginning research activities, an effective and sufficient specification must be planned. The architecture aids the researcher in organising his thoughts in such a way that weaknesses and inadequacies can be identified. A design like this may also be sent to others for feedback and critique. It would be impossible for the critic to have a thorough analysis of the planned thesis if such a course of action is not taken.

Features of a good design

Adjectives like versatile, reasonable, effective, and economical are often used to describe good design. In general, a good design is one that minimizes bias and increases the reliability of the data gathered and analyzed. The design that yields the least amount of experimental data in certain studies, is thought to be the better style. In certain research challenges, a design that yields the most detail and allows for the consideration of many different facets of a problem is called the most appropriate and productive design.
As a result, the issue of successful design is linked to the research problem's intent or goal, as well as the essence of the problem to be investigated. In one situation, a design may be ideal, but in another, it may be found wanting in one or more areas. Both kinds of research problems cannot be solved with a single design.

A research design appropriate for a particular research problem, usually involves the consideration of the following factors:

(I). The way from which knowledge may be obtained;
(ii). The researcher's and his staff's availability and expertise, if any;
(iii). The aim of the problem to be investigated;
(iv). The nature of the research problem; and
(v). The amount of time and resources available for analysis.

If the research work is exploratory or formulative, with the main focus on the exploration of new theories and concepts, the most suitable research design must be broad enough to allow for the analysis of several different aspects of a phenomenon. When the aim of an analysis is to provide an accurate explanation of a condition or a relationship between variables (also known as descriptive studies), consistency becomes a major concern, and a research design that minimizes bias and maximizes the reliability of the data gathered is considered a successful design.

Studies that evaluate a hypothesis of a causal association between variables include a design that allows for inferences about causality as well as bias minimization and reliability maximization. However, putting a study in a specific category is the most difficult challenge in practice, since a study may include elements of two or three of the roles of separate studies.

A study may be classified as an exploratory, analytical, or hypothesis-testing study solely based on its primary purpose, and a research design can be chosen appropriately in the case of a specific study. Furthermore, when determining the necessary specifics of the study plan, such as experimental design, survey design, sample design, and the like, consideration must be given to the availability of resources, funds, research personnel expertise, and way of getting information.

**Important concepts relating to research design**

Before describing the different research designs, it will be appropriate to explain the various concepts relating to designs so that these may be better and easily understood.
1. Variables: A concept which can take on different quantitative values is called a variable. As such the concepts like weight, height, income are all examples of variables. Qualitative phenomena (or attributes) may also be quantified based on the occurrence or absence of a certain feature (s). Phenomena with a wide range of quantitative quantities, including in decimal points.

2. Control: Minimizing the impact or effect of extraneous variables is a critical feature of a successful study design (s). When we plan an analysis to minimize the impact of extraneous independent variables, we use the technical term "power." The word ‘control' is used in laboratory science to refer to experimental conditions that are limited.

3. Research hypothesis: When a hypothesized association or a forecast is to be checked through scientific methods, it’s referred to as a research hypothesis. A research hypothesis is an assertion that predicts the relationship between an independent and a dependent variable. A study hypothesis should usually have at least one independent and one dependent variable.

4. Experimental and non-experimental hypothesis-testing research: Hypothesis-testing analysis is where the aim of the study is to validate a research hypothesis. It may be either an experimental or a non-experimental style. Experimental hypothesis-testing research is described as research in which the independent variable is manipulated, whereas non-experimental hypothesis-testing research is defined as research in which the independent variable is not manipulated.

5. Experimental and control groups: When a group is subject to normal conditions in an experimental hypothesis-testing study, it is referred to as a "control group," so when the group is exposed to a new or special situation, it is referred to as a "experimental group.”

6. Experiment: An experiment is a method of testing the validity of a statistical hypothesis related to a research topic. For example, we might run an experiment to see how effective a newly invented drug is. There are two kinds of experiments: absolute and comparative experiments.

**Types of research design**

Different research designs can be conveniently described if we categorize them as: (1) Research design in case of exploratory research studies; (2) Research design in case of descriptive and diagnostic research studies and (3) Longitudinal research design

1- **Exploratory Design**
Formulative research trials are another name for exploratory research studies. The primary goal of these experiments is to formulate a topic for further study or to establish working theories from an organizational standpoint. The exploration of new concepts and perspectives is a significant focus of such research. As a result, the research design necessary for such experiments must be diverse enough to allow for consideration of various facets of the issue under investigation. Since the research issue, which was initially specified narrowly, is transformed into one with a more specific definition in exploratory experiments, inbuilt versatility in research design is required. This fact can necessitate changes in the research method for obtaining relevant data. In general, the following three approaches are discussed in the light of study design for such studies: (a) a review of relevant literature; (b) an experience survey; and (c) a review of ‘insight-stimulating’ content.

2- Descriptive and Diagnostic research Design

Diagnostic research studies assess the extent at which something happens or its interaction with something similar, while descriptive research studies are concerned with defining the traits of a specific person or community. Diagnostic testing trials are those that look at whether or not such factors are related. Descriptive research studies, on the other hand, are concerned with precise forecasts, the narration of facts and characteristics concerning a person, a group, or a circumstance. Descriptive and diagnostic tests have similar criteria in terms of study design, so these two categories of studies can be grouped together.

In both descriptive and diagnostic tests, the researcher must be able to accurately describe what he needs to assess and find appropriate methods for doing so, as well as provide a good understanding of the "population" he wants to analyses. Since the aim of the studies is to collect complete and reliable data, the technique that will be used must be carefully prepared. The research design must provide sufficient safeguards against bias and maximize reliability, while still taking into account the feasibility of the study's completion. In such studies, the architecture must be static, not fluid, and it must rely on the following:

(a) Formulating the objective of the study
(b) Designing the methods of data collection
(c) Selecting the sample
(d) Collecting the data
(e) Processing and analyzing the data.
(f) Reporting the findings.

The first step in a descriptive/diagnostic analysis is to define the targets precisely enough to ensure that the data obtained is useful. The report should not have the desired knowledge if this is not handled carefully.

In most descriptive/diagnostic studies, the study takes a sample(s) and then uses the sample interpretation or tests to make conclusions about the population. Much of the time, a sample must be made. We can only say that the issue of sample design can be approached in such a way that the samples can provide reliable information with the least amount of testing effort. Typically, one or more types of probability sampling, also known as random sampling, are employed. It is important to closely supervise field employees as they gather and report data in order to achieve data free of mistakes introduced by those responsible for gathering them. “Data should be checked for completeness, comprehensibility, accuracy, and durability as they are obtained.

The information gathered has to be stored and analyzed. This involves measures such as coding interview responses, conclusions, and other data; tabulating the data; and doing a variety of mathematical calculations. Before beginning actual practice, the processing and analysis protocol should be prepared as well as possible. This will save time and money because the researcher will not have to waste time planning tables for which he then discovers he has no need, or re-doing any tables because he forgot to include relevant details. Coding should be performed carefully to prevent errors, and the coders’ reliability should be tested for this reason.

A sample of the tables may also be re-done to verify the precision of the tabulation. When using mechanical tabulation, the gathered data or information must be entered on suitable cards, which is typically achieved by punching holes that correspond to a specified code. Punching accuracy must be tested and guaranteed. Finally, mathematical calculations are needed, which necessitate the computation of averages, percentages, and various coefficients. Probability and sampling analysis are also viable options. To ensure the drawing of conclusions about the analysis, the requisite statistical operations, as well as the use of appropriate measures of significance, should be carried out.
Last but not least, there is the issue of publishing the results. This is the job of informing someone about the results, and the researcher must do it quickly. The report's structure should be well thought out such that all aspects of the research sample are described in a clear and concise manner.

Thus, in descriptive/diagnostic studies, the analysis design is a comparative design that sheds light on all of the above points and must be prepared with the study's objective(s) and tools in mind. It must, however, ensure that the data gathered is as bias-free as possible and as reliable as possible. Since it considers all of the steps involved in conducting a survey about a topic to be studied, the concept may be properly referred to as a survey design.

3- Longitudinal research design

The longitudinal design is a form of study design that is distinctive. It is a comparatively little-used design in social science due to the time and expense involved, so it is not suggested to devote much room to it. It is generally an extension of survey study focused on a self-completion questionnaire or formal interview research within a cross-sectional design, as seen in social science subjects like sociology, social policy, and human geography.

Longitudinal studies use ongoing or repetitive methods to track specific people over long stretches of time, many years or decades. They're usually empirical in nature, including quantitative and/or qualitative evidence obtained on some mixture of exposures and effects, with no outside influences implemented. This research style is especially useful for determining the association between risk factors and disease progression, as well as the patient outcomes over various time periods. Similarly, since data is gathered on specific individuals within a predefined group, regression modelling may be used to examine progress over time within the whole group or for specific individuals.

Cross-sectional analysis, on the other hand, is a research type that can examine several variables at the same time but offers little details about the effect of time on the variables evaluated since it is static by definition. As a result, it's less useful for investigating cause-and-effect interactions. Cross-sectional trials, on the other hand, take less time to set up and can be used for tentative assessments of correlation before embarking on time-consuming longitudinal studies.
**Longitudinal study designs**

Longitudinal studies can take several different types. They are usually retrospective, but they may also be experimental. The following are a few of them, which are briefly discussed below:

I. Repeated cross-sectional studies where study participants are largely or entirely different on each sampling occasion. Cross-sectional observations are the most common form of evidence used to determine the determinants of behaviour in the social sciences. Cross-sectional statistics are typically obtained at a single point in time, providing a snapshot of the process under investigation. They are, however, relatively easy to organize and pay off quickly. They have been the mainstay of both business and academic analysis as a result of these factors, and analysts seem to feel at ease and secure when using them.

II. Prospective studies where the same participants are followed over a period of time. These may include: Cohort panel, representative panel and Linked panel.

A- Cohort panels wherein some or all individuals in a defined population with similar exposures or outcomes are considered over time. Cohort Panels are a form of panel study that specifically considers the process of generation replacement. Researchers choose an age group, or a subset of an age category, and then send a questionnaire to a survey or the whole group. As a result, a variety of generations are tracked over time, or over the course of their lives. The study of very long-term transition and individual growth processes is generally of concern here; such studies normally re-interview participants every five years. With cohort design, social changes are studied from three viewpoints: generation, age and period. The effects of growing up and becoming older can be seen as each age is pursued through its life cycle. Furthermore, through following generations throughout their lives, it is possible to examine the effects of different events that occur over time: that is, it is possible to see whether or not a certain occurrence has the same impact on all generations.

B- Representative panels where data is regularly collected for a random sample of a population. With a random pool of respondents and repeated interviews at predetermined intervals, ranging from 2–3 months to a year. Individuals are tracked in panel polls at routine discrete points in time, and the main benefit is that it is possible to identify and determine the essence of individual transition. As a result, they're well-suited to analyzing both structural transition and complex behaviour statistically.
C- Linked panels wherein data collected for other purposes is tapped and linked to form individual-specific datasets. Data objects that are not gathered exclusively for panel purposes are tied together using special personal identifiers in these situations. The advantage is that it is the least invasive way of gathering longitudinal data; however, it can only provide a small collection of information and also on a highly discontinuous temporal basis (as in the case of a Census). Furthermore, those committees face issues of secrecy and data security laws, resulting in very little access.

D- Retrospective studies are designed until at least some have already had relevant events; evidence for possible exposures in the specified cohort is obtained and analyzed retrospectively.

So far, all of the data types addressed have been recorded using fixed and predetermined time points. However, continuous evaluation of qualitative factors appears to be the most suitable means of empirically measuring social progress for certain systems in the Social Sciences. The number and order of events, as well as the durations of them, will all be determined when the data is collected in real time. When it comes to learning life course processes and how they interact, such data is extremely useful.

It allows the researcher to look at not just the variables that influence results, but also the factors that influence when they happen. Data collected in real time is often collected retrospectively by life history surveys that span an individual's whole life span.

**Advantages**

Longitudinal cohort studies have various advantages, particularly when performed prospectively in their purest form. These include:

- The capacity to recognize and link experiences to specific exposures, as well as to better characterize these exposures in terms of their presence, timing, and chronicity.
- Organizing the series of events
- Tracking changes in specific people within the cohort over time.
- Eliminating participant memory bias by gathering data prospectively and prior to experience of a potential future case.
➢ Ability to account for the "cohort influence," i.e., the ability to analyze the individual time components of cohort, era, and age and account for their effects.

Disadvantages

➢ Individual follow-up that is incomplete or disrupted, as well as erosion with lack of follow-up over time; with notable risks to the reflective structure of the diverse sample if possibly arising from a relevant exposure or occurrence;
➢ Difficulty distinguishing the mutual effect of exposure and outcome due to potentiation of one by the other, particularly where the induction time between exposure and event is long.
➢ The risk of inaccuracy in the inference if mathematical approaches are used that do not allow for intra-individual correlation of variables, and;
➢ The enhanced temporal and financial demands that this method entails.

2.2 Relevance of literature in research – literature survey, literature review

Relevance of literature in research

Using established literature on a subject to create an argument about the importance of your study or how it will lead is a good way to start. When writing about research at any stage, a careful and comprehensive literature review is needed. It's simple homework that's expected to have been completed with care. The aim of a literature review is to learn about current findings and controversies in a specific subject or field of study, and to present that information in the form of a written article.

Reading literature will help you learn more about your profession. Important principles, testing methodology, and scientific approaches used in your field will be included. You'll also explore how academics use the ideas you've learned in class to solve real-world problems. Another advantage of literature reviews is that you can have a greater understanding of how scientific results are interpreted and debated in your field as you read. You'll be better at writing about your specialty if you pay attention to what you read and attempt to emulate the style.

In terms of social science research, The book “The methodology of research in social science” points out, some examples for literature or sources of literature. That are;
A. Books;
1. Encyclopedias
- General encyclopedia, e.g. Encyclopedia of Britannica
- Specific, E.g. Encyclopedia of social science
2. Yearbooks e.g., published as supplements to encyclopedias
3. Textbooks
4. Reference books

B. Journals: Published monthly, quarterly, half yearly or annually.
   - Index India- This is a quarterly documentation list published by Rajasthan University library
   - Guide to Indian periodical literature
   - Indian Index press
   - Documentation of Asia

c. Reports
   1. Reports of committees/commissions appointed by governments and public institutions
   2. Seminar reports and conference proceeding
   3. Government reports and publications
      - Catalogue of Government of India Civil Publications
      - Catalogue of Government of India publications
      - Government of India Publications
      - Parliamentary library bulletin
      - Statistical abstract

D. Research dissertations and thesis
   - Research abstract
      - e.g. – ICSSR research abstracts, Indian Dissertation abstract

E. Newspapers

F. Micro forms: Audio and video tapes; Micro card: Micro film

Web site/internet articles and research studies also are useful materials. The easy access and ability to capture entire articles makes internet resources attractive.

Researchers establish a priority in a search of the literature. What types of literature might be reviewed, and in what priority? John w. Creswell proposed some guidelines to give priority in the selection of literature. These are following:
1. Start with extensive syntheses of the literature, such as overviews contained in encyclopedias, if you're researching a subject for the first time and don't know anything about it. You may also look for literature overviews on your subject in journal papers or abstract collection.

2. Then look for journal articles in well-respected national publications, especially those that report on research studies. By analysis, I mean posing a query or theory, gathering evidence, and attempting to answer the question or endorse the hypothesis. Begin with the most current research on the subject and function backward in time. Check up on the references at the end of these journal papers to find further sources to investigate.

3. Look for books on the topic. Begin with research monographs that summaries the academic literature, then move on to whole books on a particular subject or that feature chapters written by several writers.

4. Look for recent conference papers on a subject to continue the search; conference papers often focus on the most recent research developments. Look for national conventions and the papers that were presented at them. Authors are required or requested to apply their papers for inclusion in computerized indexes at most major conferences. Make correspondence with study writers. Look for them at conventions. Inquire if they know about any trials relating to the planned thesis and if they have an instrument that could be used or changed for use in your research by look at.

5. Look at the abstracts of dissertations in Dissertation if you have the opportunity. Dissertations differ greatly in content, so it's important to pick and choose which ones to read. A search of the Abstracts can turn up one or two dissertations that are important. Request copies of these dissertations by interlibrary loan after you’ve identified them.

    On-line publications, which are becoming more common, also contain papers that have been reviewed for quality criteria, and researchers will want to see whether the journal has a refereed review board with published quality standards for accepting articles for publication.

**Literature survey**

A review of similar and relevant books, papers, and reviews reveals a range of leads for more analysis that can help progress the research. A viable theory can be created, and key variables can be established.
The aim of conducting a Literature Survey is to show and expand your knowledge of other people's work that is important to the topic of your research. You usually survey their published work in books and scholarly journals, but you may also survey their speeches, documentary films, or other outputs.

The literature review plays a very crucial part in the research process. It is a source from which research ideas are drawn and developed into concepts and finally theories. It also gives the researcher a bird's eye view of previous studies in the field. A researcher may know where his or her thesis stands based on the findings of the literature review.

How can I identify the related materials? This research procedure involves a series of steps. The precise order can vary depending on the topic and the researcher's experience. A general approach suggested by O R Krishnaswami and M Ranganatham. That are following;

1. Request learned professors, librarians or others familiar with the field to suggest relevant references
2. Check the library and see if there is a bibliography on the topic that has already been prepared. If the library has one, look it up in the bibliographic catalogue.
3. Look up bibliographies on the subject and associated topics in the study.
4. Look at the library's card catalogues like author catalogue, subject catalogue
5. Examine the library's periodicals, monographs, papers, and conference proceedings, as well as other resources such as microfilms.
6. Look up references in the books and articles you've already found. Each book or article will serve as a resource for finding additional information.
7. Look for abstracts in a journal on the topic or in the “abstracts” column of a journal on the subject.
8. Look for “Book-Review” parts of daily newspapers and magazines.

Value of literature survey
• It demonstrates that you are aware of not only what you have done, but also what others have done in relation to your topic - the wider sense. If a researcher can educate people about previous studies and methodology, your readers may believe that you are at least interested in your topic, have initiative, and are well-informed and up-to-date.

• It demonstrates that you are intelligent enough to assess the quality of other work on the topic, i.e., that you are capable of critical thought and evaluating strengths and weaknesses. It allows you to explain how your project relates to other people's previous work on the topic.

• It tells the reader if you're only going to quote other people's work to get a better understanding, whether you're going to build on other people's work, or whether you're going to incorporate the methodology of two or more different approaches to solving an issue.

**Literature review**

When you start a research project, one of the first things you can do is read the current literature to familiarize yourself with the body of information in your field of interest. Examining the literature can be time-consuming, intimidating, and frustrating, but it can also be satisfying.

It aids you in establishing the theoretical foundations of your thesis, clarifying your ideas, and developing your research methodology in the early stages of your research. The literature review is used later in the process to strengthen and consolidate your own knowledge base and to help you integrate your results with the current body of knowledge. Since one of the most important responsibilities of science is to equate your results to those of others, the literature review is crucial.

It assists you in integrating your results with established information during the writing of your study – that is, to either endorse or refute previous research. The higher your research's academic standard, the more important it is to integrate your results with established literature.

A literature review has the following functions:

❖ It gives you a theoretical foundation for your research.

❖ It assists you in establishing connections between what you want to study and what has already been studied.

❖ It allows you to demonstrate how your results have added to the body of information in your field.
It aids in the integration of your research findings into the larger body of information.

**Purpose of review**

1- To gain an understanding of the research topic's context.

2- To classify the principles associated with it, as well as possible relationships between them, and to formulate testable hypotheses.

3- To determine the most suitable approach, study design, methods of evaluating concepts, and analytic techniques.

4- To locate data sets that have been used by other researchers.

5- To see how other people structured their papers

In relation to your own study, the literature review can help in four ways. It can:

❖ **Bringing clarity and focus to your research problem**

   A paradox exists in the literature review. On the one hand, you can't conduct a literature search effectively unless you have a clear understanding of the problem you're trying to solve. The literature review, on the other hand, will play a critical role in shaping your research problem because the process of reviewing the literature allows you to gain a deeper understanding of the subject area, which allows you to conceptualize your research problem more simply and accurately, making it more specific and applicable to your field of inquiry.

   When you study the literature, you will learn what aspects of your subject area have been studied by others, what they discovered about these aspects, what holes they discovered, and what recommendations they created for future studies. All of these will aid you in gaining a better understanding of your own research questions, as well as provide you with the clarification and emphasis necessary for a relevant and valid analysis. It will also assist you in concentrating your research on areas where there are holes in the current body of information, thus increasing its importance.

❖ **Improving your research methodology**

   Reading the literature will familiarize you with the methodologies used by others to find answers to similar research questions to the one you're investigating. A literature review will tell
you if others have used methods and approaches similar to yours, which ones have worked well for them, and what problems they've run into. If you are aware of any obstacles or drawbacks, you will be better prepared to select a methodology capable of providing accurate answers to your research query. This will increase your trust in the strategy you want to use and provide you with the resources necessary to defend it.

❖ **Broadening your knowledge base in your research area**

The most important goal of a literature review is to make sure you read thoroughly in the subject area where you intend to conduct your study report. It's critical to know what other researchers have learned about the same or similar issues, what theories have been formulated, and where gaps in the body of knowledge still exist. When working on a research project for a higher degree, you are expected to be an expert in your field of study. With the help of a thorough literature review, this requirement can be met. Another advantage of doing a literature review is that it helps you to see if the findings of your research fit with the broader body of knowledge.

❖ **Enabling you to contextualize your findings**

Seeking answers to your research questions is relatively simple; the challenging part is figuring out how your results fit into the larger body of knowledge. How do your study questions' responses compare to what others have discovered? What contribution have you been able to make to the body of information that already exists? How are your observations different from those of others? You may equate your observations to those of others and address these questions by doing a literature review. It's important to see your results in the light of what's already understood in your area.

**Planning the review work**

Getting facts from written sources and noting it down is often seen as a straightforward process that is taken for granted. If it is not well designed, however, it is performed badly.

This planning involves three steps:

1- To decide what knowledge is valuable and what is not: this is a difficult decision to make. The best approach is to determine the knowledge requirements of the research project at hand. The researcher should sketch out a rough outline of the subject in relation to the study's objectives. Even though this outline will change as more knowledge becomes available, it will serve as a guide for making the above decision.
2- To determine how to record what is gathered from a published material: Should the information be written down verbatim, illustrated, or paraphrased? Our works can include new concepts, points of view, findings from previous research, and arguments. Inverted commas may be used to document important definitions or sentences to be quoted verbatim. In a few cases, a paraphrase of the author's position might be appropriate.

3- To set up an orderly recording or note-taking system: Can notes taken from consulted sources be recorded in note books, loose sheets, or cards? The researcher must be motivated by the need for a good recording system when making this decision. Here are the requirements:

   a) The recording system should make it easy to find the recorded data when it's needed.

   b) It should allow for more flexible information management and organization. That is, it should allow for simple arrangement and rearrangement, which is critical for classification and interpretation of data when writing the study.

All notes pertaining to a specific concept or aspect of a subject should be kept in one place. The most appropriate way of recording notes is the card system, which is one of the most relevant facts. It satisfies all of the criteria for a successful recording device.

**Conclusion**

In social science, the ability to locate specific prior work is crucial. The vast increase in the volume and type of information, as well as the increasing complexity of interrelated areas of knowledge, has emphasized the importance of systematic searching, critical appraisal, and synthesized accounts of previous study. This entry will concentrate on a systematic and rational approach to literature finding using electronic databases, and will discuss the challenge of searching for applicable literature in the information age.

**2.3 Formulation of research problem – Research Questions, Objectives, Hypothesis, concepts, variables**

**Formulation of research problem**

You're ready to move on to the next phase in research study planning: clearly articulating the research issue, after you've chosen a particular research subject and conducted a comprehensive
literature review. The research issue is usually expressed as a short question about the relationship between two or more variables. Any question you want answered, as well as any theory or assertion you want to test or examine, can be turned into a research issue or a research subject for your study. It's important to note, though, that not all questions can be turned into research issues, and some might be incredibly difficult to investigate. Formulating a problem may seem simple to a beginner, but it requires extensive knowledge of both the subject area and research methodology. When you look at a topic more closely, you'll notice how difficult it is to turn an idea into a researchable issue.

The importance of formulating a research problem

The first and most significant step in the research process is to formulate a research problem. It's similar to deciding on a destination before embarking on a trip. It is difficult to determine the shortest – or indeed any – path in the absence of a destination. A simple and cost-effective plan is also unlikely without a clear research issue. A research issue is like the base of a house, to use another analogy. The foundation determines the form and style of the house. If the foundation is well-designed and solid, the building will be as well. A research study's foundation is the research dilemma, and if it's well-formulated, you can expect a successful study to follow.

- You must have a good understanding of what you want to learn about, rather than what you believe you must learn about. A research problem can take several different shapes, ranging from simple to complex.
- Almost every step that follows is determined by how a problem is phrased, including the type of study design that can be used, the sampling technique that can be used, the test instrument that can be used or created, and the type of analysis that can be done.
- Assume you want to do a research report on the resources available to depression patients who live in a community. If your goal is to learn about the different types of services available to patients with depression, your research would primarily be descriptive and qualitative. Qualitative analysis methodologies are used in these studies, which come under the category of qualitative research. On the other hand, even though it is descriptive in nature, if you want to figure out the level of use of these facilities, that is, the number of people who use them, you would almost certainly use quantitative methodologies. The research would be
categorized as correlational if the aim is to assess the level of usage in relation to the patients' personal characteristics.

In contrast to a descriptive analysis, the approach used in this case will be different. If the goal is to determine the efficacy of these services, the research will be categorized as correlational, and the study design, data collection techniques, and data analysis will all be part of the quantitative methodology.

As a result, it is critical that you recognise that the way you formulate a research issue decides all of the subsequent steps you must take along your research journey.

**Criteria for Research Problems**

Good research problems must meet three criteria;

- The research problem should characterize the relationship between two or more variables.
- The research issue should be formulated as a query.
- The study issue must be able to be empirically checked. i.e., with data derived from direct observation and experimentation.

**Sources of research problems**

The following are some of the resources that can help you find a research issue or build problem awareness:

- **Reading**: as we objectively examine books and articles about the topic of our interest, we can be prompted to ask pertinent questions. When we read research papers, areas of research can also come to mind.
- **Academic experience**: class lectures, class discussion, seminar discussion, and outside-of-class sharing of ideas with fellow students and professors can imply a variety of interesting problems to investigate.
- **Daily experience**: Life is dynamic. Every day, we learn new things and have new experiences. We can come across questions worth investigating if we are alert, inquisitive, and sensitive to life situations; “it is a mark of scientific talent to be sensitive to difficulty where less talented people move untroubled by doubts.” “The story about Newton justifies this. Though apples
might have fallen on the heads of people before Newton times, only the sensitive Newton applied his mind on this event which led to the discovery of “Law of gravitation”.

➢ Exposure to field situations: Field visits, internship training, and extension work expose students to real-world problems that need investigation.

➢ Consultation: Discussions with experts, analysts, administrators, and business executives may assist a researcher in identifying relevant research problems.

➢ Brainstorming: Intense debate among a group of people who are interested in a problem can also lead to the identification of relevant questions and the development of new ideas about the problem.

➢ Research: Research on one problem could lead to the discovery of new problems that need to be investigated further.

➢ Intuition: Fresh ideas can flash through one's mind at any time. A wellspring of wisdom is the reflective mind.

Considerations in selecting a research problem

It is important to keep this in mind so that your studies are manageable and you stay inspired. These are the factors to consider:

• Interest – When choosing a research problem, the most important factor to consider should be interest. A research project normally takes a long time to complete, and it entails a lot of hard work as well as the possibility of unexpected issues. If you choose a subject that does not pique your interest, it will be difficult to maintain the necessary motivation and devote the necessary time and effort to complete it.

• Magnitude – You should be familiar enough with the research method to be able to visualize the time and effort required to complete the proposed analysis. Reduce the subject to something manageable, descriptive, and easy to understand. It's critical to choose a subject that you can handle with the time you have and with the resources you have. Even if you're doing a descriptive study, you should keep the scope in mind.

• Measurement of concepts – If you're using a definition in your research (especially in quantitative studies), make sure you understand the metrics and how they're measured. If you want to assess the efficacy of a health promotion programme, for example, you must be specific about what constitutes effectiveness and how it would be assessed. While the
majority of the development work will be completed during your studies, it is critical that you have a good understanding of how these principles will be measured at this stage.

- **Level of expertise** – Confirm that you have the skills for the role you're proposing. Allow for the fact that you may learn during the analysis and will obtain assistance from your research supervisor and others, but keep in mind that you will be responsible for the majority of the work.

- **Relevance** – Choose a subject that is pertinent to your career. Ascertain that your research contributes to the body of information, fills in gaps, or aids policy formulation. This will assist you in maintaining your interest in the research.

