RESEARCH METHODOLOGY: PRAXIS AND PARADIGMS

I.   **An introduction to Research A brief history of Research – Objectives and types of Research – Action Research**

II.   **Literature Review and Focusing Research Questions Critical Analysis of Literature Review – Developing Research questions and hypothesis –different types of hypotheses.**

III.   **Restrictions and Ethics in Research Legal restrictions in Research formulations- BPS/APA Ethics code – Ethical issues Assessing the ethical feasibility of the research – Ethical guidance in conducting research with children.**

1. A brief history of research objectives, Types of Research, Action Research A brief history of research objectives

Human beings are the unique product their creation and evolution. Unlike other creatures the highly developed nervous system enabled human beings to develop sounds, symbols, letters and numbers which made possible. The communication and recordings of their questions, observations, experiences and ideas. With the advent of priesthood, the priests claimed that they had a special channel to communicate with Gods which established a system of religious authority. Thus, a rigid tradition developed that prevented further search for truth for centuries. Gradually people started to observe that the forces of the nature were not inconsistent as religious made them believe. They began to observe a stability the mechanism of the universe. They also discovered that based on certain conditions events could be predicted with reasonable accuracy. This tendency of the people had effected a conflict with religious authorities. The people started to challenge the sanction of vested authority and began to rely on empirical evidence or personal experience. It represented an important step in the direction of scientific inquiry. Such pragmatic observation, however was largely unsystematic and further limited by the lack of an objective method. Observers were likely to overgeneralize on the basis of incomplete experience or evidence, to ignore complex factors simultaneously, or to let their feelings and prejudices influence both their observations and conclusions. By the course of time people started to think systematically and thus era of logic emerged. The first systematic approach to reasoning, attributed to Aristotle and the Greeks, was the deductive method. The categorical syllogism was one model of thinking that prevailed among early philosophers. Syllogistic reasoning established a logical relationship between a *major premise,* a *minor premise, and* a *conclusion.* A major premise is a self-evident assumption, previously established by metaphysical truth or dogma, that concerns a relationship; a minor premise is a particular case related to the major premise. Given the logical relationship of these premises, the

conclusion is in escapable. A typical Aristotelian categorical syllogism follows:

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Major premise; All men are mortal

Minor premise; Socrates is a man

Conclusion; Socrates is mortal.

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The deductive method replaced general assumption with specific application which was an important development of modern problem solving. This two had its own drawbacks such as unreliability and error stricken. Centuries later Francis Bacon advocated direct observation of phenomena which was known as inductive method. Contrary to deductive method, inductive method advocates for generalization in place of specific observation. It two was not enough for the solution of problem satisfactorily and systematically. After a while Charles Darwin arrived and he integrated deductive method of Aristotle and inductive method of Bacon and opened a new path for the findings of truth or solution. His theory of evolution fail to lead to satisfactory theory of man's development. Malthus replaced Darwin's theory of evolution with the theory of struggle for existence. The above mentioned facts sum up the true story of early evolution in the field of research and fact findings.

Meaning of Research

The word 'research' is derived from the French word 'recherche' meaning to travel through. It is a repetitive search. Analysis of the word 'Research' letter by letter can be explained.

Definitions

- "Systematized effort to gain new knowledge."

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-Redman & Mory

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  - "Research is an activity directed towards the development of an organized body of scientific knowledge about the events with which educators are concerned."

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-Travers

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  - "It is a careful inquiry or examination seeking facts or principles a diligent investigation to ascertain something."

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-Clifford Woody

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  - "A systematic enquiry that uses disciplined methods to answer questions or solve problems."

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-Polit

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  - "Research is a careful systematic and objective investigation conducted to obtain valid facts, draw conclusions and establish principles regarding an identifiable problem in some field of knowledge."

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-Clarke and Clarke

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  - "it is the process of arriving at dependable solution to the problems through the

planned and systematic collection, analysis and interpretation of data."

-Mouley

Need and significance of the research

- It inculcates scientific and inductive thinking.

- Develops logical thinking.

- It helps in expansion of knowledge.

- It provides the basis for government policies.

- It helps to solve various problems of business and industry.

- Seeks answers to various social problems.

- Gathers necessary information.

      -make change
      -improves standard of living

      -for a safer life

      -reveals the truth
      -explores our history

Aims and objectives of Research

To discover answers to questions through the application of scientific procedures, it's main aim is to find out the truth which is hidden and which has not has been discovered as yet. Though each research study has its own specific purpose, we may think of research objectives as falling into number of following broad grouping: -

- To gain familiarity with a phenomenon or to achieve new insights into it. (Exploratory or formulative research studies)

- To portray accurately the characteristics of particular individual, situation or agroup. (Descriptive research studies)

- To determine the frequency with which something occurs or with which it is associated with something else. (Diagnostic research studies.)

- To test a hypothesis of a causal relationship between variables. (Hypothesis testing research studies.)

Educational Research

Educational research is that activity directed towards the educational development of a science of behaviour in educational situations.it is the application of scientific method to the study of educational problems. Mainly education is a behavioural science. Hence it is very important to understand, to explain, to predict and control human behaviour. In order to produce desired aspects of learner behaviour the understanding of the behavioural pattern of students, teaching conditions and teaching process are verysignificant.

Characteristics of Educational Research

- It cannot be scientific to that extent.
- It needs imaginations and insights as much as scientific attitude.
- Educational research is not exact and empirical as research in physical science.
- It requires an interdisciplinary approach.
- It generally requires inexpensive materials.

Need for research in Education

Research in education help the teachers more efficient in their tasks. Besidesmastery of the subject matter a teacher has to understand his students and select properteaching methods. To this end teachers and researchers combine their resources and expertise to make available effective education in a shorter period with minimum cost.

Scope of Educational Research

Problems in educational research in education are numerous. such as curriculum, textbooks and syllabus, child development, skills, guidance and counselling, methods of teaching etc. each do have a number of problems for research.

Types of research

Research can be classified under three categories. They are Fundamental or Basic or Pure research, Applied or Field research and Action research.

- **Fundamental Research**

    Fundamental research helps in developing theories by discovering broad generalization and principles. It is aimed at the discovery and development of an organized body of scientific knowledge. It is a very systematic activity. Which means it represents a rigorous and structured type of analysis. It emphasizes control and precision. It pays less attention to direct application of results in thefield of education.

    It gives importance only to control and precision. But it is not for direct application. The most important research in education is the discovery of useful concepts like motivation, reinforcement, concept formation in learning theories etc. are the results of fundamental type of research.

- **Applied Research**

    Applied research is research that is designed for specific practical problem. It is aims at testing of theories, principles in the actual settings. Its findings are evaluated on the basis of local applicability not in terms of universal validity. Fundamental research sets principles, while applied research utilizes those principles to know the problems with best possible manner. In practice the researcher applies laws during his field study to draw more and more clear ideas about the problems. It is undertaken to solve an immediate problem. It is interested only in the theories or laws which are applicable.

- **Acton Research**

    Kurt Lewin (1946) a social educator and psychologist can be called the path finder of Action research. Later on Stephen M Corey was among the first use action research in the field of education. Stephen M. Corey an American educationist introduced a new kind of study called Action research for the benefit of class room teachers. A small research project aimed at the solution of an immediate problem confronted by a teacher in his class room. It does contribute to improved teaching practice and also prepares the ground for regular large- scale research. It improves the confidence of the teacher and also makes the teacher more creative in class room instruction.

Characteristics of Action Research

- It is a process for studying practical problems of education.
- It is a scientific procedure for finding out a practical solution of current problems.
- It applies scientific thinking to real life problems.
- It enables the researcher to achieve his purposes more effectively.
- It does not contribute to the fund of knowledge.
- It is a self-evaluative technique.
- It is done for the practitioners, by the practitioner.
- It is based on intensive observation and dynamic process.