- **Availability of data** – Ensure that you can collect necessary primary data on the topic. If your topic requires the collection of data from secondary sources (office records, client records, census data, or previously published papers, for example), make sure that this data is accessible and in the format you need before finalizing your topic.

- **Ethical issues** – The ethical problems involved in formulating a research problem are another critical factor. The sample population may be adversely affected (directly or indirectly) by any of the questions; deprived of an intervention; required to share confidential and private information; or expected to be essentially experimental "guinea pigs" during the process of conducting a research study. At the problem-formulation point, it should be extensively discussed how ethical issues can impact the research population and how ethical problems can be solved.

**Formulation of the selected problem**

**Introduction**

The research problem chosen may appear to be ambiguous at first. It's possible that the research issue or the problem to be solved isn't simple. It's also possible that the reason for the answer/solution is unknown. As a result, the chosen problem must be defined and formulated. This is a challenging procedure. It necessitates a thorough reading of a few selected articles or book chapters in order to comprehend the essence of the chosen issue. At this stage, the reading should be limited to 'classics' and research papers on the topic. The researcher should read such selected literature, digest them, think about them, and focus on them. He should also consult with
knowledgeable people. Only then will he be able to gain insight into the chosen problem and describe and formulate it.

What is Formulation?

Formulation refers to the process of converting a research issue or subject into scientifically researchable questions. It is concerned with defining the study issue and why it is being studied. Both the what and why should be addressed in the formulation.

Merton identifies three key elements in the progressive formulation of a research issue;

❖ The originating question (what ones want to know?)

It expresses the nature of the problem. It may be of various types. It may call for the discovery of new and more decisive evidence about the topic of study; it may call into question the adequacy of such concepts; it may be related to scientific validity; or it may be related to an organization's structure.

❖ The rationale of the question (why aspects)

The statement of the reasons for posing a specific question is known as rationale. It explains how the answer to the question would benefit theory and/or practise. The logic aids in distinguishing between scientifically significant and unimportant issues. In a way, it "presents the case for the issues in a court of scientific opinion."

❖ The specifying questions (possible answers to the originating questions)

The original question is broken down into a series of sub-questions in order to find the observation/data that will answer them. Easy, pointed, logical, and empirically verifiable questions should be asked. They're referred to as "investigative" questions. Only by synthesising such unique questions can the answer to the problem chosen for study be found. Theoretical/systematic understanding and/or experience are both affected by this approach.

Steps in formulating research problem

There are several steps involved in formulating a research issue. Working through these steps requires a clear level of understanding of the broad subject area in which the analysis will be conducted as well as the research methodology. A quick analysis of applicable literature will greatly aid in expanding this knowledge base. It is difficult to simply and accurately 'dissect' a
subject area without such information. If you are unsure about a particular research subject, concept, concern, or problem to investigate. Go through the following steps first:

Step 1: Identify a broad field or subject area of interest to you- to consider the area in which you would like to work after graduation. This will assist you in identifying a subject that is both interesting and useful to you in the future.

Step 2: Dissect the broad area into sub areas - You may go through this dissection process for any subject area from other fields. You should also consult those who have some knowledge of the region and the literature in your subject area while making this list of subareas. After you've compiled an exhaustive list of subareas from different sources, you'll move on to the next phase, which is deciding what will be the focus of your investigation.

Step 3: Select what is of most interest to you. It is neither advisable nor practical to investigate every subarea. Choose issues or sub areas that you are passionate about from this list. This is because, despite the other factors discussed in the previous section, your interest should be the most significant determinant for selection. Starting with the method of elimination is one way to figure out what interests you the most. Go over your list and cross off any subtopics that don't pique your interest. You're able to move on to the next level until you're certain you've chosen a topic you care about and can handle.

Step 4: Raise research questions. Ask yourself, "What is it that I want to learn about in this subarea?" at this point. Make a list of any questions that come to mind about your chosen subarea, and if you think there are too many to handle, go through the elimination process.

Step 5: Formulate objectives. Your key objectives and sub objectives, which are derived from your research questions, must now be defined. The most significant distinction between goals and research questions is how they are written. Obviously, research questions are just that: inquiries. Using action-oriented terms like 'to find out,' 'to assess,' 'to ascertain,' and 'to investigate,' objectives turn these questions into behavioural goals. Some researchers tend to work backwards, starting with goals and formulating research questions from there. Some researchers are content with only asking questions and don't bother to set any goals.

Step 6: Assess your objectives. Examine your priorities now and see if they're feasible to achieve through your research project. Consider them in the context of the time, financial and human capital, and technological skills you have at your disposal.
Step 7: Double-check. Return to the analysis and consider whether you are adequately interested in it and have the necessary resources to complete it. "Am I really excited about this study?" and "Do I really have enough money and resources to complete it?" are two questions to ask yourself. Respond to these questions with care and realism. If you answered no to one of them, reconsider your goals.

**Conclusion**

The primary goal of study is to collect relevant data and analyse it in order to address the research questions. The proper completion of this task is contingent on the precise identification of data and information needed for the analysis. This is what the formulation is about. The precise data needs of the research are determined by the clear and accurate statement of the issue, the creation of the conceptual model, the specification of the study's goals, the setting of investigative questions, the formulation of theories to be tested, and the operational definition of concepts and the study's delimitation.

The researcher will prepare and perform the remaining steps without wasting time and energy once the exact data requirement is understood. As a result, formulation gives the research effort a direction and a clear emphasis. It aids in the delimitation of the field of inquiry by separating the relevant facts from a large ocean of facts, preventing the researcher from being lost in a welter of irrelevant information. The formulation method avoids a blind search and indiscriminate data collection, which could later turn out to be unrelated to the issue under investigation.

**Research questions**

**Introduction**

The primary benefit of framing the research question is that it narrows down a wide field of interest into a particular study area. Hypotheses and study problems both act as a driving paradigm for research. These questions often show the study's parameters, establishing its limits and maintaining continuity. Furthermore, the research topic has a cascading impact on the remainder of the research. The research methodology, sample size, data collection, and data analysis are all influenced by these concerns.
Research question

The aim of a study or research project is to address a research question. This question often refers to a problem or issue that is addressed in the study's conclusion by data analysis and interpretation. The research question in most studies is written to describe different aspects of the analysis, such as the population and variables to be analysed, as well as the issue that the study solves.

Study questions, as their name suggests, are often based on research. As a result, these questions are complex, which means that as researchers review relevant literature and create a context for the analysis, they may modify or refine the research question. Although several research projects concentrate on a single research issue, broader studies often employ multiple research questions.

Researchers use signposts in their studies to guide the reader through a study plan. The intent statement, which defines the study's central course, is the first signpost. The researcher narrows the emphasis from the vague, general purpose statement to specific questions to be answered or predictions (i.e. hypotheses) to be tested.

Research questions for a dissertation or project exhibit the following characteristics.

- They should be clear, in the sense of being intelligible.
- They should be researchable- That is, they should permit you to conduct research on them. This means they shouldn't be phrased in such abstract terms that they can't be translated into researchable terms.
- They should have some connection(s) with established theory and research. This means that you should be able to rely on a body of knowledge to help you figure out how to approach your research questions. Even if you come across a subject that has received little attention from social scientists, there is likely to be important literature.
- Each of your research questions should be connected to the next. Since you should be forming a case in your dissertation, unrelated research questions are unlikely to be suitable. You couldn't easily put together a single case based on unrelated research questions.
- They should at the very least offer the possibility of making an original contribution to the subject
• The research questions should not be too wide or too narrow.

General and Specific research questions

Research questions guided by empirical study. Identifying a research field and then developing questions within that area, working deductively from general to specific questions, is one way to arrive at research questions. Another approach is more inductive: start with a few basic questions and work your way back to more general ones. It's crucial to understand the difference between general and unique research questions, or questions and sub-questions.

Our thinking is driven by general research questions, which are helpful in organising the project, but they are not precise enough to be answered. The general question should preferably be followed by specific research questions (s). They are the questions that are actually addressed in the study, and they guide the analytical procedures. Identifying and separating the general and relevant research issues is helpful in preparation.

Sources and types of research areas and topics are discussed by Marshall and Rossman, Campbell, Zuckerman, Neuman suggested seven ways of selecting topics; personal experience, curiosity based on something in the media, the state of knowledge in a field, solving a problem, 'social premiums', personal values and everyday life. Identifying a field, regardless of the method of selection, allows the researcher to relate the work to the research literature. However, defining the field is just the beginning; the researcher must then formulate both broad and detailed research questions.

Starting with a particular question, work your way up in generality and abstraction, to more general research questions, and finally to the research field. It makes no difference which of these methods is used or whether they are combined. What matters is how the questions are created, where they are located within a research field, and how they are organised into general and specific research questions.

Developing research questions

• First and foremost it creates possibilities. At this point, answers to the question "What are we trying to find out?" are only speculative. We don't want to rush to a final collection of questions
because we might miss something important. While there is no limit to the number of possibilities that can be created, we must leave enough time to explore them.

- Second, it is a combination of question subdivision, in which we break down a broad question into its component sections, and question disentanglement, in which we separate the various questions from one another.

- It’s about putting these questions in order and gradually narrowing the emphasis. To get a stable view of what one is trying to find out, it is generally an iterative process. There are advantages of doing some of this work with others, such as another student or a small group of supervisors, colleagues, or other researchers. Others will frequently see concerns that the individual researcher could overlook, and conversation with others may also serve as a catalyst for thinking more deeply, and even differently, about the subject.

- After a period of question growth, the whole thing has usually grown, often dramatically. This can be stressful, but it is essential for the majority of projects. In reality, if it doesn't, we should be worried, as it could indicate a lack of question creation work. As a result, it should be encouraged as an essential step, within reason.

- Probing, investigating, and seeing other options with a subject may be beneficial before settling on concrete project directions. Disentangling and ordering are needed when a small set of starting questions has multiplied into a larger set. Since one question often contains other questions, disentangling is needed. The act of ordering entails categorising and grouping questions together. This would quickly become hierarchical, allowing general and particular research questions to be distinguished.

- The final stage entails growing the project's scale, as it has normally become too large. In reality, it most likely denotes a research programme that has already produced many research projects. What is the procedure for trimming? It's critical to determine which problems are achievable within the project's functional constraints and which seem to be the most relevant. Even if the project requires a grant and a team of researchers, there are bounds to every project.

The principle here is that it is better to do a smaller project thoroughly than a larger project superficially. Trimming a project down to size is a matter of judgement, and experience in research has a big role to play here. As a result, it is best to complete this stage in collaboration with others. This stage is also known as project delimitation. This entails defining the parameters and indicating what is and is not included in the project.
Research question- In Qualitative research

In a qualitative study, the research questions are stated rather than the goals or hypotheses. There are two types of research questions: a central question and related sub questions. The central question is a broad statement of the question under investigation in the report. In keeping with the new technique of qualitative analysis, the inquirer raises this question as a general problem in order to avoid narrowing the scope of the investigation.

John w. Creswell in his book, “Research design; Qualitative, Quantitative, and mixed methods approaches” points out the significant guideline to qualitative and quantitative research questions.

The following are guidelines for qualitative research questions:

❖ A researcher will ask one or two main questions, followed by five to seven sub questions. Each general central question is followed by several sub questions, each of which narrows the study's emphasis while leaving the questioning open. These issues are addressed in depth in interviews, observations, and documentation and archival content. They could, for example, be used as key questions for the researcher to ask during the observation process or during an open-ended interview.

❖ Relate the central topic to the qualitative research approach. The research questions may be based on previous research. Instead of being proved "truths," these issues become "working guidelines." To express an accessible and evolving style, begin the research questions with the words "what" or "how." The word "why" conjures up images of cause and effect, which is a popular method in quantitative analysis.

❖ Concentrate on a particular phenomenon or idea.

❖ Use exploratory verbs to express the vocabulary of a new research style. These verbs inform the reader that the research will be conducted.

- Discover (e.g., grounded theory)
- Seek to understand (e.g., ethnography)
- Explore a process (e.g., case study)
- Describe the experiences (e.g., phenomenology)
- Report the stories (e.g., narrative research)

❖ Use nondirectional language. Delete words that suggest or infer a quantitative study, words with a directional orientation such as “affect,” “influence,” “impact,” “determine,” “cause,” and “relate.”

❖ Expect the research questions to alter and develop over the course of the analysis, in line with the assumptions of an evolving design. The questions in qualitative research are often revised and reformulated. This method can be difficult for those who are used to quantitative research designs in which the research questions are set during the analysis.

❖ Unless a qualitative strategy of inquiry specifies differently, use open-ended questions with no reference to the literature or theory

❖ Specify the participants and the test site for the study if the information is not redundant with the intent statement.

Research question- In Quantitative research

Investigators in quantitative studies use research questions and hypotheses to form and concentrate the study's intent. The investigator tries to address research questions and interrogative comments or questions. They're commonly used in social science research, especially in survey studies. Hypotheses, on the other hand, are the researchers' predictions about the relationship between variables. They're numerical projections of population values based on survey results. Statistical methods are used to test theories, and the investigator draws inferences about the population from a research sample. Hypotheses are often used in experiments where researchers compare classes. Advisers also suggest including them in a structured research project, such as a dissertation or thesis, as a way of stating the study's course.

Objectives, on the other hand, indicate the goals or objectives for a study. They are used infrequently in social science research. As such, the focus here will be on research questions and hypotheses.

Guidelines for writing good quantitative research questions and hypotheses include the following.

➢ There are three popular approaches to using variables in research questions or hypotheses. To see how an independent variable affects a dependent variable, the researcher will compare groups on that variable. Alternatively, one or more independent variables may be linked to a
dependent variable by the researcher. Third, responses to independent, mediating, or dependent variables may be described in the study.

➢ A test of a hypothesis and the formulation of research questions or hypotheses that are included in the theory result in the most comprehensive method of quantitative research, in which the independent and dependent variables must be evaluated separately. This technique confirms quantitative research's cause-and-effect logic.

➢ If the hypotheses expand on the research questions, write just research questions or hypotheses to avoid duplication (as discussed below). Choose a method based on tradition, an adviser's or faculty committee's advice, or whether previous research suggests a conclusion about outcomes.

There are two types of theories that can be used: null and alternative hypothesis. The conventional method of writing hypotheses is to use a null hypothesis. It predicts that there is no association or discrepancy between groups on a variable in the general population.

Research question- In Mixed method research

Since too little literature has discussed this design phase in mixed methods research, writing research questions (or hypotheses) may be difficult. There are few models upon which to construct guidelines for writing research questions for mixed methods studies. It is possible to define some characteristics that could direct the design of the questions by analysing a number of these studies.

- To narrow and concentrate the intent statements, mixed methods studies must include both qualitative and quantitative study questions (and hypotheses).
- The qualities of effective questions and hypotheses already discussed in the quantitative and qualitative methods must be included in these questions and hypotheses.
- It is difficult to specify the second phase issues in a proposal or strategy for a two-phase, sequential project in which the second phase elaborates on the first phase. The researcher will state the questions from both phases in the final report after the analysis is completed. Since one set of questions is not dependent on the other set of questions in a single-phase project, the qualitative and quantitative research questions can be identified in the proposal.
- The order in which the research questions and theories are presented should be considered. In a two-phase project, the first-phase questions will come first, followed by the second-phase
questions, so that readers would see them in the order in which the planned research would answer them. The questions in a single-phase strategy of inquiry may be arranged according to the approach that is given the most weight in the design.

- The introduction of the questions at the beginning of each step is a common variation seen in sequential mixed methods studies.

Conclusion

Before beginning any research, you must first formulate a research question. Its aim is to investigate an area of concern where there is currently some confusion, indicating the need for further investigation. As a result, it is critical to develop good research questions. A good research question is the foundation of good research, which is critical for unravelling natural mysteries and providing insight into an issue. A research question seeks to investigate an existing ambiguity in a problematic field and indicates the need for further study. A good research question aids in the creation of a rational argument and the support of an oriented arguable thesis.

The formulation of research objectives

Introduction

The research goals should be closely linked to the problem statement and should summaries what you plan to accomplish through the analysis. A research goal is a declarative, straightforward assertion that directs the investigation of the variables. The study's aim determines the research objectives. In general, research objectives concentrate on how to quantify factors, such as identifying or describing them. The aim of certain objectives is to determine the relationship or difference between two variables. Make sure that your goals are within the range of outcomes that can be anticipated given the time, capital, and human resources.

Characteristics of research objectives

❖ A research goal is a specific assertion that describes what the study is attempting to accomplish. A well-worded objective will be SMART, i.e., Specific, Measurable, Attainable, Realistic, and Time-bound.
❖ Research objective should be Relevant, Feasible, Logical, Observable, Unequivocal and Measurable.
An objective is a goal that can be fairly accomplished in the time allotted and with the resources available.

Writing your research objectives clearly helps to:

- Define the focus of your study
- Clearly identify variables to be measured
- Indicate the various steps to be involved
- Establish the limits of the study
- Avoid collection of any data that is not strictly necessary.

Types of objectives

The objectives are the targets you set for yourself in your research. Since these goals tell the reader what you want to accomplish with the research, it's critical to word them explicitly and precisely.

Objectives should be listed under two headings:
- Main objectives;
- Sub objectives.

The main objective is to provide an overview of the main points of your research. It's also a declaration of the key connections and relationships you want to make or create. Under the main context of your research, the sub objectives are the basic aspects of the subject that you want to explore.

Sub Objectives should be described numerically. They should be written in a simple and unambiguous manner. Make sure each sub objective only covers one part of the research. When writing the goals, use action-oriented terms or verbs. The objectives should begin with terms like "determine," "find out," "ascertain," "measure," and "explore."

The wording of your research's key objectives and sub objectives decides how it is classified (e.g. descriptive, correlational or experimental). To put it another way, the way you phrase your goals defines the sort of research design you'll need to achieve them. As a result, pay attention to how you phrase your goals.
Regardless of the type of study, the goals should be stated in such a way that the language expresses your purpose to your readers simply, absolutely, and explicitly. Ambiguity, non-specificity, or incompleteness have no place in either the wording of the goals or the concepts they convey.

If your research is mainly descriptive, your primary goal should clearly identify the study's main focus, including the organisation and its location unless they are to be kept confidential. If the research is correlational, the main goal should also include the main variables that are being correlated. The wording of the key objectives should also reflect the course of the relationship being studied if the overall thrust of your research is to test a hypothesis.

**Conclusion**

The goals should be outlined in a clear and succinct manner. Ascertain that the priorities follow a reasonable path from the statement of need and that they resolve the problem. They present the various aspects of the issue and their contributing factors in a rational and coherent manner. The goals are explicitly stated in organisational terms, stating precisely what the researcher will do, when they will do it, and why they will do it. They are rational in light of the surrounding circumstances. As far as possible, state the goals in terms that can be measured or at the very least observed – quantifiable. Use action verbs with enough specificity to be tested.

**Hypothesis**

**Introduction**

The design of a hypothesis is an important factor in the formulation of a research problem in research. Hypotheses give a research issue clarity, specificity, and emphasis. In certain cases, the hypothesis is thought to be the most important tool in science. The main purpose is to generate new ideas for experiments and observations. Indeed, several studies are conducted with the explicit goal of testing hypotheses. Decision-makers often encounter scenarios in which they want to test theories based on available data and then make decisions based on the results. In social science, where direct knowledge of population parameter(s) is uncommon, hypothesis testing is a popular technique for determining whether sample data support a hypothesis sufficiently to allow generalisation. As a result of hypothesis testing, we can make probability claims about population parameters (s).
What is hypothesis?

The word hypothesis consists of two words- Hypo+Thesis. ‘Hypo’ means tentative or subject to the verification. ‘Thesis’ means a statement about the solution of the problem. Thus the literal meaning of the term hypothesis is a tentative statement about the solution of the problem. Hypothesis offers a solution of the problem that is to be verified empirically and based on some rationale. Again, ‘hypo’ means the composition of two or more variables which are to be verified and ‘thesis’ means position of these variables in the specific frame of reference.

When people speak about hypothesis, they usually mean a simple inference or a supposition that needs to be proven or disproved. A hypothesis, on the other hand, is a formal question that a researcher wants to answer. As a result, a hypothesis can be described as a proposition or a collection of propositions put forward as an explanation for the occurrence of a certain group of phenomena, either as a provisional speculation to direct some investigation or as a highly probable explanation in light of known facts. A research hypothesis is frequently a predictive statement that connects an independent variable to a dependent variable and can be evaluated using scientific methods.

Definition

❖ Kerlinger: - A hypothesis is a conjectural statement of the relationship between two or more variables.
❖ Black and Champion: - hypothesis as ‘a tentative statement about something, the validity of which is usually unknown’
❖ Bailey: hypothesis as: a proposition that is stated in a testable form and that predicts a particular relationship between two (or more) variables. In other words, if we think that a relationship exists, we first state it as a hypothesis and then test the hypothesis in the field.
❖ Grinnell:- A hypothesis is written in such a way that it can be proven or disproven by valid and reliable data – it is in order to obtain these data that we perform our study.

Characteristics of hypothesis:

Hypothesis must possess the following characteristics:

- Hypothesis should be clear and precise. If the hypothesis is not clear and precise, the inferences drawn on its basis cannot be taken as reliable.
• Hypothesis should be capable of being tested. A hypothesis “is testable if other deductions can be made from it which, in turn, can be confirmed or disproved by observation.”
• Hypothesis should state relationship between variables, if it happens to be a relational hypothesis.
• Hypothesis should be limited in scope and must be specific. A researcher must keep in mind that narrower theories are more testable, and he should establish them.
• The hypothesis should be explained in as clear a manner as possible so that anyone involved can understand it. However, it is important to note that the simplicity of a theory has little to do with its importance.
• The hypothesis should be compatible with the majority of known evidence, or with a large body of proven facts. To put it another way, it should be the one that judges believe is the most probable.
• A hypothesis should be testable in a reasonable amount of time. Even the best theory should not be used if it cannot be tested in a reasonable amount of time, since one cannot spend a lifetime gathering data to test it.
• The evidence that led to the need for clarification must be explained by hypotheses. This implies that by combining the hypothesis with other well-known and accepted generalisations, the original problem condition can be deduced. As a result, a theory must actually explain what it appears to explain, and it must be supported by empirical evidence.

The functions of a hypothesis

Although some researchers conclude that a hypothesis is required to perform a study, as previously stated, a hypothesis is not required. A hypothesis, on the other hand, is critical for clarifying the research issue. A theory, in particular, serves the following functions:

➢ The formulation of a hypothesis helps to focus an analysis. It instructs you on which aspects of a research issue to look at.
➢ A hypothesis directs what data to collect and what not to collect, giving the research direction.
➢ The development of a hypothesis improves objectivity in an analysis by providing a focus.
➢ Using a hypothesis, you can be able to contribute to the formulation of a theory. It allows you to come to a conclusion as well as what is real and what is false, in particular.
➢ It provides a foundation for determining the details of what to study and can provide potential solutions to the issue.
➢ It could contribute to the formulation of a new hypothesis.
➢ A preliminary hypothesis could evolve into a final hypothesis.
➢ Each hypothesis provides the investigator with a clear argument that can be critically checked and approved or rejected, as well as directions for evaluating findings and drawing conclusions that are relevant to the original goal.
➢ It establishes the scope of the inquiry.
➢ It sensitizes the researcher, making him more selective in his work and more practical in his approach to the issue.
➢ It provides a straightforward method for gathering evidence for proof.

Types of Hypotheses

Hypotheses are classified in several ways. With reference to their function, hypotheses are of two types: (a) Descriptive Hypotheses and (b) Relational Hypotheses. Another approach is to classify them into: (c) Working Hypotheses, (d) Null Hypotheses and (e) Statistical Hypotheses. Third approach is to divide them on the basis of the level of abstraction. Three broad levels may be distinguished: (i) simple description, (ii) logical derivation, and (iii) abstraction. Accordingly there are three types of hypotheses: (f) common-sense hypotheses, (g) complex hypotheses and (h) analytical hypotheses.

➢ Descriptive hypotheses: These are propositions that describe the characteristics (such as size, form or distribution) of a variable. The variable may be an object, person, organisation, situation or event. Some examples are:
E.g. “The rate of unemployment among arts graduates is higher than that of commerce graduates.”

➢ Relational hypotheses: These are propositions, which describe the relationship between two variables. The relationship suggested may be positive or negative correlation or causal relationship.
Some examples are:
“Families with higher incomes spend more for recreation.”
“The lower the rate of job turnover in a work group, the higher the work productivity.”

“Labour productivity decreases as working duration increases.”

➢ Causal hypotheses: in terms of causal hypotheses, the presence of, or a change in, one variable causes or contributes to an effect on another variable. The independent variable is the first, and the dependent variable is the second. When dealing with causal relationships between variables, the researcher must consider which is the cause and which is the consequence.

➢ Working hypotheses: While planning the study of a problem, hypotheses are created. Initially they may not be very specific. They are referred to as "Working Hypotheses" in such situations, and they are subject to change as the investigation progresses.

➢ Null hypotheses: These are irrational claims that refute what working hypotheses specifically say. They don't exist in fact, and they never did. They say that there is no difference between the parameter and the statistic to which it is being compared. Even if there is a relationship between a family's income and recreational spending, a null hypothesis could state: "There is no relationship between families' income levels and recreational spending." Null hypotheses are used to assess statistical significance and they are a simple way to do statistical analysis. They're named that because the test will rule out the null hypotheses.” Null hypotheses are formulated for testing statistical significance, since this form is a convenient approach to statistical analysis. As the test would nullify the null hypotheses, they are so called.

The use of null hypothesis has some justification. They have the characteristics of objectivity and detachment that a researcher should have. It seems that he is not acting critically while attempting to test a theory that he believes to be valid. When he uses null hypotheses, this dilemma does not occur.

Furthermore, null hypotheses are more precise. It's much easier to dismiss the opposite of a theory than it is to test it with absolute certainty. As a result, the principle of null hypothesis has proven to be extremely useful.

Statements about a statistical population are known as statistical hypotheses. These are the results of a sample. They are quantitative in nature so they can be measured numerically.

e.g., “Group A is older than Group B.
Statistical hypotheses may be either difference or association hypotheses, with the latter describing the relationships between variables. The coefficient of correlation is used to calculate this relationship; for example, if the coefficient of correlation between bonus and productivity is +1.0, then there is a perfect positive correlation between the two.

➢ Common sense hypotheses: These are the thoughts that are common sense. They say that empirical uniformities can be detected by day-to-day observations. Many empirical uniformities can be found in business establishments, worker social backgrounds, and complex group activity trends.

➢ Complex hypotheses: These are designed to see if there are any logically deduced associations between empirical uniformities. Human ecology, for example, defined empirical uniformities in the distribution of land values, industrial concentrations, business forms, and other phenomena in its early stages.

➢ Analytical hypothesis- This is about the relationship between analytic variables. These hypotheses can be found at the most abstract level of abstraction. These define the relationship between one property's change and another's change.

The Process of Setting up Hypotheses

• How does a researcher go about formulating hypotheses for his or her research question?
• The researcher should classify the expected or potential answers to the investigative questions once the investigative questions have been set up for each of the objectives. This process will be supported by a review of relevant hypotheses and previous research, as well as discussions with other scientists.
• Researchers should then write down such responses as descriptive, relational, or causal theories, depending on the situation. He should assess these preliminary hypotheses in terms of their characteristics, then refine and report them as rational and testable hypotheses, following the guidelines outlined below.

Rules of Constructing Hypotheses

Smith, H W. in his book, Strategies for social research-The methodological imagination, suggests certain rules of constructing good hypotheses, Search for variable measurements with the most
quantitative characteristics available. In research, precise quantitative analysis is more important than qualitative characteristics.

Techniques and problems of theory creation in sociology, by Gerald Hage, outlines methods for finding and constructing variables from non-variable definitions.

1- The researcher will look for underlying non-variable definitions that have implied dimensions. Campbell's analysis of the non-variable concept "social group" is a clear example of this approach. Degrees of proximity have four fundamental dimensions, according to him. Similarity, a sense of shared destiny, and a sense of spatial pattern

2- Through comparing conceptual synonyms of analogies, one may generate new variables. For example, in Price's analysis of organisational measurement, terms like "participation in decision making," "organisational control," "power," and "influence" refer to the degree of organisational centralization.

3- In social science, cognitive dissonance theory got its start by searching the literature for seldom occurring correlations between phenomena.

4- By ordering several definitions from more abstract to less abstract, one can create new variables.

Apart from these, the following points are also consider while constructing hypothesis.

✓ Make the variable scale properties explicit by stating all of the variable’s mutually exclusive and totally inclusive categories by degree. For example, a variable like “income” may be categorized as (1) upto Rs. 500 per month, (2) Rs. 501 to 1,000, (3) Rs. 1.001 to 2,000, (4) Rs. 2,001 and above, levels of bureaucratic structure may be defined by (1) 1 to 3 levels, (2) 4 to 10 levels, (8) 11 or more levels

✓ Describe in sufficient detail the methods used to sort observations into your variable categories so that your methods can be tested and repeated by others.

✓ Analyse variables through their relationships. Non-ratio one-variable distribution is arbitrary, since it has no intrinsic lower boundary.

✓ Link two or more formal propositions through a shared independent or dependent variable wherever possible.

For example, form the following concrete observations-
1. Married persons are less likely than unmarried persons to commit suicide.

2. Married persons with children are less likely than married persons without children to commit suicide.

The following abstract formal hypotheses may be inductively produced:

1. Suicide rates vary directly with the degree of individualism,

2. Suicide rates vary indirectly with the degree of group cohesion

**Difficulties in the Formulation of Useful Hypothesis:**

The study to demonstration process requires moving from the operational to the conceptual stage and vice versa. The following are some of the difficulties in developing a hypothesis:

- Lack of understanding of a well-defined theoretical context.
- Inability to apply the theoretical concept in a rational manner.
- Lack of familiarity with available testing techniques, resulting in an inability to correctly phrase the hypothesis.

**Conclusion**

Hypotheses are important because they can give a research study direction, specificity, and emphasis. They instruct a researcher about what particular data to obtain, allowing for greater emphasis. Hypotheses are built on the same logic. As a researcher, you do not know anything there is to know about a phenomenon, a circumstance, the incidence of a disorder in a population, or the result of a programme, but you do have a hunch that can be used to make conclusions or guesses. You test these, usually one at a time, by gathering data that will allow you to determine if your hunch was correct. There are three possible outcomes from the verification process. Your hunch could turn out to be correct, partially correct, or incorrect. You can't draw any conclusions about the validity of your assumption without going through this verification process.

**Concepts**

Introduction

Concepts can be found in the title of the research issue, the study's goals, the investigation questions, and the hypotheses. Those definitions should be described in detail. This is a crucial step in the research problem formulation process. The study's knowledge requirements are
determined by the meanings of concepts. As a result, detailed descriptions of concepts are critical for planning the research process's subsequent steps.

As a result, a concept is an abstract symbol that represents an entity, a property of an object, or a phenomenon, such as a book, an individual, intellect, or a meeting. It is a derivation from perceptual experiences. A definition such as "aggression," "frustration," or "political engagement" encompasses a variety of events under one umbrella term. As a result, "a term is in reality a shorthand description of a class or category of facts." "The aim is to present the thought about phenomena, events, and processes in a condensed form."

**Significance**

The importance of concepts stems from their ability to convey knowledge about empirical experiences in the form of pictures. Researchers may transfer a whole framework of knowledge gained by research to their colleagues and the general public by using concepts.

Useful definitions are abstracted generalisations of scientific phenomena. For example, the term weight denotes a property shared by a variety of physical objects. "Income is a characteristic that is shared by many people. The value of a definition is determined by how well it allows for meaningful classification of artefacts or traits." Concepts are therefore tools for not only communication but also for making broad generalisations.

"As generalizations, concepts are useful for constructing assumptions. The liking of two or more concepts leads to the generation of assumptions, such as "if concept A, then concept B" or "the greater A, the smaller B." The combination of a number of assumptions into a system leads to the construction of Formal theories. For example, people belong to various levels of "social class "another concept democratic participation" an assumption Democratic participation covaries with social class'-- be constructed. The addition of a number of further interrelated assumptions will bring about a formal theory from which researchers may deduce propositions".

**Characteristics of Concepts**

Concepts have several Characteristics. It is important for a researcher to understand them.

1. Concepts are symbols that we use to represent a set of meanings.
2. Concepts only reflect a portion of truth. That is, we extract only a subset of the object's context or consequences for our purposes. A word like book, for example, can mean different things to different people depending on their needs. It is an embodiment of the author's organised thoughts to the author; it is a tangible entity of a given weight and volume to the publisher and seller.

3. As a result, different people have different ideas about the same thing.

4. Concepts may also be used to represent different levels of abstraction. A particular calculator, for example, is considered a mechanical device for performing mathematical computations at a first level of abstraction. It may be classified as office equipment at the third level. Each of these levels of definition abstraction serves a different function. The first level is important for a study of computation satisfaction; levels 2 and 3 may be of interest for a study of office productivity.

**Types of Concepts**

Concepts may be classified into (a) Abstract concepts (b) Concrete concepts

- Weight, height, attitude, intelligence, and leadership are examples of abstract terms that refer to properties or features of objects. They're constructs, which means they're made up of conclusions based on observable occurrences. They represent inferences "at a higher degree of abstraction from concrete events," and their meaning is difficult to express simply by pointing to specific objects, people, or occurrences.

- Concrete concepts symbolize material objects, which can be seen, touched and felt, e.g., book, table, building.

**Operational definition**

This is the quantification of a nominal concept, or a definition expressed in terms of precise measuring or evaluating parameters or operations. This description details the procedures for observing, measuring, and recording the phenomenon represented by the term. These requirements should unambiguously identify an individual, behaviour, condition, or phenomenon. The criterion should also be objective enough that any qualified analyst may use the description to achieve the same results. The following are some examples of descriptive and operational meanings of concepts:
Variables can only be evaluated with accuracy and consistency using operational definitions, and theories can only be checked using the corresponding empirical findings.

**Steps in Operationalization of Concepts**

The means by which we measure variables are operational descriptions of concepts. In a research project, they are always required. Operationalization, or the process of identifying concepts operationally, is a difficult activity that necessitates thorough awareness and critical thought. To achieve a measurement, a sequence of steps or procedures must be followed. The following are the major steps in the operationalization process.

The major concepts should be chosen from the title of the research issue, the study goals, the investigation questions, and the hypotheses. He should try to operationalize each of those Concepts by doing the following:

1. Look for the concept's meaning in the written literature—books, journal papers, research studies, and so on—while keeping the chronology of the definitions in mind.

2. Examine the different applications of the definitions and their apparent sense components. For example, the idea of political participation includes elements such as (a) voter awareness, (b) citizen awareness, (c) an overview of contesting parties' manifestos, political theory, and economic policy, and (d) choosing a specific party and voting for it.

3. Determine the significance element's measurement criteria and the quantitative measures that should be used to meet those criteria.

4. Create a rough description based on the measurement axis or, in certain cases, the measurement scale.

5. Give the definition as much constructive feedback as possible.

6. Make a final revision based on the valid criticism you've got.

7. Assess the degree of agreement between the conceptual and organisational definitions of the term. If "intelligence" is conceptually described as "the ability to think abstractly," and operationally by an 'intelligence test' what is the congruence between the two definitions? Is an
individual's intelligence test score representative of all that the term "intelligence" is meant to imply? Validity checks may be used to assess the degree of this congruence.

The creation of concepts or generalizable properties or characteristics associated with things, events, or people is required for explanations. Although people, firms, and cars are not concepts, their particular characteristics or behaviour, such as a person's attitude toward immigrants, a firm's capacity for creativity, and a car's weight, can be considered concepts.

Conclusion

We use a variety of ideas in our daily discussions, whether we realise it or not. Some of these ideas have evolved over time as a result of our common language. To describe a phenomenon of interest, we often borrow concepts from other disciplines or languages. Similarly, the idea of distance can be used to describe the degree of social separation between two individuals who are otherwise cohabiting. We often invent our own terms to explain a particular trait that hasn't been adequately represented in previous research. Technostress, for example, is a new term that refers to the mental strain that comes with being asked to learn a new technology.

Variable

The scientific study's main goal is to examine the functional relationships between the variables. A vector, on the other hand, is a measurable representation of an abstract construct in scientific research. Constructs are not strictly observable since they are abstract entities, so we search for surrogate metrics called variables. For example, a person's intelligence is often assessed using his or her IQ (intelligence quotient) score, which is a numerical index derived from an analytical and pattern-matching test given to individuals.

Intelligence is a construct in this case, and IQ score is a variable that measures intelligence. It's anyone's guess whether IQ scores actually measure one's intelligence (though many claim they do), and the IQ score can be a good or bad measure of intelligence depending on how well it measures intelligence.

A main feature of quantitative analysis is the variable. While qualitative research is more concerned with themes, perception, and the use of vocabulary, quantitative analysis is more concerned with variables, which are usually obtained through surveys, though other methods such as observation are also used. Variables can reflect a characteristic (for example, a person's age),
facts (for example, the number of times they have been a victim of crime), or opinions (for example, the number of times they have been a victim of crime) (the punishment for criminals that they think is most appropriate). The types of analyses that can be performed are determined by the nature of the variable, so some distinctions must be made.

The major types are:

➢ Categorical variables- Any number assigned to a value has no significance other than as a label in this case. For example, it is normal to code males as 1 and females as 2, but there is no reason why this should not be reversed.

➢ Ordinal variables- it place data in a particular order – for example a respondent may be asked to number different leisure activities from the one that they most like to do to the one that they least like to do.

➢ Cardinal variables- it represent a ‘real’ value, for example someone’s height in centimetres or the number of children that they have.

Cardinal variables are sometimes further divided between discrete variables and continuous variables. They can also be divided between interval and ratio variables.

A- Discrete Variable- A variable for which the individual values fall on the scale only with distinct gaps is called a discrete variable. (Which can only have a limited number of values, for example number of children)

B- Continuous variable- A continuous variable is defined as a variable which can take an uncountable set of values or infinite set of values. Continuous variables include such things as speed, height, distance.

➢ Dependent Variable or Criterion variable- If one variable depends or is a consequence of another, it is termed as dependent variable. Criterion variable is the basis on which the effectiveness of the experimental variable is studied.

➢ Independent Variable or Experimental Variable- The variable that is antecedent to the dependent variable is termed as an independent variable. The variable whose effect is going to be known as the experimental variable.

➢ Controlled Variable: The effectiveness of an experimental variable is examined by comparing it with another variable, known as controlled variable.
➢ Confounding Variable: Those elements of the analysis or survey that may have an impact on the dependent variable (outcome measures) and whose effect may be confused with the independent variable's effect. Intervening and extraneous variables are the two forms.

➢ Intervening Variable: In educational/social experiments, there are a variety of abstract variables that interfere with the influence of the experimental or criterion variable. A proper study design should be used to monitor the intervening variable. Intervening variables are difficult, if not impossible, to observe since they normally include a person's emotions such as boredom, tension, fatigue, excitement, and so on. Extraneous variables, on the other hand, are easier to observe or quantify, making them easier to monitor.

➢ Extraneous Variable: Extraneous variables are independent variables that are unrelated to the study's intent but which influence the dependent variable. Assume the researcher wants to test the hypothesis that there is a connection between children's progress in social studies and their self-esteem. Here, self-concept is an independent variable, whereas social study achievement is a dependent variable. Intelligence may have an impact on social studies achievement, but it will be classified as an extraneous variable because it is unrelated to the research question.

“Whatever effect is noticed on dependent variables as a result of extraneous variable(s) is technically described as an ‘experimental error.’ The variable that is antecedent to the dependent variable is termed as an independent variable. The variable whose effect is going to be known is known as the ” experimental variable”.

Analysis of Variable

With categorical variables, the type of univariate analysis that can be done is limited to determining the frequency with which values occur or calculating the percentage of responses that fall into one or more categories. Ordinal and cardinal variables, on the other hand, can be discussed using measures of central inclination like the mean, median, and mode, as well as measures of dispersion like the range and standard deviation.

For any form of data, bivariate and multivariate analyses aim to create relationships between variables, such as whether high income is linked to voting for a particular political party. Inferential statistical tests can be used to determine the likelihood that a relationship between variables that occurs in a sample will be replicated in the population after a random (or probability) sample has been taken. The chi-square test of independence, which measures the relationship
between two categorical variables, and the t-test, which can be used when there is one cardinal variable and one dichotomous categorical variable, are two examples of inferential tests.

With this background in variables, we can move on to applying quantitative theories. There is some historical precedent for interpreting a hypothesis as a theoretical forecast or justification for what the researcher hopes to discover in quantitative analysis. A definition is an abstract label that characterizes a feature of existence, such as a phenomenon, a problem, or an entity. Different disciplines have unique concepts; all research projects begin with concepts, and most theories are based on concepts. The pivotal transition from the abstract to the real, from the conceptual to the tangible, is known as conceptualization, and it happens when the researcher is able to make this move. Objects, on the other hand, are the people, locations, or objects that are the subject of a study; they are also known as the unit of analysis.

A variable is a property that changes depending on the circumstances and situations. A variable can be thought of as an operationalized construct or a specific property of interest to the researcher. The term "variable" refers to a property in which members of a group being studied differ from one another. The creation of variables and the subsequent development of a measurement instrument to calculate such variables are the primary goals of the operationalization process. External validity in experimental studies is jeopardized by insufficient operationalization of the dependent variable.

Variables play an important role in the majority of studies, especially quantitative studies in which numeric or quantitative data is collected and analysed. When conducting such a study, the researcher must be clear about the variables since the type of variable guides us to use specific data analysis techniques to test theories or find answers to research questions.

**Conclusion**

Variables are essential components of any analysis, and newcomers to the field should definitely pay attention to this aspect of research because a lack of well-defined variables at the start of a study would almost certainly lead to a blind alley later on. In order to further the fundamental aim of research, which is to enquire into the unknown in order to find a solution to a problem, the researcher must effectively communicate the research report. Finally, in a research project, it is important to identify words or definitions that have several meanings in order to avoid uncertainty about the intended meaning.
MODULE III

METHODS OF SOCIAL RESEARCH

3.1 Sources of Data – Primary, secondary and tertiary data

Introduction

Data is described as a collection of values for qualitative or quantitative variables. Data is information in the form of facts or statistics from which conclusions can be drawn. A process of collecting and sorting data is required before information can be presented and interpreted.

Data, in its broadest sense, refers to the fact that any existing information or knowledge is interpreted or coded in a way that makes it easier to use or process. Data is gathered and analysed; data becomes information that can be used to make decisions in some way. Data are a specific category of information that can be gathered by observation, surveys, or inquiries, or generated as a result of human activity for the purpose of study. A primary source, a secondary source, and a tertiary source may all be used to gather data.

Meaning and types of data

The hunt for answers to study questions is referred to as data collection in social science research. Data are facts and other related materials from the past and present that serve as the foundation for research and analysis.

Types of Data

The data needed for a social science research may be broadly classified into (a) Data pertaining to human beings, (b) Data relating to organizations, and (c) Data pertaining to territorial areas.

Personal data or data related to human beings consist of:

1. Demographic and socio-economic characteristics of individuals: Age, sex, race, social class, religion, marital status, education, occupation, income, family size, location of the household, lifestyle, etc.,

2. Behavioural variables: Attitudes, opinions, awareness, knowledge, practice, intentions, etc.
Organisational data consist of data relating to an organization's origin, ownership, objectives, resources, functions, performance and growth.

(3) Territorial data are related to geophysical characteristics, resources endowment, population, occupational pattern, infrastructure, structure, degree of development, etc. of spatial divisions like villages, cities, talukas, districts, state and the nation.

Importance of data

The information serves as a foundation or raw material for research. There can be no clear inferences about the questions under review without an analysis of factual evidence. Inferences based on guesswork or creativity do not offer accurate answers to research questions. The quality of a study's results is determined by the importance, adequacy, and reliability of its data.

Data are used to test the hypotheses that are developed in a sample. Data also contains the facts and figures needed to create calculation scales and tables, which are then analysed using statistical methods. The answers to research questions come from inferences based on statistical analysis findings and significance measures. As a result, the empirical method of measurements, interpretation, testing, and inferences is reliant on the availability and accuracy of relevant data. As a result, data is critical in any research study.

Sources of data

The sources of data may be classified into (a) primary sources and (b) secondary sources and Tertiary sources.

Primary Sources

Primary sources are which the researcher gathers data that has never been collected before, People’s opinion, attitudes, preferences, etc. by interviewing them. Primary data are first-hand accounts gathered through a variety of approaches, including observation, questioning, and mailing.

Primary data source

A primary data source is an original data source, meaning that the data was obtained by the researcher directly for a particular research purpose or project. Primary information can be gathered in a variety of ways. Self-administered surveys, interviews, field observation, and tests
are the most popular techniques. The word primary data source, on the other hand, refers to the compilation of data for a specific purpose from first hand sources. In the context of the broader definition, primary sources may be published (e.g., census data) or unpublished (e.g., President Lincoln’s personal diary), and could be from the past (e.g., artifacts) or present (e.g., poll for a national election).

Primary sources may also provide accounts of incidents as reported by an eyewitness or someone who was present at the time. Primary data sources and primary sources both provide unmediated, firsthand knowledge about the subject of research. This does not, however, imply that these sources are always right. If data is collected through face-to-face interviews, for example, a variety of factors such as interviewee characteristics, data transcription, data entry, and so on which have an impact on data quality. When eyewitness accounts are issued, they may also be skewed, either consciously or unconsciously.

Survey research is often used to establish primary data sources. To collect primary data, a variety of survey methods may be used, including interviews and self-administered questionnaires. Polls, censuses, and other forms of direct data gathering are also considered primary data sources. These sources, on the other hand, are known as secondary sources of data as they are used by others for other research purposes. Other techniques, such as field observation and experiments, may be used to establish primary data sources. Speeches, documents, diaries, autobiographies, interviews, official papers, laws, court records, tax records, birth records, wills, newsreels, objects, poetry, theatre, films, music, visual art, paintings, photos, and sketches, are some examples of primary sources.

The Need for Primary Data

Researchers gather data for a variety of purposes. It may be to answer a specific research question, solve a specific problem, test a hypothesis, validate or falsify an established theory, better understand a phenomenon, write a report or research paper, write a thesis or dissertation, or simply to learn more. Regardless of the cause, data collection necessitates a methodical and purposeful approach, which is primarily dictated by the research design that best meets the research objectives. In other words, the study design defines the form of data to be collected, the population and other sources from which the data will be collected, and the data collection procedures. When conducting
research, researchers may opt to use a primary data source rather than a secondary data source for a variety of reasons. Primary data sources are unquestionably the purest type of data since they are unfiltered and firsthand.

**Advantages of Primary Research**

- One of the most significant benefits is that the information gathered is first-hand and reliable. To put it another way, there is no data dilution. This research approach can also be tailored to meet individual needs as well as the needs of organisations or companies.
- Primary research focuses primarily on the issue at hand, implying that all attention is focused on determining a likely solution to a specific subject matter. Primary research helps researchers to delve further into a subject and consider all possible outcomes.
- Controlling the data obtained is possible. Primary research allows you to have more say of how data is gathered and used. Businesses or organisations collecting data are free to use their discretion in determining how to best use data to obtain useful analysis insights.

Since primary research is a time-tested technique, the findings obtained from performing this form of research can be trusted.

**Disadvantages of Primary Research**

- One of the most significant drawbacks to primary research is that it can be very costly to perform. Depending on the setup or primary research method used, a large amount of money might be needed. Not every company or organisation can afford to invest a large sum of money.
- This form of research can take a long time. Conducting interviews, submitting and receiving online surveys can be a time-consuming process that requires time and patience to succeed. Furthermore, analysing the outcomes and using the information to develop the product or service can take time.
- Using only one primary research approach isn't always enough. In such situations, the use of more than one approach is needed, which can lengthen the time it takes to conduct research as well as the expense.

**Characteristics of Primary Sources**
- Primary sources may be first-hand observation/analysis or contemporaneous accounts of the events being mentioned.
- Primary sources record historical events, individuals, and perspectives.
- When researching by periods rather than by case, the range of potential primary sources expands dramatically.
- Primary sources reflect one person's point of view; they are often combined with secondary or tertiary sources to expand a researcher's viewpoint on a case, age, or phenomenon.
- It is important for researchers to be aware of and sensitive to the bias of the observer/analyst who created the primary source, as well as the wider cultural prejudices of the period in which the primary source was created, when using something as a primary source.
- The researcher's viewpoint, or the claims or points on which he or she intends to use a primary source as proof, is important in deciding which sources would be primary.
- For many research purposes, reproductions of primary sources remain essential.
- Certain attributes are dependent on the source's viewpoint and the context in which the source is used by the researcher.

**Secondary Sources**

Secondary data analysis is important in many fields of research, including the social sciences. The distinction between secondary and primary data is made not by the data's particular characteristics, but by its history and relationship to a specific study. Primary data are collected by a study organization for the same analysis in question, while secondary data are collected by someone else for a different purpose. The availability of broad data sets obtained and analysed by the government and made accessible for researchers to study is one reason secondary data analysis is becoming more common in the social sciences.

It is important not to overemphasize the difference between primary and secondary data. Depending on the particular research questions they are researching at the time, many researchers work with both primary and secondary data during their careers, and both primary and secondary
data are often analysed within one research project. Both primary and secondary data can be used using the same statistical methods, and both types of data have advantages and disadvantages. As a result, the researcher's task should be to choose appropriate data for a particular research question.

There are data sources that have been gathered and compiled for a different purpose. “The secondary sources consists of readily available compendia and already compiled statistical statements and reports whose data may be used by researches for their studies, e.g., census reports, annual reports and financial statements of companies, Statistical statements, Reports of Government Departments, Annual Reports on currency and finance published by the Reserve Bank of India, Statistical Statements relating to Cooperatives and Regional Rural Banks, published by the NABARD, Reports of the National Sample Survey Organization. Reports of trade associations, publications of international organizations such as UNO, IMF, World Bank, ILO, WHO, etc., Trade and Financial Journals, newspapers, etc.

Secondary sources consist of not only published records and reports, but also unpublished records. The latter category includes various records and registers maintained by firms and organizations e.g. accounting and financial records, personnel records, register of members, minutes of meetings, inventory records, etc.”

Features of Secondary Sources:
Secondary sources are diverse and provide a wide range of materials, but they share certain characteristics.

❖ They are ready-made and readily accessible, so there is no need to go to the trouble of making and administering tools.

❖ They are made up of data that a researcher did not obtain or classify in the first place. Others influence both the structure and content of secondary sources. This is clearly a function that can reduce the analysis importance of secondary sources.

❖ Secondary sources are not time or space constrained. That is, the researcher who would use them does not have to be present at the time and place when they were collected.

Uses
A researcher may use secondary data in three different ways.
➢ Some specific details from secondary sources may be used as a point of reference. For example, general statistical information on the number of cooperative credit societies in the country, their coverage of villages, capital structure, volume of company, and so on can be gleaned from published reports and used as background information in a study on the evaluation of cooperative credit societies’ success in a particular district/state.

➢ Secondary data may be used as a benchmark to which a study's findings can be measured, for example, the results of a local or regional survey can be compared to national averages; a bank's performance metrics can be compared to the corresponding indicators for the banking industry as a whole; and so on.

➢ For a research project, secondary data may be used as the sole source of knowledge. Secondary data is used extensively in research such as sociological studies on crimes, historical studies, and so on. Yearbooks, statistical reports from government agencies, reports from public bodies under the Bureau of Public Enterprises, and Census reports, among other things, are important data sources for such studies.

Advantages
Secondary sources have some advantages
1. Secondary data can be secured easily and cheaply if it is available. Data collection is a simple matter of desk work once their source of records and reports has been identified.
2. It is possible to cover a larger geographical area and a longer comparison time without incurring significant costs. As a result, using secondary data broadens the scope of the researcher's work in terms of both space and time.
3. Secondary data increases the size of the data set on which scientific generalisations can be produced. This is particularly true when the research requires data from a variety of environmental and cultural settings.
4. Secondary data allows a researcher to double-check their results based on primary data. It easily satisfies the need for more empirical evidence. The researcher does not need to wait until more primary data is available.

Disadvantages/Limitations
The use of secondary data has its own limitations:
1. The most significant restriction is that the data available does not meet our precise requirements. The concepts used by those who gathered the data could be different, the units of measurement could be different, and the time intervals could be different.

2. The data available might not be as precise as desired. To determine their accuracy, we must first understand how the data was gathered.

3. Secondary data is out-of-date and becomes outdated as soon as it is printed. Because of the time it takes to produce them. Population census data, for example, is released two to three years after it is compiled, and no new estimates will be available for another ten years.

4. Finally, not all social scientists may have access to knowledge about the location of sources. Even if the source's position is identified, accessibility is largely determined by proximity. For example, the majority of unpublished official documents and compilations are kept in the capital city, making them difficult to access for researchers based elsewhere.

**Tertiary Sources**

Summaries or simplified versions of materials are presented in a tertiary source, which typically includes references to the primary and/or secondary sources. They can be useful for looking up facts or getting a broad overview of a subject, but they rarely contain original content. These are tools for indexing, abstracting, organising, compiling, and digesting information from other sources. When the primary goal of reference materials and textbooks is to list, summarise, or simply repackage ideas or other facts, they are called tertiary sources.

Tertiary sources are seldom attributed to a specific author. It synthesises knowledge from other outlets to provide overviews of topics. Tertiary tools often include data in a usable format or provide context for interpreting information.

Examples of Tertiary Sources; Dictionaries/encyclopedias (may also be secondary), almanacs, fact books, Wikipedia, bibliographies (may also be secondary), directories, guidebooks, manuals, handbooks, and textbooks (may be secondary), indexing and abstracting sources. Tertiary sources summarize or synthesize the research in secondary sources.

**Conclusion**
In the research method, data collection is extremely important. There are several methods for gathering data in science, all of which fall into one of three categories: primary, secondary, or tertiary data sources. Primary data, as the name implies, is data that the researcher collects for the first time, while secondary data is data that has already been collected or generated by others. Primary data sources are accurate and exclusive, while secondary data is simply the study and interpretation of primary data. Primary data is gathered with the aim of finding a solution to the problem at hand.

3.2 Research methods – Observation, interview, social survey, ethnography, oral history

Introduction

After a research issue has been identified and a research design/plan has been sketched out, the process of data collection begins. In most cases, when conducting a research report, you must obtain the necessary data; however, sometimes the data is already available and only needs to be extracted. The researcher must first determine what type of data he will use (and therefore collect) for his analysis, and then choose between one of the other data collection methods.

In both qualitative and quantitative analysis, the majority of data collection techniques can be used. The distinction is primarily due to the limitations imposed on a researcher's versatility, structure, sequential order, scope, and independence during the research process. Each method of data collection is addressed in the following sections in terms of its applicability and suitability to a situation, as well as the problems and limitations that come with it. Observation, questionnaire, social study, ethnography, and oral history are the most popular research methods.

Choice of Methods of Data Collection

Which of the data collection methods mentioned above should be used for a proposed research project? This is one of the questions to think about when creating a research strategy. One or more approaches must be selected. The following factors influence the method or methods chosen:

1. The nature of the study of the subject-matter: Depending on the respondents' educational level, interviewing or mailing could be suitable for an analysis of people's opinions/preferences. An
effect analysis, on the other hand, can necessitate experimentation, whereas a behavioural pattern study may necessitate observation.

2. The unit of enquiry: A person, a household organisation, or a community may be the subject of the investigation. Interviewing is the best way to gather data from households. Institutional data can be collected via mail survey, while community studies necessitate the use of observational methods.

3. The size and spread of the sample: Interviewing may be preferable if the sample is small and the area covered is compact, but mailing may be necessary if the sample is large and spread out over a larger area.

4. Scale of the survey: A large-scale operation can necessitate mailing or interviewing by qualified investigators.

5. The educational level of respondents: A mail survey may be suitable for a simple survey of educated people interested in the subject of research. However, interviewing is the only approach appropriate for a study of less educated/illiterate people such as factory workers, slum dwellers, and rural people.

6. The type and depth of information to be collected: Interviewing or mailing are appropriate methods for gathering general, simple, factual, and non-emotional data. An in-depth interview is needed for collecting data on behaviour, culture, customs, lifestyle, and other sensitive issues. An analytical approach is required for collecting data on behaviour, culture, customs, and lifestyle, among other things.

7. The availability of skilled and trained manpower: Interviewing can be used in this situation, even for a broad general sample with several complicated questions.

8. The rate of accuracy and representative nature of the data required: For collecting accurate data from a representative sample population, interviewing is the most appropriate process. A higher response rate can be achieved by interviewing.

**A - Observation**

Meaning and Importance
The term "observation" refers to the act of looking at or seeing something. When we are awake, we continue to observe something or other. The majority of these findings are purely coincidental and have no reason. However, observation as a data collection tool differs from casual watching. A systematic viewing of a specific phenomenon in its proper setting for the specific purpose of gathering data for a particular study can be described as observation. Both ‘Seeing' and 'hearing' are used in observation as a process. It is often followed by perceiving.

C. Y. Younge - “It is thorough study based on visual observation. Under this technique group behaviours and social institutions problems are evaluated.”
C.A. Mourse- “Observation employs relatively more visual and senses than audio and vocal organs.”

Observation is a traditional empirical method of investigation. Biology, physiology, astronomy, plant ecology, and other natural and physical sciences have developed their bodies of knowledge through centuries of systematic observation.

In the social sciences, observation is also essential for formulating and testing hypotheses. Political scientists study the behaviour of political leaders and organisations, while behavioural scientists study relationships in small groups. Anthropologists study simple societies and small communities. As the Webbs have pointed out, all social science, in a way, starts and ends with observation. A researcher quietly watching a city council, a trade union committee, or a quality circle, or a departmental meeting, or a meeting of representatives or others picks up clues that help him formulate new hypotheses. He may put them to the test with further observation and study.