- Not need expertise knowledge

Objectives of Action research

- To improve the working conditions of the school plant.
- To develop scientific attitude among students and teachers for understanding and solving their problems.
- To develop the ability and understanding among administrators to improve and modify school conditions and make it more conductive for learning.
- To make school system effective for generating a healthy environment for students-learning.
- To root out the traditional and mechanical environment of the school.
- To provide useful suggestions for the treatment of chronic problems of schools and colleges such as curriculum, discipline, teaching methods, extracurricular activities, learning disabilities.

Limitations

- Limited contributions due to being local in nature and completely empirical.
- Maximum benefits seldom realized -failure to generalize.
- Quality of AR is poor-
- No expert teachers.
- It adds teachers work load.

Fundamental research is the formal and systematic process of deductive, inductive analysis, leading to the development of theories. Applied research adapts the theories developed through fundamental research to the solution of problems. Action research, which may fail to attain the rigorous qualities of fundamental and applied research attempts to the apply the spirit of scientific method to the solution of problems in a particular setting, without any assumptions about the general application of findings beyond the situation studied,

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2. Critical analysis of literature review, Developing Research Questions

INTRODUCTION

One of the essential preliminary tasks when you undertake a research study is to go through the existing literature in order to acquaint yourself with the available body of knowledge in your area of interest. Reviewing the literature can be time consuming, daunting and frustrating, but it is also rewarding. The literature review is an integral part of the research process and makes a valuable contribution to almost every operational step. It has value even before the first step; that is, when you are merely thinking about a research question that you may want to find answers to through your research journey. In the initial stages of research it helps you to establish the theoretical roots of your study, clarify your ideas and develop your research methodology. Later in the process, the literature review serves to enhance and consolidate your own knowledge base and helps you to integrate your findings with the existing body of knowledge. Since an important responsibility in research is to compare your findings with those of others, it is here that the literature review plays an extremely important role. During the write-up of your report it helps you to integrate your findings with existing knowledge – that is, to either support or contradict earlier research. The higher the academic level of your research, the more important a thorough integration of your findings with existing literature becomes.

A literature review has the following functions:

➢ It provides a theoretical background to your study.

➢ It helps you establish the links between what you are proposing to examine and what has already been studied.

➢ It enables you to show how your findings have contributed to the existing body of knowledge in your profession.

➢ It helps you to integrate your research findings into the existing body of knowledge.

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

➢ bring clarity and focus to your research problem;

➢ improve your research methodology;

➢ broaden your knowledge base in your research area; and

➢ contextualize your findings.

The Literature Review: Definition

A literature review is a written argument that supports a thesis position by building a case from credible evidence obtained from previous research. It provides the context and the background about the current knowledge of the topic and lays out a logical case to defend the conclusions it draws.

Here is our definition of a literature review:

A literature review is a written document that presents a logically argued case founded on a comprehensive understanding of the current state of knowledge about a topic of study. This case establishes a convincing thesis to answer the study's question.

The Literature Review : Process

A literature review is an organized way to research a chosen topic. Let's take the mystery out of this process. The simple fact is that doing a literature review is an exercise in applied critical thinking. Critically thinking about an issue is a deliberate process. First, the subject of the inquiry must be recognized. It must be clearly defined and described. Once a researcher has a clear definition of the subject in question, information can now be collected about the topic. These data are catalogued and organized in such a fashion that some sense can be made of them. The data can then be interpreted and analysed to build the evidence or reasons to form conclusions. The conclusions formed present the logical case for answering the question first inquired about. Finally, the argument is examined; the researcher looks for holes in the reasoning and weighs the conclusions drawn against competing alternatives. Once this process is completed, the answer can be shared with others. Figure I.3 shows the steps for conducting a literature review, as matched to the applied critical-thinking process. As is critical thinking, doing a literature review is a developmental process in which each step leads to the next (Figure I.3).