**Characteristics**

Observations as a method of data collection has certain characteristics.

1. It is a mental as well as a physical activity. Many objects are 'caught' by the observing eye, but emphasis is centred on data that is relevant to the given analysis.

2. Observation is strictly limited i.e. it is selective

3. Observation is deliberate and not haphazard. It was created with the express purpose of keeping track of items that are important to the research.
4. It encapsulates the natural social context in which a person's behaviour takes place.

5. It recognizes important incidents and occurrences that have an effect on the participants' social relationships.

6. Observation should be precise and focused on testing instruments that are standardized.

**Planning Observation**

The use of observation methods requires proper planning.

First, the researcher should consider whether the observation approach is appropriate for the data requirements of the chosen analysis.

Second, he must pinpoint the basic investigative questions that necessitate the application of the observation process. These are the parameters that define the data that will be collected.

Third, he must determine the observation material, which includes the relevant circumstances, events, and activities that must be observed in order to obtain the necessary data. The related variables should be included in the observation material.

Fourth, the operational description for each variable should be defined.

**Types of Observation**

Observation may be classified in different ways. With reference to the investigator's role, it may be classified into (a) participant observation, and (b) non-participant observation. In terms of mode of observation, it may be classified into (c) direct observation and (d) indirect observation. With reference to the rigor of the system adopted, observation is classified into (e) controlled observation, and (f) uncontrolled observation.

❖ **Participant observation**: Participant observation is an ethnographic method in which a researcher participates in, observes, and records the daily activities and cultural aspects of a particular social group. An anthropologist might conduct a study of tribal customs by participating in tribal activities such as folk dance. The people being examined should have no idea what the researcher is looking for. Only then will their behaviour be "natural."
The secrecy surrounding the research goal and researcher's identity is justified on the grounds that it allows for the exploration of facets of the group's culture that are not visible to outsiders.

Advantages include:

(1) The observer can understand the emotional responses of the observed group and gain a deeper understanding of their interactions through participant observation.

(2) The observer would be able to record the context that gives meaning to the observed actions and spoken words.

Disadvantages: Participant observation suffers from some demerits.

(1) The participant observer's field of view is narrowed. For example, if the group/community under review has a hierarchy, he will hold one place within it, and therefore all avenues of knowledge will be closed to him.

(2) Objectivity is lacking to the degree that the participant analyst participates emotionally.

(3) The dual demand placed on the observer is another drawback of this approach. Participation can be hampered by recording, and observation can be hampered by participation. It is not possible to record on the spot, so it must be delayed until the observer is alone. As a consequence of the time lag, certain recording inaccuracies occur.

❖ **Non-participant observation:** In this process, the observer stands apart from the phenomenon being observed and does not take part in it. The observer, of course, has no emotional attachment to the situation. This approach necessitates the ability to record findings in a non-obtrusive manner.

❖ **Direct observation:** This refers to the observer's personal observation of an incident as it occurs. This approach is adaptable, allowing the observer to notice and document even the tiniest details of events and behaviour as they unfold. He may also move about and adjust the direction of his observation. One downside of this approach is that when events pass rapidly, the observer's vision circuit cannot be able to cover all related events, resulting in the observation being incomplete.
❖ **Indirect observation:** This does not include the presence of the observer, and the recording is performed using mechanical, photographic, or electronic equipment, such as a special motion picture camera installed in a department of a large store to monitor customer and employee movements. While less versatile than direct observation, this approach is less biased and has less inconsistent recording accuracy. It also serves as a permanent record for examining various aspects of the incident.

❖ **Controlled observation:** This entails using experimental design and routinely recording observations to standardize observational methods and exert optimal control over extrinsic and intrinsic variables. Controlled observation may take place in the lab or out in the field. It is characterized by simple and specific decisions on what to observe, how to observe, and when to observe. It is also used to infer causality and evaluate causal hypotheses.

❖ **Uncontrolled observation:** This does not imply that extrinsic and intrinsic factors are under the authority. It's most commonly used in descriptive analysis. A traditional uncontrolled observation is participant observation.

**Advantage of observation Method**

➢ Subjective bias is minimized with this approach if observation is made correctly.

➢ This approach yields insight that is relevant to what is occurring right now; it is unaffected by previous behaviour or possible intentions or attitudes.

➢ This approach is independent of respondents' ability to answer and, as a result, requires less direct participation from respondents than the interview or questionnaire methods.

➢ This approach is especially well suited to research involving participants (i.e., respondents) who are unable to express their emotions verbally for various reasons.

➢ The biggest advantage of observing is that it is direct; it allows you to study behaviour as it happens. The researcher does not need to remind people about their behaviour or interactions; all he has to do is observe what they do and say.

➢ Data gathered by observation can be used to characterize observable events in their natural settings. Other approaches incorporate artificiality or aspects of artificiality into the testing scenario. For example, in an interrogation, the respondent does not act naturally. In observational studies, there is no such artificiality, particularly when the people being observed are unaware that they are being observed.

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Observation is better for observing subjects that are unable to communicate meaningfully, such as infants, indigenous peoples, animals, birds, and so on.

Limitations

- Observation is useless in the study of historical incidents or actions. For learning certain subjects, one must depend on records or personal accounts.
- It is unsuitable for researching attitudes and viewpoints. However, observing similar behaviour can provide a clear indication of attitudes; for example, observing the seating habits of high caste and class people in a village general meeting can help shape an index of attitude.
- Collecting a representative sample from observation is difficult. The collection of a random sampling can be easily guaranteed for interviews and mailing processes. However, watching individuals of various kinds would not constitute a random selection.
- Observation cannot be used wherever and whenever the researcher sees fit. He must wait for the action to take place. An examination of a tribal community's folk dance, for example, is only possible while it is being practiced.
- One of the method's main drawbacks is that the observer must be present at the time the incident occurs. However, it may not be possible to determine where and when an incident, such as a road accident or a communal confrontation, may occur.
- Observation is a time-consuming and costly operation that necessitates the use of human observers and/or sophisticated monitoring equipment.

B- Interview

Introduction

Interviewing is a popular technique for gathering data from individuals. We gather knowledge in many aspects of life through various ways of contact with others. In an interview, the interviewer and the interviewee develop a rapport. Not only is the geographical divide separating them vanished, but so is the social and cultural barrier, allowing for a free exchange of information. Both leave their respective imprints on the other. A type of data collecting, knowledge gathering, or opinion gathering in which a set of questions are asked.
An interview is typically a meeting or conversation between individuals in which personal and social contact takes place. Interviews are often used in both quantitative and qualitative social science, and they are often used in conjunction with other approaches. While interviews can be broadly defined and have some similar sense, they can differ greatly in terms of the environment or setting in which they are performed, the purpose with which they are conducted, and the structure and conduct of the interviews.

**Definition**

- Monette- ‘an interview involves an interviewer reading questions to respondents and recording their answers’.
- Burns- ‘an interview is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person’.
- W. J. Goode & P.K. Hatt - “Interviewing is fundamentally a process of social interaction.”
- Vivien Palmar- “The interview constitutes a social situation between two persons, the psychological process involved requiring both individuals to mutually respond though the social research purpose of the interview calls for a varied response from the two parties concerned.”

**Importance**

In individual research, interviewing may be used as the primary approach or as a complement. For collecting knowledge from illiterate or less trained respondents, interviewing is the only viable option. It may be used to gather a variety of information, ranging from demographic data to intensely sensitive and private information about a person's views, behaviours, values, and beliefs. Experience from the past and plans for the future Interviewing is needed where qualitative information is required or when probing is required to thoroughly extract information. Personal interviews are possible where the sample area is small or where a large number of eligible interviewers are present.

Interviews are often preferable to other data collection approaches. People are more likely to speak than to compose. Also sensitive information can be accessed once rapport has been established. It allows you to delve deeper into the meaning and motivations behind responses to questions. Interviews can help to flesh out statistical data. It allows the investigator to understand
the behavioural context of the respondents’ data. It allows the investigator to request clarifications and brings to the surface certain questions that respondents do not wish to address for any purpose.

Advantages:

- The scope and detail of knowledge that can be secured is the method's greatest asset. When used in conjunction with a well-planned timetable, an interview will yield a wealth of detail. The quantity and consistency of data that can be secured much outweighs that of a mail survey.
- In comparison to other methods, the interviewer should do better to increase the number of answers and the quality of information obtained. He should take care of the circumstances of the interview and use effective strategies to address issues like the respondent's unwillingness, a misunderstanding of the subject, skepticism, and so on.
- Other supplementary material, such as economic status, living conditions, and so on, can be gathered by the interviewer. Observation of the respondent's surroundings.
- In order to increase the consistency of the interview, the interviewer should use special scoring instruments, graphic materials, and other tools.
- Observation and probing should be used to determine the consistency and dependability of the respondent's responses.
- The interview is adaptable and versatile to different scenarios. Much greater leverage over the interview situation is possible.

Limitations:

- The most serious flaw is that it is both financially and time-consuming.
- The interviewer's method of questioning, questions and experiences, and inaccurate documentation, as well as the respondent's flawed memory, all have a negative impact on the interview performance. Memory problems, failure to communicate, and so forth.
- In face-to-face interviews, some forms of personal and financial details can be denied.
- The dilemma of capturing information received from respondents arises during an interview. There is no foolproof scheme. Taking notes is invariably disruptive for both the respondent and the moderator, and it disrupts the conversation's flow.
- Interviews necessitate the use of professionally qualified interviewers. The supply of such individuals is restricted, and interviewer preparation is often a lengthy and expensive process.
Characteristics

Interviewing as a method of data collection has certain characteristics. They are:

1. The interviewer and the respondent are complete strangers. As a result, the investigator must make an acceptable introduction to the respondent.

2. The participants' friendship is just temporary. It has a predetermined start and end position. For them, the interview itself is a fleeting, fleeting experience.

3. An interview isn't just a casual chat; it's a conversation with a clear goal in mind, such as gathering facts for a study.

4. An interview is a method of receiving verbal responses to questions that have been asked orally.

5. The meeting between the interviewer and the respondent does not have to be face-to-face; the interview can even be done over the internet.

6. An interview is a two-way conversation.

Requirements

The below are the prerequisites or criteria for a good interview:

1. Data availability: The respondent should have all of the necessary material. He should be able to conceptualize it in terms that are relevant to the research and communicate it effectively.

2. Role perception: The respondent should be aware of his responsibilities and know what is expected of him. He should be aware of what constitutes a valid response and how comprehensive it should be. All of this can be gleaned through the interviewer's presentation, descriptions, and interviewing technique.

3. The interviewer should also know his role. He should provide a welcoming environment and promote open and honest dialogue. He should not use his emotional mood, argumentation, or other means to influence the interview situation.

4. Respondent's motivation: The respondent must be eager to reply and have a correct response. This is partially determined by the interviewer's style and capacity. The interviewer is interested in it for testing purposes, but the respondent is uninterested in it personally.
As a result, the interviewer should develop a comfortable relationship with the respondent and pique his interest in the study's subject.

Types of interview

Structured interviews

The researcher asks a preset series of questions in a formal interview, using the same wording and order of questions as defined in the interview plan. These interviews are conducted using a series of preset questions and extremely standardized recording techniques. In a formal interview, the interviewer follows a set of rules, answering questions in a certain order and format.

Advantage

➢ The data from one interview to the next is straightforward to compare.
➢ Data recording and coding are not difficult, and greater accuracy is obtained.
➢ Attention is not diverted to extraneous, irrelevant and time consuming conversation

Limitation

➢ It has a tendency to neglect the inherent spontaneity of conversation.
➢ The interview can be arranged in such a way that the respondent's viewpoints are reduced and the investigator's own assumptions about the issue under investigation are unintentionally added.
➢ The scope of the investigation is limited.

Unstructured Interviews

The strength of unstructured interviews is the near-complete material and structure freedom they offer. You are free to arrange these in whatever order you choose. You will have full control of how you phrase your questions and how you describe them to your respondents. Depending on what comes to mind throughout the debate, you can formulate questions and pose issues on the spur of the moment.

In both quantitative and qualitative research, unstructured interviews are popular. The distinction lies in how they are going to use the knowledge they receive in response to your questions. Answer categorizations are developed from responses in quantitative analysis, which are then coded and quantified. Responses are used as descriptors in qualitative analysis, sometimes
in verbatim fashion, which may be combined into the statements, writing flow, and reasoning series. In qualitative analysis, unstructured interviews are commonly used.

Advantage

➢ It can come close to the natural originality of a discussion.
➢ It's less susceptible to interviewer bias.
➢ It opens up more possibilities. It investigates the issue in an uncontrolled manner.

Limitations

➢ The results of one interview are not comparable to the results of the next. As a result, it is unsuitable for surveys.
➢ It is possible that time would be spent in unproductive discussions. The investigator may run the risk of being led up the blind alley by not concentrating on one or another face of an issue.
➢ Since there is no specific order or sequence in this interview, grouping and coding of responses which take longer.
➢ It necessitates more expertise than a standardized sample interview.

Focused interview

The importance of a focused interview is emphasized in order to draw emphasis on the interviewee's prior experience and its consequences. In this style of interview, the interviewer has the freedom to plan and respond to the questions in his or her own manner, as well as the autonomy to come up with his or her own viewpoint and goals. In a concentrated interview, the interviewer's main goal is to limit the respondent to a single argument of issues that he wants to address. Such interviews are widely used in the development of theories and are part of a larger category of shapeless interviews. For example, seeing a certain television show, seeing a specific film, and so on.

An interview guide is used, which includes subjects related to the analysis hypothesis. The interview focuses on the respondent's individual experiences, such as his behaviours and emotional reactions to the situation under investigation.

Merits
• This style of interview avoids the rigidity of conventional approaches while also including a structured format and ensuring proper coverage of all related topics.
• While the respondent is questioned for specific details, he is given enough opportunities to express his opinions.
• The interviewer often has complete control over the order of questions and the depth of probing.

Clinical interview

This is similar to the interview but differs slightly. The aim of a clinical interview is to uncover broad underlying feelings or motivations, as well as the trajectory of an individual's life experiences. The most popular form of psychological interview is the personal history interview, which is used in social case care, prison management, medical hospitals, and human life history studies. The basic facets of the respondent's life experience to be discussed during the interview are decided by the study's intent, and the respondent is expected to speak openly about them.

Advantage

As a result, the medium of speech for the interview should be selected based on the interviewee's comprehension capacity, and any misconceptions about the questions can be overlooked. The interviewer may obtain further knowledge about the respondent's personal life, which is extremely useful in analyzing the results.

Disadvantage

However, there are some clear flaws in the interview process, but some of them are unavoidable, particularly when a large and widely distributed environmental representation is taken. There is also the possibility of interviewer bias as well as applicant prejudice; there is still the issue of interviewer command and control. It can be difficult to get high-ranking officials to volunteer their time to answer questions, which can irritate interviewers and prevent them from gathering enough evidence. This form takes a little longer than the others.

Telephone interviews
This method of data collection entails speaking with respondents over the telephone or internet. It is a methodology that is not widely used, but it plays an important role in industrialized studies, especially in advanced states. In comparison to the mailing technique, the main characteristics of such a system are that it is more robust. It is simpler than other approaches because it is a simple way of gathering data. It is also less costly than person questioning because the cost per response is relatively low. Call-backs are simple and cheap, and recollection is calm.

**It will be useful in following situation**

➢ When the universe is made up of people whose names are mentioned in phone books (Phone Directory), such as corporate owners, executives, physicians, and so on.
➢ When a study asks you to answer five or six basic questions,
➢ Where a survey must be completed in a limited amount of time and the sample units are specified in a telephone directory
➢ When there are a lot of callbacks to make and the respondents are dispersed.

**Advantage**

❖ Since telephone surveys do not require travel time or expense, and all calls can be taken from a single spot, the survey can be conducted at a relatively low cost.
❖ Information may be gathered in a limited amount of time.
❖ Since there is no face-to-face communication between the interviewer and the respondent, interviewer bias is minimized, resulting in strong answer quality.
❖ It does not include any fieldwork.
❖ Individuals who were unable to be met or who did not want to be interviewed in person can be quickly contacted.

**Disadvantage**

❖ There are just a few people with phone numbers on the registry. If the world contains people who aren't on the call, the survey would be skewed.
❖ The length of the interview has a cap. A call cannot usually last more than five minutes. There are only around five to six basic questions that can be answered. As a result, a longer questionnaire cannot be completed over the telephone/internet.
❖ Many respondents would refuse to comply with the interviewer if the questions are about personal issues.
❖ The features and atmosphere of the respondent are not visible.
❖ Visual aids such as tables, maps, and drawings are not accessible.
❖ Establishing rapport between the respondent and the interviewer is challenging.

**Group interview**

A group interview is a way of gathering primary data in which a group of people who have a shared interest engage with one another. The party may be made up of six to eight people who have a shared interest. The interviewer facilitates the dialogue. On any part of the topic under review, open debate is welcomed. The conversation leader encourages members of the community to engage with one another.

The requested knowledge can be collected by self-administered questionnaires or interviews, with the conversation acting as a reference to ensuring that all areas of interest are addressed. The interviewers are specifically looking for signs of shared views, values, intentions, and viewpoints among the group members.

Researchers may use the community interview approach to analyze people's responses to public amenities, public health programmes, and healthcare systems, among other things. It's a common tool for evaluating new product or service models, brand names, packages, branding tactics, and attitudes in marketing research.

**Advantage**

➢ Since more people are interviewed in the same amount of time, it is often less expensive than a conventional face-to-face interview.
➢ Since the group members can encourage each other, the interviewer-respondent relationship may be extended or is less likely to get stale.
➢ It allows the researcher to get closer to ever more respondents; it is adaptable; and it allows for extensive probing.
➢ The group interview will give the field worker some insight into the dynamics of relationships in the field that would otherwise be difficult to distinguish by observation or interviews.
➢ The group interview will help you get a better understanding of the field environment and the relationships among the people in a specific environment.
➢ It allows one to minimize the gap between the researcher and the social environment, as well as the overall expense of the project. However, this method of interview may also promote new ideas.

Disadvantage
➢ Difficulty assessing group practice of personal or sensitive behaviours; can only hear from actions that participants are willing to disclose in front of others.
➢ If individual behaviour is unusual, it can be absorbed by group behaviour.
➢ Transcription takes time, it's difficult to classify voices, and it's an analytical challenge.
➢ One or two people can dominate the conversation, preventing others from contributing.
➢ Person interviews necessitate different skills than group interviews. It is contingent on the researcher's willingness to retain the community and discussion on track - it is possible to get overwhelmed.
➢ People don't reveal what they actually mean because of peer pressure to adhere to standards.
➢ Data from group discussions is difficult to analyse or measure.

Steps in Conducting an Interview: Before the Interview:
1. Define your objectives - Determine the goals and the knowledge you'll need to reach them. Be sure an interview is the best way to achieve your goals.
2. Select the interview format or type - Examine the requirements, budget, time, and potential respondents to determine whether structured, semi-structured, or unstructured interviews are necessary.
3. Choose the appropriate participants or respondents - Determine the characteristics of interviewees and the number of interviews needed based on the type of interview.
4. Make a plan for how you'll handle the interviews - Think about holding interviews over the phone or in person. For large surveys, consider using computer-assisted interviews and recording.
5. Determine how you can enlist the help of your respondents - Since certain respondents will not reply, obtain contact information for a greater number of respondents than the number of
interviews you need. Introduce yourself, then set up an appointment and explain the intent of the interview, as well as the relevance of their involvement.

6. Decide how you'll record the interviews—You can use a prepared form, written notes, speech recorders, or computer-assisted equipment, depending on the type of interview.

7. Create a list of questions and test them on a small group of people—the questions should be relevant to the style of interview.

8. Determine who will administer the interviews and create a knowledge package that provides an overview of the study subject as well as guidance. You may need to recruit professional interviewers for unstructured interviews.

The researcher needs to consider following matters during/after interview

During the interview:

➢ Make an introduction and strike up a polite yet professional conversation.
➢ Describe the intent of your project, the significance of their participation, and the length of the interview you anticipate.
➢ If a respondent has a scheduling conflict, be willing to reschedule the interview.
➢ Describe the interview's style.
➢ Explain how the interview will be recorded and how the information gathered will be used.
➢ Inquire whether the respondents have any concerns
➢ Maintain as neutral a tone of voice and vocabulary as possible when answering questions or looking into topics.
➢ Maintain your attention on the subject of inquiry and finish the interview within the allotted time.
➢ Review the records and voice recorder on a daily basis to ensure proper monitoring without disturbing the respondent.
➢ Complete the session-checking if all questions were answered, explaining how you'll use the data again, thanking the respondent, and seeing if they have any more questions.

After the interview:

➢ Make sure the interview was adequately documented and, if necessary, take extra notes.
➢ Transcribe and organise the interview answers. Unstructured and semi-structured interview responses must be transcribed. Structured interview responses must be entered into a data review application

➢ Prepare for data collection by looking for tools to help you analyse qualitative and quantitative data.

C - Social surveys

In the social sciences, social survey is one of the most well-known and commonly used methods of inquiry. It's usually correlated with the questionnaire, which is the most popular data collection method used in surveys. The survey, on the other hand, is more than a data collection tool. Rather, it refers to a study plan that may contain a variety of objectives.

Mark Abrams : “A social survey is a process by which quantitative facts are collected about the social aspects of a community composition and activities.”

S. Herman: “The survey is in brief a method of analysis in scientific and orderly form for the defined purpose of given social situation of problem and population.”

Bogardus E. S: “A social survey is the collection of data concerning the living and working conditions, broadly speaking the people in a given community”

Objects of Social Survey:

The fact that the survey is a systematic system of data collection is one of its distinguishing features. Each respondent or case is given a survey that collects data on the same characteristics or variables. Although surveys are used to gather data on people, associations, and organizations (such as schools), much of the time it is individuals who have personal information. The expression "social survey" typically refers to an interview with a random sample of the general public. Indeed, the aim of most surveys is to extrapolate from a study to the whole population.

For descriptive, exploratory, or causal analysis, the survey approach can be used. This technique is ideally adapted for experiments in which the unit of study is a single person. While other units of analysis, such as groups, organizations, or dyads (pairs of organizations, such as buyers and sellers), are often studied using surveys, such studies often use a specific person from each unit as a "key informant" or "proxy" for that unit, and such surveys may be subject to
respondent bias if the participant chosen lacks adequate knowledge or has a biased opinion about that unit.

**Aims of social survey**

- Its primary goal is to provide knowledge to those who need it. The needy one could be an organisation or a person, so the survey is utilitarian in nature and intended to provide knowledge about society's practical problems.
- A survey may be descriptive as a means of analysing social condition, relationships, and behaviour for example survey societies. A socioeconomic survey describes the people's living conditions in a given area. If we were confronted with it, the explanation would be correct and complete. Furthermore, since the aim of a social survey is to gather information rather than to test a hypothesis, the survey should begin without any hypothesis and simply explain the data. As a result of the data gathered, it can be used to form hypotheses in the future.
- The social survey has a wide range of applications and is used in a variety of disciplines. It may be used for a range of purposes in social sciences, and the availability and existence of the source of knowledge is the key and source of conducting a survey.

Broadly the subject matter of social surveys are divided into 1) Demographic Features 2) Social conditions 3) Opinion and attitudes.

- **Demographic features:** Demographic characteristics, such as household size, marital status, and family planning programmes, fall under the purview of family organisation and functioning.
- **Social conditions:** People's emotional reactions to social circumstances. This includes occupations, incomes, housing amenities, and a variety of social actions that are influenced by the social environment in which people live.
- **Opinion attitude:** Opinion attitude surveys provide information about people's opinions and perceptions toward different factors, as well as their motivations and expenditures. This information may be required as the basis of the essence of the issue that may be safely posed in order to elect a rich answer. For instance, if you're looking for a unique way to express yourself, try the public's sentiment or stance toward social, economic, and political issues, as measured by an event study.
Merits of social survey

The social survey has a lot of benefits for those who use it. This method of data collection, particularly the use of questionnaires, allows for the collection of information on a large number of individuals. We may compare respondents because data regarding the same characteristics is obtained from different respondents.

The information should be enumerable, allowing for quantitative analysis. This has been significantly aided by the availability of computer tools for data input and statistical analysis. We will extrapolate to the whole population because the respondents form a representative probability survey. Even if the comprehensive survey's objective is modest, it allows the gathering of appropriate data on topics of interest and is an important step in the sociological investigative process.

The analysis procedure is fairly open to the public. Each stage of the study design should be seen and repeated by other researchers to ensure the evidence or findings are reliable.

Demerits of social survey

The survey approach has been chastised for failing to account for the various interpretations that respondents assign to their behaviour. More specifically, all survey respondents do not have the same interpretation of the survey's questions. The validity of sample research is jeopardised as a result of these issues.

The survey method has often been chastised for being too simplistic in its handling of nuanced or critical research topics. Where a questionnaire is used, it must be designed in such a way that it is simple for the researcher to implement and for the respondent to understand. As a result, the problems appear to be straightforward and quantifiable, which may be insufficient to capture dynamic scenarios or processes. A questionnaire's preset list of questions and set structure prevents respondents from probing their initial answers and makes it inflexible for exploratory inquiry. People in surveys are assumed to be comfortable reporting their behaviour and thoughts, as well as to have a certain degree of coordination and memory recall.

Non-response is a significant and growing methodological problem. People may refuse to take part in the survey or refuse to answer any of the questions. Non-respondents are more likely
to be elderly and less qualified than respondents. As a result, the survey is skewed, and we can't confidently extrapolate to the entire community.

**Strength of social survey**

- Surveys are an excellent vehicle for measuring a wide variety of unobservable data, such as people’s preferences (e.g., political orientation), traits (e.g., self-esteem), attitudes (e.g., toward immigrants), beliefs (e.g., about a new law), behaviors (e.g., smoking or drinking behavior), or factual information (e.g., income).
- Survey research is therefore ideal for gathering data about a population that is too big to observe in person. Mail-in, electronic mail, or telephone surveys may cover a wide region, such as an entire country, with careful screening to ensure that the population is accurately represented in a small sample.
- Some respondents choose questionnaire surveys because they are unobtrusive and allow them to answer at their leisure.
- For certain demographic groups, such as the homeless or undocumented immigrants, interviews could be the best way to access them since no sampling frame is open.
- Large sample surveys can allow for the identification of minor effects even when evaluating several variables, as well as comparative analysis of population subgroups, depending on the survey design.
- In terms of researcher time, commitment, and expense, survey analysis is more cost-effective than most other approaches, such as laboratory research and case studies. Survey analysis, on the other hand, has several distinct drawbacks. It is prone to many biases, including non-response bias, sampling bias, and social desirability bias.

Each survey should have an intent statement as part of its research design. Survey analysis objectives may be either analytical or explanatory. Although surveys may cover a wide range of subjects, some research topics are better suited to surveys than others. It lends itself to the gathering of demographic data and regular conduct, as well as the publication of views. Market analysts, federal departments, and scholars conduct a wide range of studies.

**Types of social survey**
There are three main types of survey: the survey with personal interviews; the postal survey; and the telephone survey. The simplicity with which a representative sample can be collected, the types of questions that can be answered, and the response rates are all influenced by the method of survey that the researcher proposes to use.

A- The survey with personal interviews

An interviewer is personally present in a sample of informal interviews to gather data from the respondent. This has the effect of raising the total rate of interest in the survey and lowering the number of unanswered individual questions. Since the interviewer can comment on problems with completion, the inclusion of an interviewer may allow for more complicated questions to be included in the questionnaire design. On the other hand, if interviewers interfere in various ways, there is a risk of an interviewer’s influence or bias. The biggest drawbacks to doing a survey face-to-face are that it takes a long time to finish and is costly.

Data collection at the point of interview is a new breakthrough in face-to-face personal interview surveys. Rather than having a conventional interview schedule of questions written on paper, the interviewer uses a laptop computer and reads the questions from the screen when they arise. The interviewer directly types the response into the laptop. As a result, the respondent's responses are automatically coded and stored on the laptop's hard drive for later retrieval.

B- The postal survey

A questionnaire is mailed to respondents in a postal survey, typically with a stamped addressed return envelope inserted, and the applicant fills it out and returns it to the researcher. The biggest benefit of doing a postal survey is that it is much less costly. Since there is no face-to-face encounter during an interview, a postal survey can have greater transparency, which can be a significant benefit when conducting research on sensitive topics. The most significant drawback of a postal survey is the issue of non-response. In most postal surveys, response rates are no higher than 50%; that is, less than half of those contacted will respond.

C- The telephone survey

In recent years, the telephone survey has grown in popularity. It is a popular option among market research firms. It has been assisted by computer tools close to that used for data collection at the point of questioning, which allows the interviewer to enter the respondent's answers directly into a computer. It is much simpler and less expensive than doing a face-to-face interview. For
example, it has proven to be very helpful in opinion polls on voter preferences. With the spread of mobile phones, internet and various digital platforms, new and sophisticated methods are available for conducting surveys.

Because of technological advancements, the way polls are conducted is rapidly evolving. There has been a significant increase in the number of polls conducted online. It's debatable whether the study tools can be classified as formal interviews or self-completion questionnaires; they're both in certain ways. When it comes to online social polls, there is a critical difference to be made between surveys sent by email (email surveys) and surveys submitted via the web (web surveys). In the former, a respondent receives a questionnaire by email, while in the latter, the respondent is led to a website to complete a questionnaire.

According to Sheehan and Hoy (1999), email surveys have been used to research ‘smaller, more homogeneous on-line user groups,’ while Web surveys have been used to study ‘large groups of on-line users.’ The reduction in suburban landline telephones makes the mobile survey difficult to conduct. Non-response issues, in general, persist and are becoming worse as a population becomes more irritated with invitations to participate in surveys. There is also the question of data security regulations in certain nations, which imposes additional obligations on researchers who use the survey process.

**Errors in social survey**

We can think of ‘error’, a term that has been employed on a number of occasions, as being made up of four main factors

1. **Sampling error**- This type of error occurs because, even where probability sampling is used, obtaining a genuinely representative sample is exceedingly impossible.

2. We can distinguish what might be thought of as sampling-related error. This is a kind of error that falls under the heading of non-sampling error. However, this happens as a result of actions or circumstances relating to the sampling procedure and the question of generalizability or external validity of results. Non-response and an incorrect sampling frame are two examples.

3. There is also an error associated with the analysis process' execution. This is referred to as a data-collection malfunction. Bad question language in self-completion questionnaires or formal
interviews; poor questioning techniques; and defects in the management of test equipment are all examples of this type of mistake.

4. There is also a data-processing error. This is due to poor data management, specifically errors in the coding of responses.

**D-Ethnography**

The ethnographic analysis approach, which is primarily derived from anthropology, emphasizes researching a phenomenon in its cultural context. The researcher must immerse himself or herself in the social community for an extended period of time, engaging in, observing, and recording the everyday activities of the studied society and its social participants in their natural environment. Data is collected mostly by participant assessment, and data processing is done using a "sense-making" methodology. Furthermore, the researcher must take detailed field notes and narrate her observations in vivid depth so that readers can share in the researcher's community. The researcher has two functions in this method: produce ideas (theory) based on her specific experience and interaction, and persuade the scientific community of the phenomenon's transsituational existence.

In the social sciences, ethnography has a long and illustrious tradition. For centuries, even back to antiquity, there have been 'travelers' stories' that count as ethnographic study in the sense that they purported to reflect some type of social reality based on close familiarity with and observation of it. However, it does not begin properly until the early twentieth century, with two completely separate academic developments: the British classical tradition of social anthropology and the Chicago School of sociology.

The former called its methods of ethnography, while the latter called them participant observation. While the word ethnography is sometimes incorrectly used interchangeably with participant observation, its scope has broadened since then.

Ethnography is often mistaken as a synonym for qualitative analysis in general. Ethnography is more properly known as "field studies" or "fieldwork." In this way, ethnography can be interpreted as the study of people in naturally occurring settings or "fields" using methods that capture their social meanings and everyday behaviours, with the researcher engaging
directly in the environment (if not always the activities) in order to gather data in a structured manner without context being placed on them from the outside. Clifford Geertz coined the phrase "thick description" to emphasize the complexity and scope of ethnographic evidence, and it is more commonly known as "telling it like it is" or "insider information."

**Characteristics of the ethnography research**

Ethnography research has a number of distinct characteristics, some of which are mentioned below.

- An ethnographer typically spends a year or more studying the cultural aspects of a population or culture.
- Ethnography is a common research method since it is a "completely immersive live and work approach."
- We often claim that "immersive live and work" ethnography research is required within the field of "User-Centered Design" or "User Driven Development," in which researchers are given "intensive attention" at each point of the design process.
- A brief ethnographic study may be useful for a "user-centered design initiative."
- Individual methods used in ethnography research include descriptive surveys, interviews, discussion, and observation, including participant observation.
- In a Naturalistic situation, it relates intensive and detailed data collection techniques on multiple measurable variables over a long period of time. The observed variables exist spontaneously and are analysed where and when they occur without the researcher's influence over the environmental and experimental conditions.
- In an ethnography analysis, the primary data collection method is participant observation, which is combined with interviews with members of the group or population. Depending on the scope of the issue, participant observation will last anywhere from one month to a year.
- Emic perspective- Ethnography researchers concentrate on how participants of the society under investigation view their culture, which is known as the Emic perspective.
- The Etic view- The Ethnographer asks certain outsiders to see how they interpret the culture under study, and to analyse different practices or phenomena specific to the culture under study.
STEPS OF THE ETHNOGRAPHY RESEARCH

1- Since the selection or recognition of a problem is the first step of any study, a review of applicable literature assists the researcher in defining the problem. Defining the study's key emphasis by formulating the issue you want to read more about.

2- Following a study of the relevant literature, the researcher has selected a diverse area in which to perform his research. The first issue is determining and deciding where to start. The environment should allow for direct observation.

3- After the wide field has been chosen, the researcher must narrow it down to a highly precise research issue.

4- Another important move in conducting ethnography study is to formulate a theory based on the research goal. It should be remembered that ethnography analysis is strictly qualitative, which is why the researcher develops "inductive" hypotheses that may change or alter depending on the conditions or need for the environment/situation.

5- After that, one of the most crucial steps is population selection. Any number of identified communities is referred to as a population. It is often specified correctly.
   
   I. The researcher creates a sample frame out of the population and its resources after choosing a population and listing all of its units.
   
   II. The researcher now watches and communicates with the sampling frame sample.
   
   III. In this case, the study collects specific data from the study frame through general participant assessment.
   
   IV. The researcher conducts ethnographic studies using unique instruments and techniques. For instance, an interview, an open-ended questionnaire, an opinionnaire, an audio tape, a video tape, a schedule, a rating scale, and so on.
   
   V. The researcher then needs to interpret the results.

6- Interpretation and generalization.

7- Conclusion and findings

Ethnography is not a single form of data collection, but a collection of them that can be mixed in a variety of ways to accomplish the goals and approaches that differentiate ethnography as a research type. Following the concept of ethnography above, its goals are to comprehend the social
meanings and actions of people in a specific 'field' or environment, and its methodology entails close contact with, and sometimes involvement in, that setting. Unstructured interviewing, participant observation, personal records, vignettes, and discourse analysis are some of the data collection techniques used in ethnography. In this way, ethnography often involves process triangulation. Although these techniques are also used outside of ethnographic science, what sets ethnography apart is how they are used to achieve the goals and approaches of ethnography.

There's another argument to think of ethnography as a research style rather than a single data collection process. It is inextricably linked to naturalism as a metaphysical and theological paradigm, to the extent that ethnography's approach and technique are almost indistinguishable. Ethnography has a naturalistic bent: it focuses on subjects that lend themselves to the study of people's perspectives, values, and interpretations. While most subjects can be approached in a variety of ways, ethnographers are predisposed to ask specific questions that probe people's meanings, attitudes, and interpretations.

In ethnography, the field works are extremely important. According to Singleton and Straits, you can include the following elements in your field notes or comprehensive descriptive accounts of any discovery taken within a given period:

- **Running description:** This is a record of the events of the day. The aim is to objectively document what you see. You should also stop studying people or incidents while on the job because there isn't enough time and that would prevent you from seeing what's going on. What should you be on the lookout for? The environment, the individuals, individual attitudes and habits, collective practices, and experiences are all important considerations.

- **Forgotten episodes:** There are recounts of recent events that you have forgotten about but are recalling whilst on the site.

- **Ideas and notes for further information use:** There are thoughts that come to you on the spur of the moment about data processing, data compilation, relationship speculations, and so on. There are documents that you make about and for yourself, such as future observation plans, important objects or individuals to watch for, and so on.

- **Personal impressions and feelings:** There are records of the subjective reactions when working in the field. They could reveal any biases that are clouding your perceptions.
➢ Methodological notes: This applies to any thoughts you had on the analysis methods you used, such as any problems you had gathering data, any prejudices introduced by data collection techniques, or any improvements in how you produce and report findings.

Merits of the ethnography research
The following are the benefits of ethnography research.

- One of the most significant benefits of ethnographic research is that it can assist in identifying and analysing previously unknown topics.
- To develop a theoretical and coding analysis at a high risk, an ethnographer must have the mental dispositions to do so.
- Detailed and thick description, naturalistic inquiry, primary data collection technique, external and internal criticism, in depth data collection technique, objective pole on intentionality, subjective pole on intentionality, participant observation, theory development rather than theory testing, describe cultural phenomena in a naturalistic inquiry etc. involve and inter related as well as interdependent to the study of Ethnography research.
- Ethnography's Strengths the essence of research is the study of natural activity in real-life environments, outside of the constraints imposed by more traditional research methods.
- Ethnography analysis is more reliant on researcher experience than other types of research.
- Ethnography research includes thinking, feeling, impression, vision, and imagination, as well as interpretation, examination, structure, reference, description, verification, and generalisation.
- Ethnography is a particularly important topic. The tribal society and indigenous tribes that are alienated from our elite social civilization are the focus of ethnography study.

Demerits of Ethnography Research

- Time is one of the most common drawbacks or critiques aimed at ethnographic study.
- Ethnography is a strongly subjective field of study.
- To perform an ethnography thesis, a deep, scholar, and expert researcher is needed.
- To investigate Ethnography analysis, the researcher's sensitivity is needed.
- Since this method of study is so subjective, subjective bias can be present in conductive ethnography studies.
• It uses a straightforward approach, which means it relies on "plot telling" and a crucial event.
• Cause and effect relationships are less relevant.
• Less is concerned with hypothesis formulation and checking.

E-Oral history

By listening to the voices of people communicating deeply about the events and encounters they have been through, this approach aims to open new routes for interpreting the past, the relationship between the past and the present, and the lives of others through time. The in-depth interview is a popular method for gathering oral history information. To put it another way, in qualitative analysis, this has evolved as a method for examining people's attitudes, memories, and descriptions of events, as well as capturing historical facts as used by individuals. It's a description of something written in someone's own language.

Oral history is the method of gathering, documenting, sharing, and explaining past or existing facts based on the personal memories and views of a research group or unit's participants. These beliefs or memories may be founded on eyewitness testimony or knowledge from other sources such as elders, relatives, myths, or legends.

The Method: Eliciting Oral Histories

Oral history's rise to prominence as a vital tool for contemporary social science dates back to the 1960s. This movement's initial momentum and influence were both symbolic and substantive. It vowed to move the locus of conventional historical investigation to a more egalitarian and equitable plane, not just by opening up sources of unique quality data – revealing in substance, rich in detail, intimate in character, evocative in tone – that were exceedingly difficult to find by more traditional documentary approaches. The desire to save or restore the collective memories of neglected or forgotten people, for whom the surviving historical record was largely silent, was always present in early oral history exercises. More recently, the approach's reach has been expanded to include additional insights into technical or establishment communities that were previously marginalized by the new method's initial trajectory.

The strategies for eliciting oral histories have a few things in common: the questions are open-ended and individual and experience based, the questions seek to evoke rich information about the subject being researched, and careful listening is involved. Opening questions should be
wide and open-ended, allowing the interviewee to steer the conversation. Oral historians often start with a general question and then move on to more detailed questions in which they ask participants to recall specific information related to the study's subject.

Generally, the interviewer tries to evoke more and more information about personal memories and encounters as the interviewee progresses through the story without disturbing the narrative flow. As a result, a good oral historian must hone their listening and nonverbal behavioural skills in order to persuade the biographer to continue with the testimony. Oral historians must therefore show interpersonal and cultural empathy and refrain from posing judgmental questions that should make the interviewee feel insecure in order to gather rich material. Oral histories can take anywhere from one hour to several hours to complete.

Some interviews are conducted in a single day, while others take place over several days, weeks, or even months. Oral historians often ask their participants to include objects or archives, such as letters and diaries from various historical eras, in addition to the interview, to add another layer to their stories.

Oral history's scope is defined by the period of human memory, which is one of the reasons that many programmes have disproportionately large amounts of elderly respondents. Oral history is also characterized in practice by the capabilities of audio and video recording technologies, whose increasing maturity continues to improve the logistical feasibility of oral history interviews as well as the more accurate archiving and dissemination of oral history data.

Oral history is still interested in people's personal memories and viewpoints. Oral background data, on the other hand, may be used for a variety of purposes. Although there is always a slippage and variation between groups of research practice, categories the research goals as follows for the sake of convenience.

The major purposes are: (1) filling in the historical record; (2) understanding people’s subjective experiences of historical events; (3) understanding people’s subjective experiences of historical periods or periods of social change; (4) understanding people’s subjective experiences of current or recent events; (5) contributing to the understanding of topical areas; and (6) gaining “community” experiential knowledge.
1) **Filling in the historical record:** Filling in the documentary record is, arguably, an essential part of all oral history studies. Oral history programmes aim to collect information about eyewitness encounters by people who have personally encountered or seen the subject under investigation. This method's key aspect is "bearing witness." Historians or agencies created for the express purpose of recording a group's interactions in relation to a certain event or subject are the most common conductors in this type of study. Documentation, storage, and archival are the primary objectives. For this type of oral history study, the archival problem is critical. Interview recordings are deposited in oral history libraries for oral historians who are interested in filling in the gaps in the historical record. This provides for the preservation of oral history recordings and also makes them accessible to others. Digitization has had a huge effect on archival and retrieval in recent years.

2) **Understanding people’s subjective experiences of historical events:** Oral history is ideal for gaining insight to people's individual memories of past incidents in which they participated or witnessed. This is how the approach assists people with remembering, recalling and retelling their narrative. Furthermore, since oral history encourages people to freely tell their memories, it allows listeners to focus on, recreate, and make sense of their past experiences.

3) **Understanding people’s subjective experiences of historical periods or periods of social change:** Since oral history emphasizes procedures and thus investigates how events occur over time, it is an excellent tool for assessing people's subjective experiences of changing historical periods. Furthermore, oral history situates human biographies within broader cultural structures, establishing crucial connections between the two.

4) **Understanding people’s subjective experiences of current or recent events:** Oral history interviews are a fantastic way to get firsthand information on current affairs. When oral history is used for this reason, evidence is gathered while the events are still fresh in the minds of the participants.

5) **Contributing to understanding of topical areas:** Oral history interviews, and most observational interview techniques, can be used to investigate specific topics. If a researcher is interested in the connections between human biographies and society, oral history would be preferred over other interview methods. Interviews may be used to investigate the perspectives of individuals who are connected by a common sense of community; they are known as "community
oral history programmes." Interviews with members of a community identified by a geographical location or a common social identity are undertaken for these initiatives.

Advantages

➢ The simplest and most enjoyable method of gaining knowledge.
➢ May accurately gather a large number of viewpoints on any event.
➢ Where there are no written references, it may provide facts.
➢ It is appropriate for even the most illiterate members of society.

Disadvantages

➢ A narrator has the ability to conceal or reveal vital facts.
➢ It is possible for information to be exaggerated.
➢ You can't be certain that the information collected is accurate.

Conclusion

Data can be collected in a variety of ways. A 'Method' is not the same as a 'Tool.' A tool is an instrument used in a system, while a method is the means or mode of collecting data. For instance, when recruiting, a timetable is used.

Tools for data collection

The aim of data collection is to gather high-quality information that answers all of the questions that have been asked. For data processing and interpretation, a variety of methodologies may be used. The majority of methodologies use the same collection of fundamental methods. The devices/instruments used to gather data are referred to as data collection techniques. Since analysis is conducted in a variety of ways and for a variety of reasons, it is important to choose the tools for data collection.

The aim of data collection is to gather high-quality information that can be analysed to produce compelling and credible responses to the questions that have been posed. Questionnaires, interview guides, interview schedules, Case Studies, Checklists etc. are examples for data collection tools. Here we mainly deal with three data collection tools, such as Questionnaire, Interview schedule and Interview guide.

I. Questionnaire
Collection of data through questionnaires

This method of data collection is very common, particularly when dealing with large inquiries. Private people, researchers, private and public organisations, and even governments are using it. This approach involves sending a questionnaire to the people involved and asking them to answer the questions and return the questionnaire. A questionnaire is made up of a series of questions that are written or typed in a certain order on a form or a set of forms. The questionnaire is mailed to respondents, who are required to read and comprehend the questions before responding in the space provided on the questionnaire. The respondents are on their own when it comes to answering the questions.

Barr, Davis & Johnson- “A questionnaire is a systematic compilation of questions that are submitted to a sampling of the population from which information is desired.”

W. J. Goode & K. Hall- “In general, the word questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in himself.”

A questionnaire is a written list of questions to which respondents must reply and document their responses. Respondents read the questions, interpret what is predicted, and then write down their responses in a questionnaire. The only difference between an interview schedule and a questionnaire is that in the first, the interviewer asks the questions and reports the responses on an interview schedule, while in the latter, the respondents report their own responses on a questionnaire. This differentiation is critical in determining the benefits and disadvantages of the two approaches.

Since there is no one to clarify the significance of questions to respondents in the case of a questionnaire, it is important that the questions are straightforward and easy to interpret. A questionnaire's form should also be straightforward to read and pleasing to the eye, and the sequence of questions should be simple to follow. A questionnaire that is interactive should be developed. This means the respondents may feel as though they are being spoken to. A sensitive question or one that respondents might be reluctant to answer should be preceded by an interactive statement outlining the question's significance in a questionnaire. To separate these assertions from the individual queries, it's a smart idea to use a different font. Various economic and market studies also use the technique of gathering data by mailing questionnaires to respondents.
Merits
The following are the benefits claimed for this method:
1. it is cost effective
2. It is clear of the interviewer's bias; responses are given in the respondents' own language.
3. Respondents have enough time to offer thoughtful responses.
4. It is also possible to contact respondents who are difficult to meet.
5. Large samples should be used to improve the consistency and reliability of the data.

The main demerits of this system can also be listed here:
1. Low return rate of properly completed questionnaires; no-response bias is also indeterminate.
2. It should only be used when respondents are well-informed and willing to cooperate.
3. After the questionnaire is submitted, the power of it may be lost.
4. Since it's impossible to change the strategy once the questionnaires have been sent out, there's an inherent inflexibility.
5. There's also the risk of unclear responses or no responses at all to such questions; interpreting omissions can be difficult.
6. Determining whether willing respondents are genuinely reflective is complex.
7. This is the approach that is most likely to be the slowest.
8. It can be applied to literate respondents only

It is often best to perform a "pilot analysis" (Pilot Survey) before using this approach to validate the questionnaires. The importance of a pilot survey in a large investigation is felt strongly. The pilot survey is essentially a practice run for the main survey. The shortcomings (if any) of the questionnaires, as well as the survey methods, are brought to light by such a survey, which is undertaken by professionals. Improvement will be effected as a result of the insight obtained in this manner.

Main aspects of a questionnaire: A questionnaire is often regarded as the heart of a survey operation. As a result, it should be designed with great care. The survey would almost certainly fail if it is not well set up. This necessitates an examination of the most important facets of a questionnaire, including the general form, question order, and question formulation and wording.
When it comes to these three major aspects of a questionnaire, researchers should keep the following in mind:

1. **General form**: So far as the general form of a questionnaire is concerned, it can either be structured or unstructured questionnaire. Structured questionnaires are those in which the questions are specific, concrete, and pre-determined. All respondents are asked the same questions with the same wording and in the same order. The query may be closed (i.e., of the sort "yes" or "no") or open (i.e., welcoming a free response), so it should be reported ahead of time and not assembled during the interview.

   Set alternate questions can be used in structured questionnaires, limiting the informants' answers to the specified options. As a result, a strongly organised questionnaire is one in which all questions and responses are listed, and the number of statements in the respondent's own words is kept to a minimum. When certain features are absent from a questionnaire, it is referred to as unstructured or non-structured. More precisely, with an unstructured questionnaire, the interviewer is given a general guidance on the kind of information to be received, although the precise question wording is primarily his duty, and the responses are to be written down in the respondent's own terms to the degree possible; tape recorders can be used in certain cases to accomplish this aim.

2. **Question sequence**: A researcher should pay attention to the question-sequence when planning the questionnaire in order to make it accurate and ensure the accuracy of the responses obtained. Individual questions are much less likely to be misunderstood when they are asked in the right order. The question order must be straightforward and fluid, implying that the relationship between one question and the next should be obvious to the respondent, with the easiest-to-answer questions placed initially.

   The first few questions are crucial because they are likely to affect the respondent's attitude as well as his willingness to cooperate. The first questions should be designed to pique people's curiosity. In addition, the following types of questions cannot be used as opening questionnaires:

   1. Questions that put too great a strain on the memory or intellect of the respondent;
   2. Questions of a personal character;
   3. Questions related to personal wealth, etc.
In a standardized questionnaire, the easiest thing to do is use a Pilot Survey to assess the question-sequence, which is sure to yield strong rapport for most respondents. Relatively challenging questions should be placed at the conclusion of the questionnaire, so that even though the respondent chooses not to comment, valuable information may have been gathered. As a result, question series should normally progress from general to particular, and the researcher must always keep in mind that the answer to a given question is a feature of not only the question itself, but also all previous questions.

3. **Question formulation and wording:** The researcher is concerned about this part of the questionnaire.

It should keep in mind that each query must be quite straightforward, since any confusion will result in irreversible harm. A survey may be harmed as a result of this. In order to avoid painting a skewed image of truth, the question should be neutral. Questions should be written in such a way that they fit into a well-thought-out tabulation strategy.

In general, all questions should meet the following standards
(a) Should be easily understood
(b) Should be simple i.e., should convey only one thought at a time
(c) Should be concrete and should conform as much as possible to the respondent’s way of thinking.

Concerning the form of questions, we can talk about two principal forms, viz., Multiple choice question and the open-end question.

**Multiple choice question**

In the first, the respondent chooses one of many possible responses, while in the second, he must have the answer in his own terms. A question with limited number of options to select (like ‘Yes’ /‘No’, ‘Agree’/ ‘Disagree’/ ‘No opinion’) is known as a ‘closed question.’ It is a special case of the multiple choice question.

**Advantage**

➢ It's convenient to use, fast to respond to, and relatively inexpensive to analyze.
➢ It lends itself well to statistical analysis. Providing alternate responses may also help clarify the context of a question.

Disadvantage
➢ Multiple choice questions have the disadvantage of “putting answers in people's mouths,” i.e., they can compel a declaration of opinion on a topic on which the respondent has no opinion. They are not acceptable when the problem under review is complicated, or when the researcher's concern is in the investigation of a procedure.

Open-ended questions
Open-ended questions are deemed acceptable because they enable the respondent to have a free answer rather than one confined to a few specified options. Such questions give the respondent a lot of freedom in how they phrase their responses.

Merits and demerits of Open ended questions
The main benefit of open-ended questions is that they allow you to get responses in the respondent's own language. However, open-ended questions are more difficult to handle from a theoretical standpoint, as they raise issues of understanding, comparability, and moderator bias. In reality, it's unlikely to come across a questionnaire that depends solely on one type of query. The different ways work well together. As a result, several types of questions are combined into a single questionnaire. Multiple-choice questions, for example, are the foundation of a standardized questionnaire, especially in a mail survey. Even then, open-ended questions are often used to provide a more full view of the respondent's thoughts and attitudes.

Wording
The language of questions is crucial to obtaining accurate and substantive results, so researchers must pay close attention to it. Since words have the potential to influence reactions, they should be carefully selected. Simple terminology that both respondents are familiar with should be used. Avoid using words with unclear definitions. Dangerous sentences, catchphrases, and words with emotional connotations can also be discouraged. When using expressions that reflect on the respondent's status, caution should be exercised. In no case can the wording of the question influence the outcome. In reality, phrasing and formulating questions is an art that can only be learned by experience.

Essentials of a good questionnaire
To be accurate, the questionnaire should be relatively short and simple, i.e., the questionnaire's size should be kept to a bare minimum. Questions can be asked in a linear order, starting with the easiest and progressing to the most complex. Personal and intimate questions should be saved for the close of the conversation. In a questionnaire, technical terminology and abstract phrases that can be interpreted differently should be avoided. There are three types of questions: dichotomous (yes or no), multiple choice (alternative responses listed), and open-ended. The latter form of topic is always impossible to analyze, so it can be avoided as much as possible in a questionnaire. In the questionnaire, there should be certain control questions to determine the respondent's reliability.

As a result, the control questions add a cross-check to see whether the data gathered is right or not. Questions that have an effect on respondents' feelings should be avoided. To aid editing and tabulation, sufficient space for answers should be included in the questionnaire. There should still be a place for signs of skepticism. Invariably, brief instructions for filling out the questionnaire should be included in the questionnaire itself. Finally, the physical presentation of the questionnaire has an impact on the amount of cooperation the researcher gets from the respondents, so an appealing questionnaire, particularly in mail surveys, is a plus point for enlisting cooperation. The paper's accuracy, as well as its colour, must be decent in order to catch the eye of the recipients.

II- Interview schedule

A schedule is a collection of questions devised and presented with the intent of evaluating a hypothesis or inference. In the scheduled process, the interview takes centre stage and is crucial. This method of data collection is somewhat similar to data collection by questionnaires, with the exception that schedules are filled out by enumerators who have been specially named for the purpose, whereas questionnaire is filled by the respondents themselves. These enumerators, accompanied by schedules, visit respondents, ask them questions from the proforma in the order in which they are mentioned, and record their responses in the space provided on the proforma.

W.J. Goode & P. K. Hatt- “Schedule is the name usually applied to a set of questions, which are asked and filled by an interviewer in a face to face situation with another.”
Thomas Carson Macormie- “The schedule is nothing more than a list of questions which it seems necessary to test the hypothesis.”

In certain cases, respondents will be given schedules, and enumerators may assist them in documenting their responses to different questions on the schedules. Enumerators clarify the investigation's goals and objectives, as well as any challenges that a respondent may have interpreting the implications of a specific topic or the terminology or concept of challenging words.

Since this approach necessitates the collection of enumerators for filling out schedules or assisting respondents in filling out schedules, enumerators must be carefully chosen. The enumerators should be well prepared to do their work, and the purpose and complexity of the inquiry should be sufficiently outlined to them so that they fully comprehend the ramifications of the various questions included in the timetable. Enumerators must be intelligent and have the ability to cross-examine witnesses in order to discover the facts. Over all, they should be trustworthy, genuine, hardworking, patient, and persistent.

This method of data collection is extremely useful in large-scale investigations and can provide very accurate results. It is, however, very costly, and it is typically used in inquiries undertaken by government departments or large corporations. This system is used to administer population censuses all over the world.

**Important Features of Schedule:**

1. The interviewer presents the timetable. He asks the questions and takes notes on the responses.
2. Since the list of questions is just a written text, it does not need to be appealing.
3. The schedule is applicable to a very specific area of social science.
4. It assists in limiting the complexity of the research and focusing on the basic elements of the review.
5. The aim is to define the topic.
6. The interviewer is still armed with the formal paper outlining the questions, which is preplanned and written down formally in the timetable.

**Points to be kept in mind while designing schedule:**

1. The interviewer should avoid asking lengthy, complicated, or incorrect questions.
2. Questions that are unrelated or irrelevant should not be answered.
3. Personal and unsettling questions should not be included in the schedule.
4. The questions should be straightforward, easy to understand, and important to the subject.
5. Questions should be appropriate for the respondent's intelligence level.
6. Questions that are impersonal, indirect, and unambiguous should be included in the schedule.

**Merits of Schedule:**
1. A higher proportion of people responded.
2. Behavioral traits may be observed.
3. It is possible to have eye contact during an interview.
4. A human contact should be added to a timetable.
5. When there is face-to-face contact, suspicions will be dispelled.
6. It is possible to learn about the interviewee's flaws.

**A few common problems in question formulation**

When creating interview questions, there are a number of other issues to consider. Affectively worded questions, double-barreled questions, and unnecessarily nuanced questions are among the most severe ones.

**Affectively Worded Questions**

Most people have an emotional reaction to affective language, which is normally unpleasant. Despite the fact that these questions aren't meant to be antagonistic, they have the ability to shut down or hinder interview subjects. One theory is why this question has a punitive connotation, as in "Why did you do that wrong thing?" As a result, when interview participants are asked "Why?" after mentioning some kind of behaviour or attitude, they cannot react correctly or fully. When asked, "How come?" in response to these same statements, they can provide full answers in a relaxed manner.

**The Double-Barreled Question**

The double-barreled topic is one of the more common issues that occur when creating survey pieces. In this form of query, the respondent is asked to answer to two problems at the same time. "How many times have you smoked pot, or have you just tried cocaine?" one might inquire. It's worth noting that the two questions raised in this particular topic are just loosely linked. The
first clause of the issue inquires about drug use frequency. The second clause further complicates the situation by asking if the person has ever used marijuana or cocaine.