Figure I.3 The Literature Review Is a Critical-Thinking Process
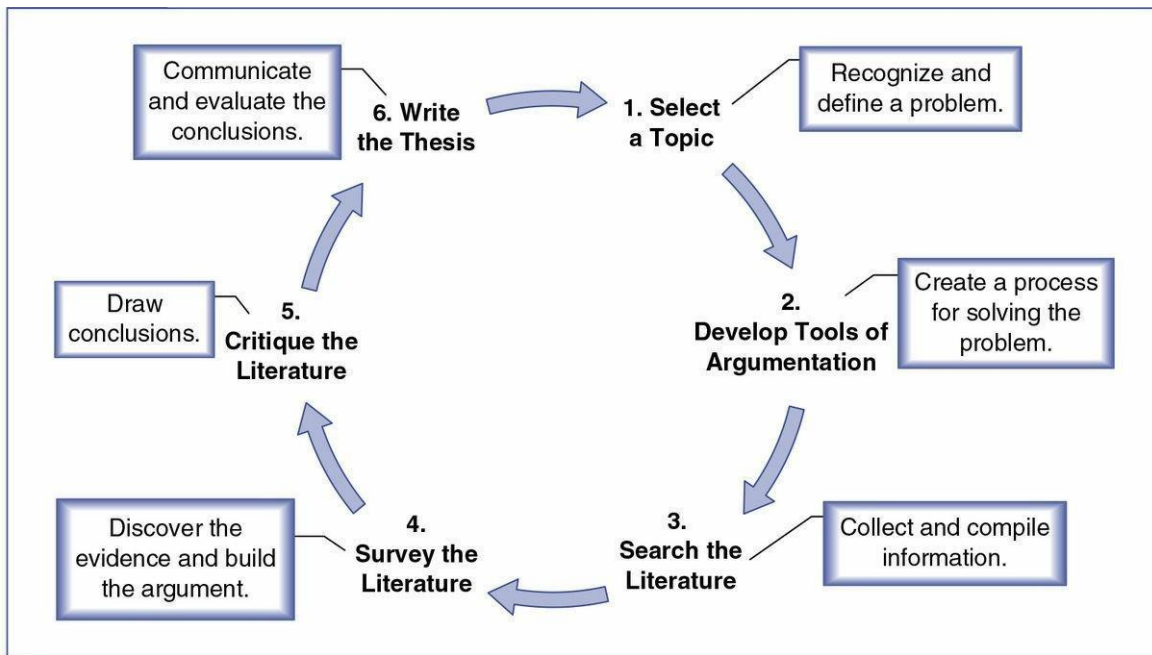
Following is a brief explanation of these six steps.

Step 1. Select a Topic—Recognize and Define the Problem

A successful research topic is usually the offspring of an interest in a practical problem. The interest statement must be reshaped appropriately, converting its generic wording to specific academic language. The topic statement must be well defined to allow the researcher to successfully identify the appropriate literature in the pertinent academic discipline.

Refining the terms used, accurately framing the focus of the interest, and selecting the appropriate academic knowledge base are the tasks to be completed to define a research topic.

Select the Topic is also the start of the writing process. Keeping a written journal of your progress begins here and is essential to comprehending and building knowledge. A journal helps to clarify ideas and process learning. Writing helps clarify thoughts and ideas. The journal is an ideal place to establish an internal dialogue where reflection on your learning can be "wrestled with" and understood. Journals also provide an excellent place for planning and reviewing work.

Step 2. Develop the Tools for Argument—Create a Process for Solving the Problem

Since a literature review must present a logically argued case founded on a comprehensive understanding of the current state of knowledge, then the rules and tools for building an informal argument must be employed. A credible case is not simply reporting about a collection of information or presenting your opinion about the topic. A credible case produces conclusions resulting from a logical presentation of supporting evidence. The tools for evidence building, argument development, and logical reasoning are the building blocks used to make a credible case.