Of necessity, separating the two problems and asking separate questions is the logical answer to the double-barreled dilemma. Since people are oblige through interviews and can answer about all they are asked, failing to distinguish the two topics can give any responses, but analysing a response to a double-barreled question is almost difficult.

**Complex Questions**

In Western culture, the pattern of exchange that constitutes verbal contact entails more than just listening. When one person speaks, the other listens, anticipates, and plans their response. As a result, when researchers ask a long, complicated question, the participants cannot hear the whole question. As a result, their answer could only be in response to a small part of a larger problem woven into the complicated issue. As a result, keeping queries short and sweet makes for more succinct replies and more accurate interpretation of the responses.

**Question Sequencing**

The order in which questions are asked in an interview will have a big impact on the outcome. Usually, interviews begin with a series of non-threatening demographic questions. These questions are typically simple for the subjects to respond to, and they encourage interviewers to establish familiarity with them through eye contact and general disposition. If the interview progresses, more complicated and delicate questions will be asked.

**Pretesting the schedule**

Researchers shall pretest the schedule after they have established the instrument and are comfortable with the general vocabulary and sequencing of questions. This should ideally require at least two stages. First, people acquainted with the study's subject matter—technical specialists, other scholars, or people who suit the form to be studied—should critically analyse the questions.

This first move makes it easier to find questions that are incorrectly worded, have insulting or emotion-laden wording, or show the researchers' own perceptions, personal beliefs, or blind spots.

The second stage in pretesting an instrument until it can be used in a real analysis is to do multiple practice interviews to see how well it can perform and whether the information requested can be received. Five questions are proposed by Chadwick, for evaluating an instrument:
1. Has the researcher asked any of the questions that are needed to validate the hypothesis?

2. Are the questions eliciting the expected forms of responses?

3. Is the testing instrument's vocabulary understandable to the respondents?

4. Are there any other concerns with the questions, such as ambiguous wording or various issues with one question?

5. Finally, in its current form, does the interview guide assist in motivating respondents to engage in the study?

While time consuming in and of itself, a thorough pre-test of the instrument normally saves a lot of time and money in the long run.

**Difference between questionnaires and schedules**

In research samples, both questionnaires and schedules are commonly used methods of data collection.

The essence of these two approaches bears a striking similarity, prompting many to suggest that they should be considered interchangeable from a functional standpoint. However, there is a distinction between the two from a professional standpoint. The important points of difference are as under:

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Interview Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally sent by mail to informants, who must respond as stated in a covering letter, but without further assistance from the sender.</td>
<td>Usually completed by a research assistant or enumerator, who can interpret questions as required.</td>
</tr>
<tr>
<td>We just have to expend money on preparing the questionnaire and sending it to respondents, so it's pretty inexpensive. There is no need for field staff here.</td>
<td>Since a significant amount of money must be expended on appointing enumerators and providing them with preparation, it is relatively more expensive.</td>
</tr>
<tr>
<td>In the case of a questionnaire, non-response is common, as many people do not reply and many others return the questionnaire without addressing any of the questions.</td>
<td>Schedules have a very low error rate since they are filled by enumerators who can get answers to all questions. However, there is</td>
</tr>
</tbody>
</table>
It's not really obvious who responds. | The identity of the respondent is known.
---|---
Since several respondents do not return the questionnaire on time after many reminders, it is likely to be rather slow. | When enumerators fill up the forms, the data is obtained sooner than expected.
Since personal communication is usually impossible, questionnaires are mailed to respondents, who then return them by mail. | Direct personal interaction with respondents is created.
This method is used where the respondents are literate and cooperative. | Data can be collected even if the respondents are illiterate.
It is possible to get a more diverse and representative sample distribution. | The challenge of sending enumerators over a very large area is normally always there.
When individuals are unable to understand questions correctly, the risk of gathering inaccurate and incorrect information is higher. | Enumerators can eliminate any problems that respondents may have in properly understanding the questions, so the data gathered is usually complete and reliable.
The consistency of the questionnaire is more important than the method's performance. | Depends on the enumerators' integrity and competence.
The questionnaire's physical appearance must be desirable. | Enumerators, not responders, are supposed to fill them out.
When gathering data by questionnaires, observation is not feasible. | The method of observation can also be used.

### III- Interview guide

The interviewer should read an interview guide so that he or she has a good understanding about what topics and facets of the dilemma to ask about. Naturally, this interview guide should be adaptable enough to allow for different paths to be explored during the interviews.
In qualitative analysis, data is gathered not from a series of preset questions, but rather through posing concerns related to various areas of inquiry. As a result, qualitative analysis has no predetermined study methods. Many individuals, on the other hand, have a list of topics they want to address with respondents. An interview guide is a poorly defined set of topics. Developing an interview guide is critical, particularly for a beginner, to ensure desired coverage of the areas of inquiry and comparability of knowledge through respondents. In qualitative analysis, in-depth interviewing is both a data collecting approach and a study process, and the interview guide is a research instrument that is used to collect data in this design.

**Preparing an interview guide**

An interview guide differs from a standardized interview schedule in that it is less precise. In particular, the word can be used to describe both the unstructured list of memory reminders for topics to discuss and the semi-structured list of problems to answer or questions to ask. What matters is that interviewers are able to learn about how study subjects see their social environment by interrogation, and that the interviews are conducted with versatility. The latter has as much, if not more, to do with how the interview is conducted as it does with the essence of the interview guide.

The following are some basic elements to include in your interview guide preparation:

- formulate interview questions or subjects in a manner that can help you address your study questions
- develop a certain amount of order on the topic areas so that your questions about them flow fairly well, but be prepared to change the order of questions during the actual interview;
- create a certain amount of order on the topic areas so that your questions about them flow reasonably well, but be prepared to change the order of questions during the actual interview
- create a certain amount of order on the topic areas so that your questions about
- As with quantitative analysis, continue to use vocabulary that is understandable and important to the individuals you're interviewing.
- As with quantitative research, don't ask leading questions.
- Remember to question or record both general (name, age, gender, etc.) and particular (position in business, number of years working, number of years active in a party, etc.)
‘Face sheet' information, as this information is helpful for contextualizing people's responses.

During the interview, the interview guide acts as a helpful guideline or prompter. It assists in concentrating emphasis on important research points and obtaining comparative results in various interviews conducted by the same or different interviewers.

### 3.3 Sampling: Probability and Non Probability

**Sampling**

The method of selecting a few individuals from a larger group to serve as the foundation for estimating or predicting the prevalence of an unknown piece of knowledge, condition, or outcome in the larger group is known as sampling. A sample is a smaller representation of a larger whole, as the name suggests. To put it another way, a sample is a subset of the population chosen from the above in such a way that they are representative of the entire population. Population refers to a single member of a population. When a group of elements is chosen with the aim of learning more about the population from which they were drawn, that group of elements is referred to as a sample, and the process of selection is referred to as sampling.

“A sample, as the name suggests, is a smaller representation of a larger whole,” say Good and Hatt. “We lack the means, in any branch of science, to research more than a fragment of the phenomenon that would advance our knowledge,” writes W. G. Cocharn. i.e., a fragment is a sample, and a population is a group of people. The phenomenon of generalisation is extended to the sample observations. “In the social sciences, it is not possible to collect data from every respondent who is important to our research, but only from a fraction of the respondents,” says David S. Fox. Sampling is the method of selecting the fractional part.”

**Sampling terminology**

- The population, or study population or the universe, is defined as the class, families residing in the area, or electorates from which you choose your sample. It is typically denoted by the letter N.
➢ The sample is a small group picked from the population.
➢ The sample size, which is generally denoted by the letter n, is the number of items from whom you obtain the necessary details.
➢ The sampling design or sampling technique refers to how you pick the items from the population.
➢ The sampling frame is a list of all the items in your population. It’s a complete list of everyone or everything you want to study.
➢ Survey statistics are the results of your research based on the knowledge you gathered from your respondents (sample).
➢ The prevalence of the above characteristics in the research population is estimated using your sample statistics.
➢ Your primary goal is to find answers to your research questions in the study population rather than the sample from which you gathered data. We estimate the answers to our research questions in the study population using sample statistics. Population parameters, also known as the population mean, are measures derived from survey statistics.

Characteristics of a good sample design

We may list the characteristics of a good sample design as follows based on what has been discussed above:

(a) The sample design must result in a sample that is genuinely representative.

(b) The sample design must be such that the sampling error is negligible.

(c) The sample design must be feasible in the sense of the research study's budget.

(d) The sample design must be such that systemic bias can be better controlled.

(e) The sample size should be such that the sample study's findings can be extended to the entire universe with a fair degree of confidence.

Advantages of Sampling

• Sampling helps researchers save time and money by reducing the number of participants in their studies. It is now possible to conduct national or global studies at a fair cost and time
thanks to the use of sampling. Several field research, such as credit surveys, poverty surveys, and marketing surveys, benefit from such time and cost savings.

- Sampling saves time and effort. Fieldwork, as well as data processing and analysis, need a smaller workforce.
- A study's efficiency is always higher when sampling is used rather than full coverage. In sampling, there is a greater chance of better interviewing, more comprehensive analysis of lost, incorrect, or suspicious details, better supervision, and better processing than in full coverage. It's no surprise that sample surveys are used to verify the accuracy of decennial population censuses in the United States, India, and other nations.
- It produces results much faster than a census. The time between recognizing a need for information and having the information is reduced by the pace at which it is executed. In feasibility studies, assessment studies, and market analysis, pace of execution is critical. For making use of a study's results, it must be completed on time.
- If the population user is infinite, sampling is the only option, such as dice throws, behaviour surveys, and so on.
- Statistical sampling has a significant benefit over any other method of selecting a subset of the population for research. That is, when population characteristics are estimated using sample results, the accuracy of these estimates can also be determined using the sample results.

Limitations of Sampling

- Sampling necessitates a detailed understanding of sampling methods and procedures, as well as a higher level of caution; otherwise, the results obtained can be inaccurate or misleading.
- When the characteristic to be measured occurs only infrequently in the population, a broad sample size is needed to obtain units that will provide accurate data. Many of the disadvantages of a census survey are present in a broad sample.
- A complex sampling strategy may necessitate more time and effort than full coverage.
- Even with the most perfect sampling methods, it cannot be possible to guarantee sample representativeness. As a consequence of sampling, there will be certain sampling errors, i.e., there will be a disparity between the sample value and the population value.

Types of sampling
**Probability Sampling**

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### I- Probability sampling

Probability sampling is based on probability theory. Random sampling is another name for it. It gives each population variable a known non-zero chance of selection.

Its characteristics are:

1. Any population has a chance of being chosen in probability sampling.

2. There is a known likelihood for such a chance. For example, if a sampling frame is a list of 100 students enrolled in a specific course of study, each student has a $1/1001$ chance of being chosen in a simple random sample.

3. Since probability sampling produces a representative sample, the results of the sample survey can be applied to the entire population.

4. Calculating sampling bias or error may be used to assess how similar a sample is to the population. The risk of unknown sampling bias can be reduced by randomization. As a result, likelihood sampling outperforms non-probability sampling.

Where generalization is the goal of the research, and a higher level of accuracy in population parameter estimation is needed, probability sampling should be used. Probability sampling can be very expensive and time consuming. As a result, the expense should be justified by the benefits received.

**Probability sampling methods**
Random Sampling Procedures

The significance of randomness in sampling cannot be overstated. It's a way to ensure that a representative sample is obtained. How does one choose a random sample? Random sampling is often misunderstood to mean selecting units "at random," i.e. in a haphazard or hit-or-miss manner. The human being has proven to be an incredibly weak instrument for conducting a random collection.

The method of selection must be independent of human judgement in order to ensure true randomness. There are three simple steps to follow.

1. The lottery method: This is the most basic and well-known random sampling technique. Take 50 equal size chips or slips of paper and number them from 1 to 50, each bearing only one number, if a sample of 10 students is to be drawn from a list of 50 students in a section. Each slip should be rolled. Place the rolled slips in a large container and shuffle or mix them thoroughly. Count out 10 chips from the jar one by one. Until drawing a chip, thoroughly combine the chips in the bottle. The random sample is made up of units with the numbers of chips drawn on them.

There are two options in the above sampling process. After a number is chosen by draw, it will be replaced, and therefore has a chance of being chosen again. Sampling with replacement is a term for this process. Unrestricted random sampling is the term used to describe this process. Alternatively, the chosen number is set aside, and it has no chance of being drawn again in future draws. Sampling without substitution is the term for this method of sampling. This is a form of selective sampling.

2. Random Number Table: There are several standard tables of random numbers such as the one developed by Kendall and Smith (1939), Fisher and Yates (1963) and Tippet (1927). To select a random sample out of a frame, one should simply start to read numbers from a Random Number Table at any randomly selected point and pick out numbers within the range of the frame.

3. Use of Computers/ Softwares: with the development of modern computer technology, there are various computer programs to select a random sample. The computer can be programmed to print out a series of random numbers as the researcher desires. This is helpful when the population is very large.
A- Simple Random Sampling

This method of sampling ensures that each variable has an equal and independent probability of being chosen. In a population of 300 people, an equal chance means that each element has a 1/300th chance of being chosen. Each variable in a population of 1000 has a 1/100h chance of being chosen. In this sampling is a method of equal likelihood selection. An independent chance implies that the selection of one element has no bearing on the selection of other elements.

When any elements are purposefully left out of the sample, the result is not a random sample. To draw a random sample, all elements should be included in the sample frame.

The following steps make up the protocol for drawing a simple random sample:

- Enumeration of all elements in the population,
- Preparation of a list of all elements, giving them numbers in a serial order 1, 2, 3.. so on, and
- Drawing sample numbers by using (a) Lottery method, (b) a table of random numbers or (c) a computer

Suitability:

Only a small homogeneous population is ideal for simple random sampling. Under the following circumstances, it can produce a representative sample:

1. When the population is homogeneous in terms of the listed characteristics, for example, students in fifth grade at a boy's school form a homogeneous group in terms of educational level and age group.

2. Where a full list of all elements is available or can be prepared

3. Where the population is relatively small.

Simple random sampling is ineffective for drawing a sample from a large heterogeneous population because it does not provide a representative sample.

Advantages:

Some advantages of simple random sampling are:

1. The population as a whole has an equal chance of being chosen.
(2) Simple random sampling is the simplest of all the probability sampling techniques.

(3) It is the most straightforward method of probability sampling to comprehend.

(4) It does not necessitate prior knowledge of the population's true makeup.

(5) It is simple to calculate the amount of sampling error associated with any sample drawn.

**Disadvantages:**

There are some disadvantages of using simple random sampling techniques.

(1) It is often impractical due to the lack of a population list or the difficulty of enumerating the population. For example, obtaining a current accurate list of households in a region, a list of landless rural agricultural labourers who move from area to area in search of work, or a list of nomadic tribe households is difficult.

(2) Using simple random sampling can be inefficient because we don't use all of the population's known knowledge.

(3) This method does not guarantee proportionate representation of the population's different classes.

(4) Since it is less accurate than other methods, the sampling error in this sampling is higher than in other likelihood samples of the same size.

(5) In this sampling technique, the sample size needed to ensure representativeness is typically larger than in other random sampling techniques.

(6) A simple random design can be time and money consuming.

Due to these issues, superior random sampling designs such as stratified random sampling, systematic sampling, and others have been created.

**B- Stratified Random Sampling**

This is a more sophisticated version of random or probability sampling. The population is divided into homogeneous classes or strata, and a random sample is drawn from each stratum. For example, university students may be divided into groups based on discipline, with each discipline
category subdivided into juniors and seniors; and business workers may be divided into managers and non-managers, with each of those two groups subdivided into salary-grade-wise strata.

Stratification is needed for:

(1) Raising the statistical efficiency of a sample- Stratification is needed to ensure that all applicable sub-groups of the population are represented. As a result, it is statistically more effective than simple random sampling.

(2) Providing sufficient data for analyzing various sub-populations- When a researcher wants to study the characteristics of population sub-groups, such as male and female employees of a company, stratification is needed.

(3) Applying different methods to different strata- When various methods of data collection, etc. are used for different sections of the population, such as interviewing for jobs and a self-administered questionnaire for executives, stratification is useful.

The stratification procedure is as follows: There are three big decisions to be made here:

(1) Settle on the stratification basis or bases to be used. The primary variable under investigation will be the ideal basis. If the size of the firms is a primary variable, the firms could be stratified based on the amount of block capital used.

(2) The number of strata consists of: How many strata should there be? This is a question for which there is no precise response. The more strata there are, the better. The greater the sample's representativeness, the better. The number of sub-population groups to be studied and the cost of stratification will influence the decision. When the number of strata reaches six, according to Cochran, there is little benefit in estimating total population values.

(3) Sample sizes for strata: There are two options. For starters, strata sample sizes should be proportional to strata shares of the total population. Second, they may be out of proportion to the strata's ownership. As a result, there are two types of stratified random sampling: proportionate stratified sampling and disproportionate stratified sampling.

The following are the key benefits of proportionate stratified sampling:
(1) It improves the sample's representativeness by ensuring that all subgroups in the population are well represented.

(2) It has a higher statistical utility for a given sample size than simple random sampling.

(3) This sample approach is simple to implement.

(4) This approach produces a self-weighting sample, and the population mean can be calculated simply by multiplying the sample mean by the population mean.

The disadvantages of proportionate stratified random sampling are as follows:

(1) Adopting this approach necessitates prior knowledge of the population structure and distribution of population characteristics.

(2) This approach is both time and money consuming; however, the increased productivity can compensate for the additional cost.

(3) The strata's identification could result in classification errors. Any elements may have been placed in the incorrect strata. This could make it difficult to interpret survey results.

C- Systematic Sampling or Fixed Interval Method

The aim of this method of sampling is to provide an alternative to random sampling. After a random start with an item from 1 to k, it takes every k" item in the population. As an example. If a sample of 20 students is required from a list of 300 students, divide the population total of 300 by 20, and the quotient is 15. (If the quotient contains a fraction, forget it and use the integer or whole number instead.) Using the lottery method or a table of random numbers, choose a number between 1 and 15 at random. Assume the chosen number is 9. The students with the numbers 9, 24, 9+15), 39 (24+15), 54 (39+15), 69, 84, and so on are chosen for the study.

The following are some of the most significant benefits of systematic sampling:

(1) It's a lot less complicated than random sampling. It's easy to use.

(2) It is simple to train field investigators on how to use this tool.
(3) This method could save you time. This approach would be preferred by a researcher working on a tight deadline.

(4) This approach is less expensive than random sampling.

(5) It is simpler to verify that each "k'th" item has been included in the study.

(6) The sample is distributed uniformly across the population.

(7) When population elements are arranged chronologically, by age, class, or other factors, it is statistically more efficient than a simple random sample. Following that, systematic sampling yields a more representative sample.

Demerits

The following are the key drawbacks of systematic sampling:

(1) This approach ignores all elements between the first and second 'k' elements. In addition, with the exception of the first element, the other elements are not chosen at random. As a result, this sampling is not a probability sampling in the strict sense of the word.

(2) The resulting sample is not random since each variable does not have an equal probability of being chosen. This drawback would be important for studies aiming at estimations or generalisations.

(3) This approach can result in a skewed sample. If some of the k'th elements chosen by chance represent the same group, that group will be over-represented in the study.

D- Cluster Sampling

The use of a simple or stratified random sampling approach will be too costly and time-consuming when the population elements are dispersed over a larger region and a list of population elements is not readily accessible. Cluster sampling is often used in these situations.

The term "cluster sampling" refers to the collection of sampling units made up of population elements at random. Each sampling unit is made up of a group of population elements. Then, using either simple random selection or stratified random selection, a sample of population elements is drawn from each selected sampling unit.
Assume a researcher wants to interview a random sample of 1,000 households from a city's approximate 40,000 households. A direct sample of individual households would be difficult to choose due to the lack of a list of households and the expense of preparing one.

He may instead choose a random sample of a few blocks or wards. The number of blocks to be chosen is determined by the approximate average number of households per block. If a block has an average of 200 households, the sample would consist of 5 blocks. Since the number of households per block varies, the sample size is determined by the block that is chosen. Alternatively, he can draw a sample of many blocks and pick a certain number of households from each sample block using systematic sampling.

Cluster sampling has a wide range of uses in social science research, including farm management surveys, socio-economic surveys, rural credit surveys, demographic studies, ecological studies, public opinion polls, large-scale political and social behaviour surveys, attitude surveys, and so on.

Advantages of cluster sampling

1) When studying large populations or covering large geographical regions, this approach is much simpler and more convenient to use. It is not even appropriate to provide a ready-made list of population components. Depending on the size of the study area, a researcher may simply draw a random sample of geographical sections and use single or multistage sampling.

2) As opposed to other sampling methods, this approach is much less expensive.

3) This approach facilitates field work by allowing it to be performed in small spaces.

4) This approach does not necessitate more time for sampling.

5) Within the same random segment, units of analysis can easily be substituted for other units.

6) This technique is adaptable. It is possible to use various methods of sampling in successive stages by using multistage sampling.

Disadvantages
(1) The cluster sizes can vary, and this variance, for example, may increase the sample's bias. The researcher will interview all adults in each household on each chosen street, with the number of adults varying from house to house. Because of the large number of large families covered, there may be some prejudice.

(2) This method of sampling has a higher sampling error. As a result, statistically, this approach is less effective than other probability sampling methods.

(3) Units of analysis that are close together (e.g., households) have more similar characteristics than units that are far apart. This has an impact on the sample’s ‘representativeness,' which is expressed in a higher sampling error.

E- Multi-stage Sampling

Sampling is done in two or more stages in this process. A number of first-stage sampling units are considered to make up the population. They’re each made up of a variety of second-stage units and so on. That is, a sampling unit at each point is a cluster of the sampling units from the previous stage. The first step is to draw a sample of the first stage sampling units. Then a sample of the second stage sampling units is drawn from each of the selected first stage sampling units. The process is repeated until the final sampling units or population elements are reached. At each point, an appropriate random sampling method is used.

Usage: Multi-stage sampling is useful when the population is dispersed over a large geographic area and no sampling frame or list is available. It's also useful when a survey needs to be completed in a short amount of time or on a tight budget.

Advantages include: The following are some of the most important benefits of multi-stage sampling:

1. It causes fieldwork to be concentrated in small, compact areas, resulting in time, labour, and financial savings.

2. Single-stage sampling is less simple, effective, and versatile.

3 It eliminates the need for a sampling frame that covers the whole population.
The method for calculating sampling error and cost advantage is difficult, which is a major drawback of multi-stage sampling. This calculation method is difficult to pursue for someone who is not a statistician.

II- Non-probability sampling

Non-probability sampling, also known as non-random sampling, is not founded on probability theory. This sampling does not give each population variable a chance to be chosen. The only advantages of this method of sampling are its simplicity, ease of use, and low cost.

It has the following disadvantages:

1. It does not guarantee that each population unit has a chance to be selected.

2. The likelihood of selection is uncertain.

3. It’s possible that a non-probability sample isn't representative.

4. A non-probability sampling plan has no inferential function, which means that population parameters cannot be inferred from sample values.

5. It has sampling bias, which will skew the data.

As a result, non-random is not a good option. There are, however, some practical reasons to use it. They include:

1. When there is no other viable option due to the lack of a population list, the lack of certain population elements for data collection, or other factors;

2. When conducting the research, keep in mind that the aim is not to generalize the results to the whole population, but rather to get a sense of the spectrum of circumstances or existence of the phenomenon.

3. When the cost of probability sampling is excessive, and the value anticipated from it is insufficient to justify the cost.
4. When probability sampling needs more time but the study's time limitations and completion deadline prevent it.

**A- Convenience Samples:**

Convenience sample is also known as an unintentional or availability sample. This type of sample relies on readily available subjects, such as those who are nearby or easily accessible. Professors at colleges and universities, for example, often use their students as subjects in their research projects. This technique is all too common, and it comes with a number of serious risks. In some conditions, this technique is an excellent way to rapidly and cheaply collect preliminary information about a research issue.

**Advantages:**

1. Convenience sampling is the cheapest and most straightforward process.
2. It does not necessitate a population list.
3. It does not necessitate any statistical knowledge.

**Disadvantages:**

1. Because of the researcher's subjectivity, convenience sampling is inherently biased and does not produce a representative sample.
2. It is the least accurate method of sampling. There is no way to estimate the sample's representativeness.
3. The results are not generalizable.

**B- Purposive Sampling.** This form of sampling is also known as judgmental sampling. When creating a purposive survey, researchers pick subjects that embody a population based on their unique knowledge or expertise. Purposive samples are often chosen after field investigations on a population to ensure that certain groups of people or people who exhibit certain characteristics are included in the analysis. Purposive samples are occasionally used by researchers, despite certain significant limitations.

**Advantages:**
1. It is less expensive and more practical.

2. It ensures that all relevant elements are included in the study. Probability sampling cannot provide such assurance.

Judgment sampling has the following drawbacks:

1. This does not guarantee that the sample is representative.

2. As opposed to random sampling, this method is less effective at generalising.

3. This approach necessitates more detailed prior knowledge of the population being studied. It is impossible to assess the suitability of the sample products to be chosen without this knowledge.

4. Since this sampling does not fulfil the underlying presumption of randomness, this approach does not lend itself to the use of inferential statistics.

C- Snowball Sampling: Snowball sampling is another nonprobability sampling technique that some may compare to convenience sampling. Snowballing can be a good way to find subjects with specific attributes or characteristics that are required in a sample. Researchers interested in researching different types of deviance, sensitive subjects, or difficult-to-reach communities also use snowball samples.

Snowballing's basic approach entails finding many individuals with relevant characteristics and interviewing or making them fill out a questionnaire. These individuals are then asked for the names of other people who share their characteristics.

Advantages

1. It is extremely useful in the study of social groups, informal groups within formal organisations, and the dissemination of knowledge among different types of professionals.

2. It's useful for smaller populations where there aren't any frames available.
Disadvantages:

1. One of the most significant drawbacks of snowball sampling is that it precludes the use of probability statistical techniques. The elements used are based on the subjective preferences of the original respondents.

2. When the population is high, this approach is difficult to use.

3. It does not guarantee that all elements in the list will be included.

D- Quota Samples

A quota sample starts with a matrix or table that divides the data into cells or strata. The quota sampling strategy then fills these cells with a nonprobability process. To build and mark each stratum or cell in the table, the researcher may use gender, age, education, or any other attribute. The attributes chosen will be determined by the research question and study objectives. The proportion of each attribute in the entire sample population must then be determined.

“For example, suppose a researcher wants to investigate how people perceive abuse, with a focus on people over the age of 65. Census statistics will include accurate estimates of people over the age of 65, as well as different groups of people under the age of 65, to the researcher. People over 65, 45-65, 25-A, and under 25 could be divided into different age groups as a result of the study. The researcher will then figure out how many people are in each of these age groups. Following that, the investigator could choose a region of the country and survey people in that area, finding the same proportion of people in each age cohort as in the census data.”

The following are the main benefits of quota sampling:

1. It is much less expensive than chance sampling.

2. It takes a shorter amount of time.

3. There is no requirement for a population list. As a result, quota sampling is a good way to sample a population when no appropriate frame is available.

4. Fieldwork is simple to coordinate. It is not necessary to have strict supervision.

Shortcomings: The quota sampling approach has a number of significant flaws.
1. It is difficult to quantify sampling error since the survey does not produce a precise representative. As a result, the results cannot be applied to a large number of people.

2. Interviewers can select the most accessible people, ignoring slums or difficult-to-reach places. As a result, they may not be able to obtain a representative sample within their quota categories.

3. It is difficult to maintain strict control over field work.

**Criteria of selecting a sampling procedure**

In this context, it's important to note that a sampling study has two costs: the cost of obtaining the data and the cost of making an incorrect conclusion based on the data. The two causes of incorrect inferences, systemic bias and sampling error, must be kept in mind by the researcher. Errors in the sampling methods cause systemic bias, which cannot be minimized or removed by increasing the sample size. The causes of these errors may, at best, be identified and corrected. A systemic bias is usually caused by one or more of the factors mentioned below:

1. Incorrect sampling frame: A systemic bias will occur if the sampling frame is inappropriate, i.e., a skewed representation of the universe.

2. Defective measuring device: Systemic bias will occur if the measuring device is consistently in error. If the questionnaire or the interviewer is biased, systemic bias may occur in survey work. Similarly, if the physical measurement device is inaccurate, the data obtained from that device would be systematically biased.

3. Non-respondents: If we are unable to sample all of the people who were originally included in the sample, a systemic bias could occur. The explanation for this is that in such a situation, the probability of making contact with or receiving a response from a person is often associated with the estimated value.

4. The theory of indeterminacy states that people behave differently when they are studied than when they are not. For example, if workers are aware that they are being monitored as part of a work study to assess the average length of time to complete a job and, as a result, a quota for piece work will be set, they will usually work more slowly than if they are left unobserved. As a result, the indeterminacy principle may be a source of systemic bias.
5. Natural bias in data reporting: Natural bias in data reporting by respondents is often the source of systemic bias in many inquiries. The income data collected by the government taxation department has a downward bias, while the income data collected by certain social organizations has an upward bias. When asked about their income for tax purposes, people tend to understate it, but they overstate it when asked about their social standing or affluence.

Conclusion

Obtaining data on an entire population is always prohibitively expensive or impossible. Instead, we take a representative sample of the population. The characteristics of a sample should match those of the population it represents. In order to achieve this aim, most statisticians employ a variety of sampling techniques. Data sampling should be performed with extreme caution. Careless data collection may have disastrous consequences. The samples you spend time and money collecting will help the inferences you want to draw if you choose the right sample design tool.

MODULE IV

PRESENTATION OF THE RESEARCH REPORT

4.1 Reporting: monographs, dissertations and project reports

Reporting

Writing the research report is the final step in the research process. For a valid study, each phase of the process is critical, as failure at any point would affect the quality of not just that section, but the entire study. In certain ways, this is the most important move because it is through the report that the study's conclusions and results are conveyed to the supervisor and readers. The majority of people would be unaware of the amount and quality of work that went into your research. Readers just see the study, despite the fact that much effort and consideration went into every stage of the analysis. As a result, if the report is poorly written, the entire organisation can suffer. The report's content is determined by your written communication skills and clarity of thinking, your ability to convey thoughts in a rational and sequential manner, and your subject-matter knowledge.
Features:
The following are the essential features of a good research report;

(i) Clarity  
(ii) Conciseness  
(iii) Veracity  
(iv) No place for figures of speech, lyrical prose and in using anecdotes.  
(v) No lengthy digressions  
(vi) Only necessary details  

In the sense of science, disseminate means to communicate, exchange, or widely disseminate information or knowledge. Scholarly correspondence is the term for this. Scholarly contact can take place in both formal and informal settings. Graham identified three platforms for scholarly communication: 1) informal networks, such as conversations and seminars; 2) initial public dissemination, such as conferences, preprints, or working papers; and 3) formal publication, such as journals, books, and other similar outlets. The most basic definition of publishing is to make anything available to the public. The term publishing, on the other hand, usually refers to the process of creating and disseminating literature or knowledge. It may also refer to the process of writing and publishing books, journals, and other types of written content for sale.

Different formats and methods of distribution are used for various purposes and target different markets. In the field of information, the most popular methods of disseminating research are:
1. Reports on study  
2. Theses or dissertations  
3. Books or monographs  
4. Papers in journals  
5. Articles and presentations at conferences. Each of these types of dissemination routes serves a different purpose and targets a different audience, necessitating different approaches. Multiple publications can result from a single research study.  

For communicating his research findings, the researcher may use either of the following modes: monographs, dissertations, and project reports.

A- Monograph

“Separately published papers on original studies that are too long, too specialized, or otherwise unsuitable for publication in one of the regular journals,” according to Research
Monographs. Each Monograph is self-contained, often summarises current theory or practice before presenting the author's original and previously unpublished work, and is likely to be one of a series of similar research monographs in the same field.” It should be noted, however, that a monograph is typically a short treatise. It varies from a treatise in that it is a work completed on a smaller scale. Aside from that, they're identical in terms of features and functionality. The findings of original research are presented in a research monograph.

Study monographs are reformatted editions of dissertations, theses, and other important research publications. University presses and private academic publishers both print monographs. Writers of monographs may receive a royalty payment, while authors of most other forms of research dissemination, such as journal articles and conference papers, do not receive direct payment. A monograph will usually be edited as a commercial work to make it more readable to a more general or particular audience, depending on who the publisher will sell the book to. Individuals with varying degrees of experience in the area, ranging from students to professors, professionals to laypeople, would most likely read a research monograph. When writing, you may presume that the reader is interested in the topic, but that he or she may not be well-versed in the area. Peer-reviewed research monographs are popular.

The importance of writing monographs

In several cases, presenting a monograph is the most successful way of communicating many years of continuous study on a single subject. This does not prohibit the publication of publications in preparation for the novel, but the book occupies a unique position in the science publishing community. It has the length and space to allow for a thorough review of a subject, with the goal of providing complex and rich concepts, claims, and observations that are backed up by carefully contextualized analysis and proof. The fact that the study data has a distinct character that cannot be repeated or modelled, unlike in certain other disciplines, necessitates a more detailed explanation and more clear proof.

Although there appears to be little concrete research into this subject, scholars across a wide range of arts, humanities, and social science disciplines agree that they are characterized by internal debate, whose theoretical and methodological approaches must frequently be laid out fully in one's writing in order to examine and critique the argument. Monographs are a natural home for this type of exposition and discussion since they enable the author to synthesize arguments and
create new ideas in a way that is grounded in facts while still engaging with broader perspectives. While it would be a mistake to believe that all monographs are important for many years, it is not unusual for them to underpin and contribute to scholarship for many years, if not decades. Books have emerged as an ideal medium for long-term information exchange, possibly because they are more robust and long-lasting than articles.

B- Dissertations

A dissertation is a lengthy text written by a doctoral student in the course of completing their studies. Every part of the study process should be covered in a research dissertation or thesis. Any university will have its own set of guidelines for structuring and presenting a dissertation or thesis; it is important to consult these guidelines as well as the members of your supervisory team when writing. Reading a number of theses or dissertations in your field from both your own institution and other universities is often very beneficial. Theses and dissertations can be found in university libraries and online databases. Some universities need open access to electronic copies of new theses and dissertations.

A committee or group of expert examiners is the primary audience for a dissertation or thesis. Some of these readers may be specialists in fields similar to yours, but they may not be as familiar with the literature or subjects you are researching and discussing in your study. As a result, even dissertations and theses should be written in a readable manner, with all key words and concepts defined and all processes, numbers, and figures, maps, and graphs explained clearly. A dissertation or thesis' copyright is usually held by the graduating doctoral or master's student.

The dissertation's goals are to:

- Put theories and concepts learned on the programme into practice
- Provide an opportunity to study a specific topic in depth
- Demonstrate evidence of independent investigation
- Combine relevant theories and suggest alternatives
- Enable interaction with practitioners
- Demonstrate ability to plan and manage a professional project
- Identify, plan, and produce an academically rigorous piece of research
➢ Comprehend the relationships between theoretical concepts taught in class and their implementation in concrete circumstances after completing the dissertation.
➢ Demonstrate vital and holistic expertise and a deeper understanding of their chosen topic area
➢ Grasp the functional consequences and limitations of the professional subject
➢ Comprehend the mechanism and decisions that must be taken while managing a project under tight deadlines.

Writing a Dissertation

We will learn more about dissertations by looking at only the title page of a dissertation. If we look at the title page closely, we can learn a lot about the rest of the document. Consider the facts you can infer from this one page when you research and jot it down.

Structure of dissertation

➢ Title page

The title of your dissertation, your name, department, institution, degree programme, and submission date all appear on the first page of your paper. Your student number, supervisor's name, and the university's logo are sometimes included. Many programmes have specific formatting criteria for the dissertation title page.

➢ Abstract

An abstract of up to 350 words should be used in the dissertation. A successful abstract is difficult to write and can only be done after the dissertation has been completed in its entirety. It is a succinct description of the dissertation research findings. It helps others to get an idea of what was done without having to read the whole dissertation by summarizing the study findings. Other academics should read the abstract to see if the complete work is worth their time. While your markers will read the entire dissertation, the abstract should include enough detail about the research findings to eliminate the need to read the entire dissertation.

Your abstract should contextualize the source text, summaries the translation brief, the theoretical structure, and the overall effects of your translation strategy if you're writing a dissertation by translation/commentary.
➢ Acknowledgements

Acknowledgements: A brief statement should be made, signed by the author, that:

1. Acknowledges all assistance obtained in writing the dissertation. Keep personal remarks about family and friends to a minimum and focus on those who have provided direct assistance.

2. Assures that the dissertation is the original work. You might be asked to provide proof of how you arrived at your conclusions. You should keep copies of all their fieldwork and analysis (including interviews and transcriptions) in a separate folder in case internal examiners need to see them. The folder should not be included with the dissertation and will be requested only if necessary.

3. A statement that the job is your own and follows University plagiarism policies.

4. A declaration of the word count.

Chapter headings, appendices, references, and the pages where they can be found should all be listed on the contents page. Lists of figures, tables, and abbreviations should be listed separately. If you know how to make these lists using Microsoft Word's indexing and style features, you'll have an easier time doing so.

The first paragraph is an introduction. The dissertation should be divided into chapters and parts that are suitable for the chosen subject and dissertation style. For the proper order of sections when writing a dissertation by translation/commentary.

➢ Introduction

This brief section of the Introduction should inform the reader about the topics that will be covered in each chapter, as well as how the chapters are connected to one another. In this way, you are, in effect, providing the reader with a ‘road map’ of the work ahead. Thus, at a glance, they can see (1) where they are starting from, (2) the context in which the journey is taking place, (3) where they are going to end up, and (4) the route which they will take to reach their final destination. Such a ‘map’ will enable the reader to navigate their way through your work much more easily and appreciate to the maximum what you have done. This chapter may be between 500 to 750 words although in some subjects or topics the justification of the subject and scope may change the length of this chapter.
➢ Literature Review

The main reasons for the inclusion of a literature review section are:

- To present and to analyze, in a critical manner, that part of the published literature which is relevant to your research topic and which acts as the basis for a fuller understanding of the context in which you are conducting your research; thus helping the reader to a more rounded appreciation of what you have completed.

- To act as a backdrop against which what you have done in the remainder of the dissertation may be analyzed and critically evaluated so as to give the reader the opportunity to assess the worth of your writing, analytical and research skills.

- To show that not only have you discovered and reported what you have found to be relevant in the literature search, but that you have understood it and that you are able to analyze it in a critical manner.

- To show that your knowledge of the area of interest is detailed enough that you are able to identify gaps in the coverage of the topic; thus justifying the reason(s) for your research. • To show that you know what the key variables, trends and ‘actors’ are in the environment of your study, i.e. you show that you know what the important issues are that need to be investigated.

- To enable readers to be able to measure the validity of your choice(s) of research methodology, the appropriateness of the process by which you analyze your results, and whether or not your findings are congruent with the accepted research which has gone before.

The literature review is viewed as a summary, classification, comparison, and critical examination of material relevant to a complete understanding of your research report. Textbooks, journal articles, conference papers, reports, case studies, the Internet, magazine features, and newspaper articles are all examples of published content.

It is important to note, however, that journal articles are the most important source of scholarly literature, and you should be acquainted with the most recent publications in journals related to your subject area. Remember that your literature review should lead and explain your dissertation’s research goals and questions. Your literature review should not simply be a list of writers, frameworks, and ideas; it should also aim to provide a critical assessment of the authors' work.

➢ Research Methodology
You should start the Research Methodology chapter by reiterating the project's research objectives. The reader will be able to determine the validity of your chosen research methodology as a result of this. This chapter of the dissertation is where you have the opportunity to explain to the reader how the research questions, which were drawn from a review of the relevant literature, were answered.

However, if you have not taken the time to explain your research choices to a reader, they might assume that you have simply assumed what will work and arrived at the "right" solution to the problem by chance rather than judgement. As used in the social sciences, the word "methodology" refers not only to the methods used, but also to the governing theory that underpins those methods.

The chapter on research methodology must painstakingly argue for and explain should decision made when determining how the research will be conducted. Any time you, the researcher, have to choose from a set of choices, you must explain what each one is, why you chose it, and why you rejected the ones you didn't use.

➢ Findings / Results / Data Analysis

This chapter summarizes the facts and/or findings of the primary research you conducted. This may take the form of detailed quantitative models, hypothesis testing, or basic analysis using basic descriptive statistics, or qualitative methods such as formal content analysis, textual analysis, or case study details, depending on your subject area. The presentation of the data you collected is the most important part of the chapter. Also projects of modest scope can produce a significant amount of data that must be considered. This information must be organized in a logical and consistent manner so that the reader can understand your thought processes and interpretations.

Whatever form of data analysis is used, it must be carried out with care and attention to detail, as should the presentation of the findings. Nothing can irritate a reader more than having to slog through a desert of charts, estimates, and statistics. It is much better to explain what the study has uncovered in an open way (which does not mean you can speak down to the reader) and to use only the most relevant statistics as proof of your findings. All related assumptions, relationships, and methods would need to be clearly seen in dissertations that included comprehensive modelling.
or quantitative analysis. Your academic supervisor will be able to instruct you about the amount of information that should be used in the main body versus the

➢ Discussion

This is the dissertation's nucleus, and it must be more than descriptive. With reference to theoretical claims grounded in the literature review, this chapter develops analytic and analytical thinking on primary findings and interpretation. You should try to point out where there are significant variations and similarities between different groups or in the literature. Where a model or system of analysis has been used or is being created, you should emphasize the key relationships while also explaining the reason for and importance of the features or decisions under discussion.

➢ Conclusions

Here, you'll tie the dissertation's work together by demonstrating how the dissertation's initial research strategy was approached in such a way that conclusions could be drawn from the proof. There should be no new material or references added here. The findings should provide a statement about how well each of the goals and objectives were reached. You should carry your research questions back and state explicitly how you understand them.

The findings focus on a broader view of the topic you've been researching. You should have a brief subsection on any recommendations for potential research for colleagues who may want to pursue this topic in the future. A brief statement of the research's limitations should also be included. You can't always say that the research applies to all businesses because it's based on a single case study or a small number of companies. However, you can make a fair but restricted argument that your findings should be taken seriously if you use a systematic approach to your literature review and methods that are reliable and repeatable.

➢ Appendix.

Graphs, diagrams, pie-charts, and other inventive forms of ‘breaking up' solid blocks of text – they let a little ‘light' into the body of the text as long as they are important and explain your points – are all interesting ways of presenting research results; Appendices should be kept to a maximum of 25 pages. It is an evidence that supports the originality of their work or reinforces points of
concept set out in the main document, questionnaires, and interview guidelines can be included in appendices.

➢ References

A reference list/bibliography should be compiled in alphabetical order by author for all references used in writing the dissertation (whether direct quotations or paraphrasing).

C-Project report

What a report?

The primary aim of a report is to provide information to one or more people who, based on that information, may make a decision, form an opinion, or simply become informed. In a study, facts, statistics, data, and details are analyzed, arguments are weighed, conclusions are drawn, and recommendations are made.

Before beginning to write the article, the writer should ask and answer these questions. The following are the inquiries:

1. Who is to read the report?

2. What do the readers want to know?

3. What do the readers already know?

4. How can I add to the readers’ knowledge?

5. How will the readers use the report?

Your project report is most likely the only evidence, the only record, that the project – your job – was completed. One result of this is that the report will be the only public place where you will be identified as the project manager. It'll most likely be the only way you'll be remembered by an organisation. As a result, the report is a critical document for you and your professional development and reputation, as well as for your employer if you were working during the project era, as the work was to help some form of decision-making in an organisation for which you worked, even if only as a sandwich placement student.
Another thing to keep in mind is that the vast majority of people who read your article will only know your name from the title page. They will shape opinions about you based on the information in the study. The impression the readers would have of you will be good if the report is straightforward, well written, well organised, and easy to read; if the points are easy to follow and understand; and if the responses to the readers' questions are clearly evident. Likewise, the inverse is real. As a result, it is worthwhile to put effort into preparing the report's writing.

**Elements of projects reports**

- **Title page**
  
  This is a crucial section of the study. It will be used to classify your report as a source of information. It will include the title of your article (its name’) as well as author's name. The name of the university and department, your course, the relationship of the project to the course – for example, ‘... submitted in partial fulfilment of the requirements of the BA (Hons) Business Studies,’ the date of submission, the name of an employer if necessary, and a copyright statement are all important pieces of information to include.

- **Acknowledgements**
  
  People and organizations may have given you advice and guidance, provided funding and other support for certain aspects of your work, or served your ideas. While there is no protocol for this, it is polite to recognize the assistance you have received by mentioning these individuals and organizations early in your article, usually on the page following the title page.

- **Introduction**
  
  Why your topic is important

  Where is it used? Applications

  What you will talk about/do

  Overview of the rest of your paper

  Background

  Any relevant and specific info

  What other people had to say on this topic(s)
You are expected to discuss the books and papers that you include in your references. You must also cite them. If nothing else, include a brief rationale explaining why you thought it was useful.

Problems and shortcomings of the work

How your work is different and better

Your approach to the problem and what you did

❖ Design
- What you already had (and where it came from)
- What you added/changed
- For parts, include close-up drawings (e.g. Magic screenshots)

What did/didn't work?

Include graphs, equations, pictures, etc. as appropriate

❖ Results

Include findings, measurements, and statistics that are important.

❖ Summary
➢ Try to draw together the intro, background, and project sections.
➢ How do they all relate together? (They may appear to be disjoint sections to an unfamiliar reader).
➢ Restate important results

❖ Conclusions

What was accomplished / learned

What you would have done differently

Future work

❖ References
A selection of books and articles that were helpful should be included. Include at least 5 books or papers if no number is mentioned. This minimum number does not include web sites. Wikipedia is not acceptable, and if you include it, you will be penalized.

Cite the papers/books that you used anything you found useful Include textbooks from class if you want

4.2 Structure and components of research reports

Investigators can start by considering the study's intent when preparing to report data obtained from analysis. This is the target you must strive for if you want to advance theory and conceptualization about such types of behaviour, as some sociological researchers do. If the aim is to strengthen a specific aspect of a discipline's practice, it may be important to set a slightly different goal.

Understanding the audience goes hand in hand with determining the intent in part. The character of the reading audience is as important to the writer as the character of the listening audience is to the speaker when delivering an oral presentation for successful written dissemination of research knowledge. If researchers want to reach a specific audience, their reports must address problems and concerns that are important to that population. If they wish to reach a wider, more general audience, on the other hand, the researcher must raise larger, more general issues. Inexperienced researchers often make the mistake of coining words to fit a specific audience.

In general, written reports can be divided into multiple chapters, each of which contributes a different aspect that the reader needs to fully comprehend what the researchers are saying. Many of the sections are mandatory in all research papers, regardless of the name. A collection of headings or sections is typically included in the study, such as:

1. The abstract: a brief description of the entire report
2. The introduction: basic research questions, key terms, and research foci
3. Literature review: a detailed examination of the extant research literature relevant to the report's topic
4. Methodology: a comprehensive description of how the researchers gathered data and analyzed it
5. Findings or results: the presentation of information uncovered during the research process
6. Discussion and/or implications: an examination of these findings and consideration of how they may impinge on relevant groups, communities, or agencies
7. References, notes, and/or appendices: a section that contains the evidence that supports the research report

➢ The Abstract

An abstract is a short description of a study's most critical (and interesting) research results (50 to 200 words). Furthermore, abstracts typically provide some mention of the study's main methodological features as well as the major findings' related implications.

Abstracts are often found at the start of a research paper, but because of their content, they can only be published after the report has been written. The main purpose of an abstract is to provide enough detail to pique the interest of potential readers and to assist them in deciding whether or not to read the entire article. Researchers also search abstract collections (for example, journal indexes of abstracts) for potentially useful elements for their own literature reviews (to be considered presently). As a result, it's important that an abstract be both brief and accurate.

The following main facets should be included in an abstract as a general guide, regardless of the researchers' specific substantive interests:

1. A statement identifying the key focus or issue considered in the study.
2. The nature of the data analyzed in the study.
3. The major finding or result examined in the report.
4. Potential use or implication of the reported finding.

➢ The Introduction

The reader is introduced to the analysis and report through an introduction. It should give the reader a simple understanding of the research question or issue. Introductions should be written in simple, succinct declaration sentences that define the form of writing that will be followed. Introductions are often referred to as report charts. An introduction, in addition to stating the research issue and putting it in theoretical and/or historical context, should include a sequential plan for the report's presentation.

As a result, the reader is aware of what headings will be included and what each specified section will cover. It's also important to remember that introductions can either entice readers to continue reading or turn them off completely. Aside from the report title, the opening sentence of
an introduction is the most effective attention-getting method. The writer has a variety of tactics at his disposal. You might use a surprising finding from the study, a fascinating issue from the literature, or a recent news stories to illustrate your point. Whatever you decide, make it as intriguing as possible. The presentation can either be a separate section with headings or it can be combined with a literature review.

➢ Literature Review

A literature review's main goal is to provide a thorough overview of previous works on the general and relevant topics covered in the paper. The literature review, at least in part, foreshadows the researcher's own analysis. It is important to report on the state of the literature, including its shortcomings and study directions, during the writing stage of research.

Researchers may, for example, want to question previously held beliefs or results. As a result, it's critical to present these conflicting conceptualizations and identify any errors or fallacies. Researchers may be attempting to reproduce previous studies and develop their use of theory or techniques in some cases. In such cases, it's important to show how these previous studies looked at their topic.

The literature review can act as a kind of bibliographic index and guide for the reader, not only by listing other studies on a given topic but also by showing where the current research fits into the larger picture.

Literature reviews must provide references to classic works relevant to the investigation, as well as any recent studies. The omission of a recent study that is important to the current study may lead to accusations of carelessness, particularly if the excluded studies have done a more thorough review of the literature, found or conducted research in similar fields, or highlighted theoretical and methodological issues that the current study ignores.

The study report's base becomes more robust the more comprehensive the literature review. It's important to note that not all sources of information are created equal, and not all sources of information can be used legally in literature reviews. Furthermore, there is a hierarchy of informational sources that is widely recognized.

According to this hierarchy, some pieces of evidence are embraced by the scientific community more readily than others. This is not a rigid or fully static ranking system.
1. Scholarly empirical articles, dissertations, monographs, and the like including electronic articles from referred online journals on the Internet
2. Scholarly non-empirical articles and essays
3. Textbooks
4. Trade journal articles
5. Certain nationally and internationally recognized newsmagazines
6. Papers, reports, or other documents posted by individuals on various Internet Web sites
7. Certain nationally and internationally recognized newspapers
8. Acceptable, lower order newspapers
9. Only when all other sources are unavailable, or when you want to add texture or detail, you should use a local newspaper
10. Written personal communications
11. Oral personal communications

In scholarly literature, the elements 1 through 3 have the best documentary support. As one continues down the list, it becomes clear that scientific trust in the knowledge derived from these sources is rapidly eroding. These lower-order sources can only be used to illustrate an incident or a piece of information that has already been well-documented.

Of course, as with anything else, too much of a good thing destroys the experience. Although some academic papers, such as a thesis or dissertation, require lengthy (10-20 page) literature reviews, reports and articles do not. An overdone literature review can cause problems for a study, just as omitting a recent relevant article can. When writing literature reviews, the general rule is to keep them long enough to cover the topic but short enough to keep them interesting.

➢ Methodology

Inexperienced researchers often believe that writing the methodology section is the most challenging. It doesn't have to be that way. In reality, since methodology sections usually report on what you did during a research project, it may be one of the simplest sections to write. A methodological section's main goal is to clarify to readers how the study was carried out—in other words, what data were used and how they were obtained, organized, and analyzed.
The most important details to the researchers may differ from one study to the next, just as some details in classic tales differ from one storyteller to the next. Nonetheless, most, if not all, methodology sections appear to include some key aspects of research methods. Considerations of subjects, records, environment, and analysis techniques are among these features.

**Subjects.** References to who the participants are, how they were chosen (selected), what they were told about their involvement, and what precautions were taken to protect them from harm should all be included in the methodology portion. Ancillary questions related to the subjects could include how many are included, how their numbers were calculated, and how many declined to participate in the study and why (if it is known).

**Data.** Researchers should clarify to readers how data was collected in addition to explaining the type of data (interviews, focus groups, ethnographies, videotapes, and so on). Data collection details serve a number of important purposes. For starters, they give readers the option of deciding how much weight to give the results. Second, they make it possible for readers to repeat a research study if they so wish. This concept of replication is critical for establishing the objectivity of your research project. If the thesis can be replicated, the original premises and results can be reviewed in the future.

Finally, data-collection sections are often among the most fascinating parts of a research paper, particularly when the researchers go into detail about problems and how they were solved. To give what is often referred to as the researcher's subjective views, some self-reflection and disclosure can be required. These subjective offerings can provide potential researchers with a way around problems in their own research studies, in addition to providing interesting and vivid experiences.

**Setting.** In reporting an ethnographic analysis or a door-to-door interviewing project, setting descriptions may be useful. The reliability of research results, for example, may be contingent on demonstrating that the analysis was conducted in an appropriate environment. In certain cases, settings are inextricably linked to the data and analytic methods, posing a risk of contamination in the study. Researchers’ failure to consider these factors during the research process could weaken or kill their otherwise valid arguments.
Analysis Techniques. Even when using widely accepted traditional methods to evaluate data, a discussion and justification of the analytic approach should be given. Assuming something about a study report is not good practice. Researchers should never presume that readers can understand what such ambiguous concepts as traditional content analysis techniques mean.

➢ Findings or Results
In quantitative research papers, the findings or results section often includes maps, tables, and graphs that show percentages and proportions of the data. Although there is a small difference between the two concepts, quantitative methodologists often use them interchangeably. Findings are literal interpretations of the data, while results are interpretations of the data's context. In a nutshell, findings include a data overview.

➢ Discussion/Conclusion
Depending on whether the researchers provided an overview section or a results section, the basic content of the discussion section can differ. If a report has an overview section, the discussion section usually consists of a reiteration and elaboration of key points, as well as recommendations on how the results fit into the existing literature on the topical study field.

The researchers can use the discussion section to highlight areas that need further study. The discussion segment also gives you a chance to think about the research analysis and the findings again. Researchers are increasingly being recognized as active participants in the study process rather than passive observers. As a result, indicating the researcher's self-location within the constellations of gender, race, social class, and so on becomes critical. Researchers should become more conscious of how their own roles and desires are influenced by reflective personal accounts.

➢ References, Notes, and Appendices
References can be used to record claims, assertions, and allegations in the parts of a research study. Despite the fact that a number of style books propose different methods of referencing content, there are primarily two options: notes or source references.

To refer to notes, superscript numerals can be used in the text, either at the bottom of the page on which they appear (footnotes) or at the end of the article (endnotes).

The second wide choice is source references, which occur immediately after a quotation, paraphrase, or sentence that requires documentation in the text. The last name of a quoted author,
the date of publication, and, in the case of a direct quotation, the page(s) from which the quote was taken are all used to identify source references.

Reference are most often used in the social sciences to document comments made in the text, and annotations are used to provide further explanation to the text rather than cite source references. The following points about source references should be kept in mind:

1. Only the date of publication appears in parentheses if the author's name appears in the text.

2. If the author's name is not mentioned in the document, the last name and the publication date are given in parentheses.

3. If a reference has two or three writers, each author's last name is included in the text. When there are more than three writers on a reference work, the first author is mentioned first in the document, followed by "et al."

4. The organization that produced the paper is considered the author for institutional authorship.

5. Each full citation is divided by a semicolon and presented in chronological order when multiple references are given to support one argument or assertion.

6. When specifically quoting, it's necessary to include the page number, author's name, and publication date in one of two formats.

The use of online journals, unpublished papers posted on the Web, online newspaper articles, and other electronic historical sources has necessitated a more uniform system for referencing these objects over the last few years. Online objects can be treated in the same way as any other object in the document. If there is an author, the name of the author is quoted in the same way as in the examples above. If there is no particular author but a sponsoring organization, the sponsoring organization is listed.

In a separate segment named "References," the references are identified alphabetically by the first author's last name. All sources cited in the study must be mentioned in the reference section. The abbreviation "et al.," which is suitable for text citations, is not acceptable in a reference segment as a matter of practice. If you're writing for a journal that specifies a preference, writers' first names may be written in full or initialized.
The format for writing up full citations in the reference section varies slightly among the best academic journals in each discipline. These specifications are usually found on the first few pages of journals and can vary slightly over time. It is therefore recommended that you consult the journals affiliated with your discipline to determine the correct format for reference citations. However, for inexperienced researchers, the format suggested for most social science journals and texts is as follows.

**Precautions for writing research reports**

A research report is a vehicle for disseminating research results to the report's readers. A successful research report accomplishes this goal in a timely and productive manner. As a result, the following steps must be taken when preparing it:

1. When deciding on the length of the article (since research papers differ greatly in length), bear in mind that it should be long enough to cover the subject but brief enough to keep the reader's attention. Document writing, in particular, should not be used to learn more and more about less and less.

2. A research study should not be boring if at all possible; it should keep the reader's attention.

3. In a study paper, abstract language and technical jargon should be avoided. The report should be able to express the information in the most straightforward manner possible. In other words, the study should be written objectively and in plain language, avoiding phrases like "it seems," "there could be," and similar expressions.

4. Readers are always interested in gaining a quick understanding of the key findings, so the study must make the findings readily available. In addition to the description of important findings, maps, graphs, and statistical tables can be used to illustrate the different results in the main study.

5. The report's layout should be well-considered, and it should be acceptable and consistent with the research problem's goal.

6. The reports must be free of grammatical errors and must be written strictly according to report-writing techniques such as quotes, footnotes, documentation, proper punctuation, and the use of abbreviations in footnotes, among others.