A literature review uses two types of argument to build its case. The first argument builds the findings

of the case. The second argument forms the case's conclusions. Theresult is a well-argued thesis. Both arguments are based on sound reasoning and logicalconstruction. The knowledge and the application of the processes and tools of argumentation are the means for constructing a literature review.

Step 3. Search the Literature—Collect and Organize the Information

A literature search determines the data to be included in the review. It does this by winnowing the research information to only the data that provide the strongest evidence to support the thesis case. When searching the literature, preview, select, and organize the data for study by using the skills of skimming, scanning, and mapping the data. Next, the researcher catalogs and documents the relevant data.

Step 4. Survey the Literature—Discover the Evidence and Build Findings

The literature survey assembles, organizes, and analyzes the data on the currentknowledge about the topic. The data are logically arranged as evidence to produce a setof defensible findings about what is known concerning the topic.

Step 5. Critique the Literature—Draw Conclusions

The literature critique interprets the findings produced by the survey of literature. The findings are logically arranged as conclusions to form the argument that justifies the thesis statement. The critique analyses how current knowledge answers the research question.

Step 6. Write the Review—Communicate and Evaluate the Conclusions

Writing the review produces a document that communicates the results of the project. Through a process of composing and refining, the literature review document becomes a work that accurately conveys to an intended audience the results of the research. This composition requires writing, auditing, and editing to produce a polished final product—one that is accurate, complete, and understandable. Writing done in the first five steps of the literature review is used as the foundation for writing the review.

DEVELOPING RESEARCH QUESTIONS

A good research question defines your study and helps you seek an answer to your research. Moreover, a clear research question guides the research paper or thesisto define exactly what you want to find out, giving your work its objective. Learning to write a research question is the beginning to any thesis, dissertation, or research paper.Furthermore, the question addresses issues or problems which is answered through analysis and interpretation of data.

CHARACTERISTICS OF GOOD RESEARCH QUESTION

"The most successful research topics are narrowly focused and carefully defined but are important parts of a broad-ranging, complex problem."

A good Research Question is an asset as it:

- Details the problem statement
- Further describes and refines the issue under study
- Adds focus to the problem statement
- Guides data collection and analysis
- Sets context of research.

Hence, while writing Research Question, it is important to see if it is relevant to the existing time frame and conditions. A good research is represented by acronym FINERMAPS

- Feasible
- Interesting
- Novel
- Ethical
- Relevant
- Manageable
- Appropriate
- Potential value and publishability
- Systematic

1. **Feasible:** Feasibility means that it is within the ability of the investigator to carry out. It should be backed by an appropriate number of subjects and methodology as well as time and funds to reach the conclusions. One needs to be realistic about the scope and scale of the project. One has to have access to the people, gadgets, documents, statistics, etc. One should be able to relate the concepts of the RQ to the observations, phenomena, indicators, or variables that one can access. One should be clear that the collection of data and the proceedings of project can be completed within the limited time and resources available to the investigator. Sometimes, a RQ appears feasible, but when fieldwork or study gets started, it proves otherwise. In this situation, it is important to write up the problems honestly and to reflect on what has been learned. One should try to discuss with more experienced colleagues or the supervisor so as to develop a contingency plan to anticipate possible problems while working on a RQ and find possible solutions in such situations.

2. **Interesting:** This is essential that one has a real grounded interest in one's RQ and one can explore this and back it up with academic and intellectual debate. This interest will motivate one to keep going with RQ.

3. **Novel:** The question should not simply copy questions investigated by other workers but

should have scope to be investigated. It may aim at confirming or refuting the already established findings, establish new facts, or find new aspects of the established facts. It should show imagination of the researcher. Above all, the question has to be simple and clear. The complexity of a question can frequently hide unclear thoughts and lead to a confused research process. A very elaborate RQ, or a question which is not differentiated into different parts, may hide concepts that are contradictory or not relevant. This needs to be clear and thought-through. Having one key question with several subcomponents will guide your research.