7. The report should provide a rational analysis of the subject. It must have a structure that allows the various pieces of analysis related to the research issue to work together well.
8. A research study must be unique and must try to solve an analytical issue. It must aid in the resolution of an issue and add to the body of information.

9. The study must conclude by stating the policy consequences of the issue under consideration. It is generally considered desirable if the study predicts the likely future of the topic in question and identifies the types of research that still needs to be done in that area.

10. All of the technical details in the study should be specified in appendices.

11. A bibliography of the references used is required for a successful report and must be provided.

12. An index is often considered an important component of a successful report and must be prepared and attached at the end.

13. Whether written or handwritten, the report must be visually appealing, neat, and tidy.

14. The report should include the calculated trust limits as well as the various constraints encountered during the research analysis.

15. The study's goal, the essence of the issue, the methods used, and the research techniques used must all be specified explicitly at the start of the report in the form of an introduction.

4.3 Referencing, Bibliography and Indexing and Issues of Plagiarism

Referencing

Sharing information on other people's thoughts, hypotheses, or works, you should acknowledge the references you've used or referred to in your work. Quoting or paraphrasing their work you are presenting specific facts to encourage your readers to follow up on what you have used by acknowledging your sources. Academic work necessitates the use of citations. Additionally, the referencing skills you acquire can be extremely useful in the workplace.

According to Butcher, The article should be referenced in an academic manner. There are four referencing schemes to choose;

1. The short-title system;
2. The author–date system;
3. The reference by number system;
4. The author–number system.
You should use the one that your university and academic discipline accepts: ‘The first is used in the majority of general books, the second in science and social science books, and the third and fourth in less common books.’

These are the things you've used, as well as the sources from which you've gotten and used information for your research. They must contain all documents, both internal to the employer or university and external but probably unpublished documentation. Have relevant entries for all references that you have used and that have aided your work in this list. Journal posts, conference papers, books, newspapers, lecture notes and handouts, letters, conversations, advertising, and electronic sources such as emails, electronic journals, and Internet objects are all examples of possible sources.

Non-textual objects such as videos, audiotapes, and videotapes, maps, and paintings are also included. Realia, such as models, globes, sculptures, and machinery, may have been used as sources of knowledge in certain subject areas and should be entered. What words do you use to identify the sources? For all media types, there are numerous authoritative guides to citing practise. Consult your mentor first, as your university department might have provided a referencing requirement to which you must adhere. Make sure the guide you're using is up to date. The most recent guides provide examples of how to cite electronic sources, such as those found on the Internet. Referencing is important because

- Indicates what material is your original work because you have given a citation for work that is not your own
- Allows the reader to refer back to any external material (i.e., not your own) that you have stated or discussed (e.g., published article in a respected journal, unpublished opinion piece on a popular online website) Of course, the material's relevance and significance are determined by the subject.
- Allows the reader to see whether you've included current research, seminal (early and influential) research, and material relevant to your research subject.

Bibliography
What is the difference between a bibliography and a list of references? A bibliography, in this context, is a list of items devoted to a specific subject, in this case, maybe a little more narrowly specified, but including the topic of your research as described in your paper. Its aim to provide a comprehensive and authoritative listing of all relevant content, including non-textual material. It will contain the things you've added to your references list. It will also include other things that are highly informative about the topic and that you used to gain general awareness and background information on your subject. Any of the things that may be included are state-of-the-art reviews, reviews of recent studies, hypotheses or inventions, advanced treatises, and general texts.

Both published and unpublished sources used by the writer in the preparation of the study are listed alphabetically. All books, journals, reports, and other documents could be arranged alphabetically by their authors in a single list. Alternatively, the bibliography may be divided into three or four sections: (a) books, (b) papers, (c) reports, and (d) other documents, with related references organized alphabetically in each section.

Bibliography has a different function than footnotes. While the bibliography provides the reader with a list of materials related to the subject under review as a quick reference, footnotes, which can be found at the bottom of each page or at the end of a section/chapter, explicitly cite the sources and pages where cited or paraphrased materials can be found.

A bibliography is a collection of references on a specific topic or subject. It appears at the conclusion of the report's main body. The feature of bibliography is different from that of footnotes. It contains all the details contained in a first footnote relating to a work. While footnotes are used to cite authority for particular quotes or paraphrases, the bibliography lists the writer's references in alphabetical order.

"The footnotes specify the exact location (i.e., page/s) of the quoted content. The bibliography, on the other hand, only provides identification information for the works as a whole. While a work can have several footnotes, it only has one bibliography entry. The footnote occurs only when a particular section of a work is cited, whereas a work may be included in the bibliography even if it is not quoted in the article, as long as it is relevant to the study's subject."
Format: The formats for bibliographic listing for books, reports, articles etc. are the same as the formats for footnotes except one difference. That is, no page number is stated in the case of books and reports listed in the Bibliography.

Another distinction is that, although the author's name in the first footnote referring to a work starts with the first name (e.g., Peter F. Drucker), the name in the bibliography begins with the second or surname (e.g., Drucker, Peter F.). Since the material for the footnotes and bibliography comes from the same source, namely source cards, the author-surname format can be used in both cases, as previously mentioned.

Classification: Books, for example, can be grouped together in one group, periodicals in another, and reports in yet another. Every group's references should be organized alphabetically by author surnames or by the first letter of the listing's first words.

There are many well-established systems for writing a bibliography, and the choice is based on the discipline and university's preferences. Some of the most widely used ones in the social sciences are:

❖ The Harvard system
❖ The American Psychological Association system
❖ The American Medical Association system
❖ The McGraw-Hill system
❖ The Modern Languages Association system
❖ The footnote system.

Indexing

An index is a reference to where specific words and phrases, such as subject concept terms, processes, hypotheses, and titles, appear in the document. If you have to build an index, keep in mind that certain words have several meanings. As a result, when choosing entries for the index, make sure you know what each entry means at its respective location or locations in your study. This is the sense you should keep in mind when filling out the form. In most cases, the index entries are arranged alphabetically. Examine the indexes in three or four textbooks before starting to construct the index. Investigate a few subjects in these books to see how the indexes work. How do you make entries for words that appear in several places in the book? What is the procedure for
dealing with uncommon terms? Is there a short explanatory note from the indexer to help the reader understand these terms? It is not necessary to index each term in the study. Consider what basic information your readers may be looking for in the study. This will assist you in selecting index words.

Indexing is the process of organizing published literature from journals and other sources so that scholars can easily disseminate information. Identifying or referring to something is referred to as indexing. The term "index" also refers to "explore" and "expose." For ready reference resources, indexing and abstracting are critical. Various databases make these ready-to-use reference resources open. The concept behind indexing is to point to something that acts as a sort of indicator, directing you to relevant information.

An index is usually a list that shows the topic and page number, or a list that shows the information's abstract. It isn't limited to that; it can also be a list of information on a device, or simply a set of keywords or even hyperlinks that direct you to the actual information. Scholars, academics, and academicians benefit from indexes because they save time and make information more available. Indexing dates back to the pre-printing period, but since the invention of the printing press, indexing has progressed and made significant strides thanks to technological advancements.

Previously, there were errors in printing, pagination, and other aspects of hand-written indexing, and each manuscript varied greatly; no two manuscripts were alike. The value of indexing increased after the Concordances. Concordances are an alphabetical list of the words in a text or texts, especially biblical texts, with the passage citations or meaning displayed. Every single occurrence is recorded.

Types of Indexing

Indexing necessitates a unique set of abilities. They must coordinate, interpret, and arrange data so that it is easily accessible. They should also be able to articulate complex concepts in a concise manner. There are various forms of indexing, each of which aims to create knowledge and necessitates different skills from indexers.

- Bibliographic and archive indexing
- Genealogical indexing
- Geographical indexing
- Book indexing
- Legal indexing
- Periodical and newspaper indexing
- Pictorial indexing

**Purpose of Indexing**

- An index makes it easier for a researcher to keep track of facts.
- The index provides keywords or an abstract to assist the reader in mapping the text, definition, and cross-referencing the information available.
- It also aids in the faster learning and recognition of the knowledge available, as well as understanding the importance of the subject or author, as well as the interconnections.
- An index's purpose is to provide users with systematic and efficient shortcuts to the information they need. Except for the tiniest data sets, indexes are needed for any information collection.

**Benefits of Indexing**

- They help in comprehending data
- Map or organize the information
- It can increase the visibility and quality of one's publication.
- Knowledge dissemination on a wide scale.

**How is indexing done?**

The final step in the research process is publication, and indexing is a very important and primary aspect of publishing papers and research work. This enables a researcher to sort through the many predatory journals and submit their work to be checked, reviewed, and written. The greater a researcher's understanding of this subject, the better his or her chances of producing high-quality work that will support his or her study, discipline, and society.
Issues of plagiarism

Plagiarism is a well-known and rapidly growing problem in academia. It is calculated to account for a significant portion of all severe deviations from good research practice. Plagiarism occurs when a person takes someone else's intellectual works, such as thoughts, views, art designs, or writings, and passes them off as his or her own original work, with or without permission. If the word's etymology indicates, this is nothing more than abduction or stealing. Plagiarism by students, teachers, and scientists is a serious issue in academic and research settings. Failure to accept the thoughts and statements of others should be considered an academic offence.

The term "steal," according to Dehkhoda's Persian dictionary, means "to take away someone's possession by deceit and tricks" or "to take hold of something without the right to do so". “When we steal an idea from one author, it is called plagiarism; when we steal it from a few writers, it is called research,” says Wilson Mizner.

Plagiarism is derived from the Latin word "plagarius," which means "kidnapper, robber, misleader, and literary thief". Plagiarism is commonly described as stealing ideas or terms that are more advanced than the general public's understanding.

Plagiarism, according to Vessel and Habibzadeh, is described as "ascribing others' thoughts, procedures, outcomes, and words to oneself without due acknowledgment". Plagiarism in science writing is an immoral practice. Plagiarism requires a significant departure from normally accepted activity in the relevant scientific community, which is done knowingly and intentionally, and which can be shown with solid proof. Plagiarism can take many forms, including stealing ideas and sections of documents.

When an author uses his or her own previously published work without knowing it, this is known as self-plagiarism. In the related literature, self-plagiarism is described in three ways:

1) publishing a paper that essentially overlaps another paper without due acknowledgement

2) splitting a large paper into a few smaller papers and publishing them separately, often known as salami slicing
3) republishing the same work. Copyright, on the other hand, refers to the practice of improving knowledge and useful arts by granting writers and inventors limited-time protection by exclusive rights to their writings and inventions. Authors of technical papers are often asked to give the journal or publisher the rights to their work.

**Plagiarism: how many types?**

Plagiarism occurs in a variety of forms in the academic world. When students write an assignment, a lecture document, or a thesis, for example, they can copy entire paragraphs or sentences from books and articles and use them in their work. Plagiarism is described as the act of copying documents, ideas, principles, research results, statistical tables, computer programmes, designs, pictures, sounds, or any combination of these. Plagiarism may range from copying a single sentence or a portion of a work to passing off the entire work as one's own. Plagiarism is clearly shown in the following examples.

1. Without quotation marks, copying sentences or paragraphs from books and documents
2. Using "cut and paste" to copy from online sources
3. Assuming credit for a job that was made or completed by someone else.
4. Portraying borrowed material as one's own work by making minor grammatical or word-order changes.
5. Imperfect paraphrasing of another person's work with slight modifications while maintaining the original's context, structure, and progression of idea
6. Repurposing other people's jobs into a new one
7. Producing a published work as if it were self-contained when it was actually created with the unacknowledged assistance of another individual.
8. Make all of your previously published works, such as texts, papers, or research findings, look brand new (self-plagiarism).

The seven forms of plagiarism described above can be divided into seven groups, with four of them being listed: direct plagiarism, mosaic plagiarism, paraphrase plagiarism, and insufficient acknowledgement. Total plagiarism, self-plagiarism, and accidental plagiarism are three more popular forms that can be applied to this list.
➢ **Direct plagiarism**: Direct plagiarism is when someone copies entire paragraphs or longer passages from another source without putting quotation marks around them, as if it were their own work. Using plagiarism detection tools and comparing similarity indexes, this form of plagiarism can be easily identified.

➢ **Paraphrase plagiarism**: This is perhaps the most common form of plagiarism, in which an author paraphrases or restates a portion of another's work without citing the source.

➢ **Mosaic plagiarism**: This is an example of appropriating phrases from other sources or using synonyms to replace certain terms or portions of a sentence, but the work's overall structure remains unchanged. Whether deliberate or not, this form of patch writing is not a good academic practice.

➢ **Insufficient acknowledgment**: In certain cases, the writers may have only listed the original source of a portion of what was taken, or they may not have properly referenced the source. In both cases, the writers refused to acknowledge their sources properly, and the reader would be confused as to what was original and what was borrowed.

➢ **Complete plagiarism**: It is total plagiarism if you appropriate someone else's article as such and post it under your name. Plagiarism in this manner is the most heinous. Students often plagiarise completely, for example, by submitting a copy of another student's assignment as their own.

➢ **Self-plagiarism**: When an author uses his or her own previous works, such as books, documents, and research findings, in a new work without mentioning that they have already been written, this is known as plagiarism. Most students are allowed and encouraged to publish papers based on their Masters and Doctoral thesis work. However, if a person writes a paper based on data from previously published works, this is clearly self-plagiarism.

➢ **Accidental plagiarism**: This is accidental and involves issues such as failing to reference sources, misquoting sources, or accidentally using the source without attribution through using similar terms, groups of words, or sentence structure. Plagiarism can occur as a result of a lack of knowledge! Please keep in mind that unintentional plagiarism is treated just like any other form of plagiarism, with the same range of consequences!

**Issues of plagiarism**

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Plagiarism may have personal, technical, ethical, and legal ramifications. Plagiarists are being detected at an unprecedented pace now that plagiarism detection software is so widely accessible and used. Once suspected of plagiarism, an individual would almost certainly be treated with suspicion for the rest of their life. It is not appropriate to use ignorance as an excuse. Academics, professionals, students, journalists, writers, and others are among the plagiarists.

Student Reputation Was Being Ruined

Allegations of plagiarism can result in a student's suspension or expulsion. Their academic record may represent the ethics violation, and the student may be denied admission to college from high school or another institution. Plagiarism is taken very seriously in schools, colleges, and universities. Academic integrity committees are present in almost all educational institutions, and they track students. For the first offence, several schools suspend students. For subsequent offences, students are normally expelled.

Professional Reputation was being destroyed

Plagiarism may be damaging to a professional businessperson, official, or public figure for the rest of their career. They would almost certainly be fired or forced to resign from their current position, and finding another respectable job would be difficult. Depending on the nature of the crime and the plagiarist's public profile, the plagiarist's reputation can be tarnished, rendering every successful career unlikely.

Destroyed Academic Reputation

Plagiarism's implications have been widely published in the academic world. An academic's reputation can be ruined if they are accused of plagiarism. A distinguished academic profession necessitates publication. Losing the right to publish would almost certainly result in the loss of an academic career and a ruined reputation.

Legal Consequences

Plagiarism will result in severe legal consequences. The copyright laws are unbreakable. It is illegal to use another person's work without citing and referencing it. A plagiarist may be sued by an author. Plagiarism can be considered a criminal crime, resulting in a jail term. Plagiarism is especially common among those who write for a living, such as journalists and writers. Many who
write often must be constantly careful to avoid making mistakes. Copyright laws and ways to prevent plagiarism are well-known among authors. Plagiarism is a significant ethical and possibly legal problem for a professional writer.

Economic consequences

Plagiarism by writers, authors, public figures, and scholars has been revealed in a number of recent news stories and posts. When an author sues a plagiarist, the author will be awarded monetary compensation. If a writer plagiarises for a magazine, newspaper, or other publisher, or even if a student plagiarises in school, the plagiarist may be forced to pay monetary fines.

Plagiarized Information

Plagiarism in science is one of the most extreme forms of plagiarism. If the research is medical in nature, plagiarism may result in people losing their lives. Plagiarism of this kind is especially heinous. Plagiarism has far-reaching effects, and no one is safe. Ignorance or status do not exempt an individual from the ethical and legal consequences of plagiarism. Learn about plagiarism before beginning any writing project. Learn the definition of plagiarism and how to stop it. The laws are easy to comprehend and adhere to. If you're concerned about missing attribution, check your writing for plagiarism using an online plagiarism checker or plagiarism detection software until submitting it. Laziness or dishonesty can result in a ruined image, a job loss, and legal issues.

Under the headings below, some common strategies for avoiding plagiarism are discussed. You may need to use any or all of these strategies when writing an essay, a research paper, or other works such as textbooks.

- Acknowledge sources appropriately
- Paraphrasing
- Direct and indirect quotations
- Summarizing
- Evaluation of text
- Use of plagiarism checking software

A- Acknowledge sources appropriately
When it comes to papers and books, reproduction of written material is a controversial subject. There are some rules and laws to follow, especially when it comes to copyright and related rights. Indian authors must ensure that their books or articles do not infringe on other people's trademarks, patents, statutory rights, or proprietary rights, as well as the terms of the Indian Copyright Act of 1957, as amended by the Copyright (Amendment) Act, 1999. Similar laws may have been passed in each nation that apply to its people.

If the concept has become "common knowledge," credit to the originator must be given when referencing a previously published idea in a journal. In the text (citation), you must include the name of the author or organization, as well as the year, and in the list of end references, you must include complete bibliographic details.

You must check whether a written permission from the original author or publisher is needed before using the works of others (e.g., a figure or table) as is or in changed form in your book or other publications with citation. To use materials from books, journals, blogs, poetry, plays, songs, photos, artworks such as diagrams and cartoons, newspaper articles, magazine or journal articles, book or magazine covers and their design, as well as copyright-protected logos, figures, graphs, charts, tables, and advertising, permission is usually needed. Web materials must be handled in the same way as printed materials are. Understand that online materials accessible via the Internet and CD-ROMs are still proprietary materials, and that simple "cut and paste" reproduction is not permissible. Avoid verbatim copying from electronic media using "cut and paste" and "drag and drop" methods.

Exceptions from citations

Restricted replication of published materials without permission and exemption from citations are allowed when using those types of materials for your work. When you use common sense observations, folklore, stories, and historical events in your writing, for example, you don't need to cite them. Similarly, citations are not needed for your own memories, insights, musings, animations, presentations, music, and other similar creations. They are generally divided into two categories: "popular information" and "public domain content," and they are treated differently. You don't need to cite the scientific evidence you gathered after conducting your own research experiments or surveys because you own the data!
Dealing with common knowledge

In general, facts and details in common usage are considered common knowledge if they can be checked in many locations and are likely to be understood by a large number of people. This generally includes information from secondary sources including textbooks, handbooks, guides, dictionaries, directories, and encyclopedias. A source does not need to be quoted when a piece of common information is paraphrased for use in a text. While common knowledge and facts are not protected by copyright, the words used to convey them may be, especially if the wording is unique or original. As a consequence, paraphrasing is required for such sentences; however, if the information is the result of someone else's investigation or experimentation that has not yet become common knowledge, it necessitates not only paraphrasing but also citation.

We use evidence to strengthen and provide a solid foundation for a claim because they cannot be refuted. When an individual makes an interpretation, on the other hand, it is often debatable. Worth assessments and definitions of causes and effects are two examples of interpretations. Interpretations are often used to bolster claims. If you use the authors' interpretations to support your point or discussion in your work, you must give credit to them. You interpret your findings in the discussion section of your thesis, and you use previous workers' interpretations to back up your arguments.

Principle of fair use

Should be able to tell the difference between products that need permission and those that can be used without it. In general, unless the concept of fair use or public domain is applied, which allows you to use the content without permission, consent is necessary for the reproduction of any material. The ‘fair usage' or ‘fair offer' relaxation ensures that copyright laws do not restrict your ability to provide objective feedback on a work or to use it for teaching or study. Teaching, studying, critiques, feedback, reporting, and analysis are all examples of permissible uses of texts under fair use.

How to integrate information from sources?

There are a number of approaches to organizing and incorporating data from different sources into your work. You may use one or more schemes, but you should be able to tell the difference
between direct quotes (direct copying) and your own structure with appropriate terms. After reviewing the source, you can write an article, analysis, or discussion as (1) a paraphrasing (2) Direct and indirect quote, (3) Summarizing (4) Evaluation text. In certain cases, an ingenious combination of both of these is used to create a plagiarism-free paper.

B- Paraphrasing

If you use paragraphs or sentences from another author in your work without making any changes, you must mark them as "quotations," indicating that they are not your own but borrowed. Following the quote, you must cite the source and include the source information in the list of references. Quotes, on the other hand, are seldom found in science literature, and a text book or research paper cannot contain too many quotes from other sources. Excessive use of quotations can make your writing appear sloppy and hide your comprehension of the concepts or facts being addressed. You should share your own opinions and interpretations in scientific articles, not those of others. If you master the art of paraphrasing and summarizing, you can easily solve this dilemma.

A paraphrase is a restatement of a piece of writing in your own vocabulary, grammar, and style, while maintaining the tone and duration of the original. You borrow an idea from the original author but express it in your own words. When using a paraphrase for a script, keep in mind that you must cite the source because you are borrowing someone's ideas. It's important to use proper and accurate paraphrasing; otherwise, you'll be accused of plagiarizing. You could even try paraphrasing other people's sentences to make them more understandable. A well-written paraphrase differs significantly from the original source in terms of terminology and sentence structure while maintaining the intended context.

Please note that parts of a thesis or research paper such as the sources or bibliography, table of contents, preface, and acknowledgements cannot be paraphrased. Similarity tests are normally not performed on these. Generic expressions, rules, basic symbols, standard equations, words, jargon, and terms are all examples of this.

**Tips for paraphrasing**

For correctly paraphrasing other people's sentences, you'll need a sound command of English. The following methods can be used to paraphrase.
• Preparing abbreviated notes
• Using synonyms for the major words
• Using simpler words instead of difficult or archaic words
• Changing the class of words
• Changing the order of words
• Changing sentences in active voice to passive voice and vice versa
• Combining simple sentences
• Converting long and complex sentences into two or more simple sentences

Take notes in an abbreviated form using devices such as abbreviations, icons, shorter words, and numbers when reading a journal article or book. Certain terms, such as posts, are often dropped. Using the abbreviated notes, you will later prepare the draft in complete sentences. This will be a significant departure from the original source. Another method is to combine some of the above-mentioned paraphrasing methods, such as synonyms, simpler terms, changing the class or order of words, and changing the form of sentences. Synonyms with identical names may be used to replace most words or phrases. The best place to search for synonyms is a thesaurus. Many online resources are now available for finding the most suitable synonyms. However, exercise caution when using unfamiliar words, as words may have different meanings depending on the context in which they are used.

You may also modify the shape of words, such as an adjective becoming a noun or a noun becoming a verb. Changing the word type often necessitates changes to the structure and organization of the sentence. Depending on the case, you can also convert active voice sentences to passive voice or vice versa. Long sentences are frequently split into simple sentences, and small sentences are frequently combined to form complex sentences. However, keep in mind that technical writing necessitates writing that is plain, direct, and straightforward. When writing an essay, study of literature, research paper, influential article, or book based on knowledge gathered from multiple sources, regardless of the process, aim to be original.

C- Direct and indirect quotations

Quotation is the act of reproducing an author's exact sentences or words from documents such as a thesis, research article, novel, or essay in your own writing. Instead of paraphrasing or
analyzing and commenting on the text, you may choose to copy materials directly from sources as direct quotation. You may also use that as an indirect quote, which implies that you are paraphrasing an author's idea or facts with your own terms.

A direct quote is a word-for-word reproduction of an original piece of text. You may directly quote an author in writing when:

- You feel that the original author's style is clear and appealing
- The views of the author exactly match or support your views
- You want your readers to know exactly what an author has said about a topic.
- The original phrasing reveals something about the author or creates a particular effect
- You want to avoid much explaining

Although direct quotes are not typical in research papers, they may be important for a substantive discussion of the topic when writing a paper about history, current events, or other related fields. Still, relying too much on the original words of writers and quoting broad parts of text as such is not a safe idea.

Using quotation marks around the exact words copied from the original source while copying an author's words. The use of single or double quotation marks must be consistent in the text. In India, it is customary to use double quotation marks for borrowed text, and single quotation marks when including quotations within quotations. If the quotation is a complete and independent sentence, the ending commas or full stops should be placed outside the quotation marks. Make sure you've copied the author's words and punctuation marks exactly.

Note that if you use direct quotes, they must be verbatim, with any additions or omissions indicated in square brackets. If you are not reproducing the entire text but just a portion of it, you can prove that certain sections are missing by using three dots or ellipses within brackets [...]. You can use square brackets around the comment ‘sic’ as [sic] to indicate to the reader that the part is being reproduced exactly as it is, with the same spelling and grammatical errors as the original author. Square brackets, such as [he], are sometimes used to show that you have attached text to the original quote for clarity. The author's last name or initials, the year, and the page number on which the quote appears must also be included.

D- Summarizing
You might only offer a gist of the details rather than paraphrasing the original information from an article or book. A description is when you state the contents of an article in your own words in a simplified form. When information from several sources must be analyzed and interpreted, this is a standard method of reporting. When you summarize the source content, you'll notice that you're less likely to use direct quotes and are more likely to paraphrase large parts of the original document. You will be able to comprehend what you have read and present the information in your own terms. You should also have your own remarks to demonstrate your understanding and perception of the work. The length of a description is always debatable; depending on the details it contains, it can range from a paragraph to even pages. If the information is not common knowledge, you must consider the source of the information even after summarizing.

E- Evaluation of text

Before using a piece of information for a summary in a thesis or research paper, it's important to analyze and evaluate what you've read. Do not assume that both print and online outlets are worthy of citation! Many of them would be skewed, deceptive, or completely incorrect. After reading a piece of material, you are expected to develop your own ideas and opinions about various topics, and you are expected to back up your arguments with literature in your field. As you read, add your own comments and answers to your reading notes if possible. This will assist you in distinguishing between your own theories and those of other researchers. It is important that the data used to support a claim in a thesis or article be trustworthy and impartial. Readers will quickly spot flaws in the presentation if it is incorrect or biased.

You should get into the habit of interpreting the writer's points of view and mentioning your own agreement or disagreement. When evaluating a piece of work, consider whether the source is dealing with facts only, such as a thesis's results portion, or interpretation only, such as a critical essay or common article on a finding, or a mixture of both, such as a research paper. It's also crucial to evaluate each source's credibility. While both primary and secondary sources may provide details, primary sources are more trustworthy and convincing. As a result, you compare the sources and extract information from both forms for your project.
When reading a textbook or paper, evaluate the material. Many pseudoscientific statements and arguments based on fallacies can be found in the literature. You can sometimes come across postmodern interpretations of science that reject what is known as "reductionism". It is important that readers record their own thoughts after reading such posts, whether they agree or disagree with the authors. Below are some examples of assessment. In parenthesis, you'll find the evaluation results.

**F- Plagiarism checking**

Detecting plagiarism in a text has become a major pain point for scholars and publishers alike. Plagiarism has become simpler thanks to the widespread use of computers and the introduction of the Internet. Plagiarism can be identified either manually or by the use of software. Manual identification is time-consuming because it requires a lot of human effort, and it's almost impossible in certain situations because there are a lot of documents to compare. Computer-assisted identification allows large document sets to be compared for similarities in a short amount of time.

Following the widespread implementation of plagiarism-checking software, unscrupulous elements discovered several bogus ways to trick the software. Remember that merely changing a published piece of work by substituting synonyms for sufficient terms to fool plagiarism detection software is immoral, and it will not exonerate you from plagiarism charges.

**Plagiarism detection tools**

The most popular anti-plagiarism software used by Indian universities is TurnItIn, iThenticate, and URKUND. iParadigms provides TurnItIn and iThenticate, which share the same technologies and database content but are targeted at different types of users. TurnItIn is for students in a classroom environment, while iThenticate is for teachers and researchers who want to coordinate and distribute their work through a folder-based method. PrioInfo AB, Sweden, owns and develops URKUND. All of the software mentioned above is useful, but it is also expensive. The majority of the time, such software can only be purchased by organisations.

Dupli Checker, Copy Leaks, Paper Rater, Plagiarisma, Plagiarism Checker, Plagium, Plag Scan, Plag Tracker, Quetext, and Viper are some examples of free or partially free plagiarism...
detection software. The fact that free plagiarism detectors have limited databases and may be less reliable than paid plagiarism checkers is a major drawback. Most of the time, they won't let you type more than 1000 words at a time. Free plagiarism detection may be sufficient for small student works.

Please keep in mind that most plagiarism detection software looks for similarities rather than plagiarism. Plagiarism detection software looks for text in your work that matches text in their vast repositories. When you run a plagiarism search on your post, the results give you a percentage score called the Similarity Index. The Similarity Index indicates content that has been contained in other written materials or theses with similar content. It cannot be considered plagiarism if the author argues and shows that she or he has simplified the claims by quoting and referencing the content.

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