4. **Ethical:** This is the foremost requirement of any Research Question and is mandatory to get clearance from appropriate authorities before stating research on the question. Further, the RQ should be such that it minimizes the risk of harm to the participants in the research, protect the privacy and maintain their confidentiality, and provide the participants right to withdraw from research. It should also guide in avoiding deceptive practices in research.

5. **Relevant :** The question should of academic and intellectual interest to people in the field you have chosen to study. The question preferably should arise from issues raised in the current situation, literature, or in practice. It should establish a clear purpose for the research in relation to the chosen field. For example, filling a gap in knowledge, analyzing academic assumptions or professional practice, monitoring a development in practice, comparing different approaches, or testing theories within a specific population are some of the relevant RQs.

6. **Manageable (M):** It has the similar essence as of feasibility but mainly means that the following research can be managed by the researcher.

7. **Appropriate (A):** Research Question should be appropriate logically and scientifically for the community and institution.

8. **Potential value and publishability (P):** The study can make significant health impact in clinical and community practices. Therefore, research should aim for significant economic impact to reduce unnecessary or excessive costs. Furthermore, the proposed study should exist within a clinical, consumer, or policy-making context that is amenable to evidence-based change. Above all, a good RQ must address a topic that has clear implications for resolving important dilemmas in health and health-care decisions made by one or more stakeholder groups.

9. **Systematic (S):** Research is structured with specified steps to be taken in a specified sequence in accordance with the well-defined set of rules though it does not rule out creative thinking.

TYPES OF RESEARCH QUESTIONS

Research questions can be categorized into different types, depending on the type of research you want to undergo. Furthermore, knowing the type of research will help a researcher determine the best type of research question to use.

1. Qualitative Research Question

Qualitative questions concern broad areas or more specific areas of research. However, unlike quantitative questions, qualitative research questions are adaptable, non-directional and more flexible. Qualitative research question focus on discovering, explaining, elucidating, and exploring.

i. Exploratory Questions

This form of question looks to understand something without influencing the results. The objective of exploratory questions is to learn more about a topic without attributing bias or preconceived notions to it.

ii. Predictive Questions

Predictive research questions are defined as survey questions that automatically predict the best possible response options based on text of the question. Moreover, these questions seek to understand the intent or future outcome surrounding a topic.

iii. Interpretive Questions

This type of research question allows the study of people in the natural setting. The questions help understand how a group makes sense of shared experiences with regards to various phenomena. These studies gather feedback on a group's behavior without affecting the outcome.

2. Quantitative Research Question

Quantitative questions prove or disprove a researcher's hypothesis through descriptions, comparisons, and relationships. These questions are beneficial when choosing a research topic or when posing follow-up questions that garner more information.

i. Descriptive Questions

It is the most basic type of quantitative research question and it seeks to explain when, where, why, or how something occurred. Moreover, they use data and statistics to describe an event or phenomenon.

ii. Comparative Questions

Sometimes it's beneficial to compare one occurrence with another. Therefore, comparative questions are helpful when studying groups with dependent variables.

iii. Relationship-Based Questions

This type of research question answers influence of one variable on another. Therefore, experimental studies use this type of research questions are majorly.

STEPS IN DEVELOPING A GOOD RESEARCH QUESTION

Broadly, a good research question should be relevant, decided, and meaningful (Stone, 2002). Creating a research question can be a tricky process, but there is a specific method you can follow to ease the process. The steps to this method are outlined below:

1. Start with a broad topic.

A broad topic provides writers with plenty of avenues to explore in their search for a viable research question. Techniques to help you develop a topic into subtopics and potential research questions include brainstorming and concept mapping. For example, you can raise thought-provoking questions with your friends and flesh out ideas from your discussions. These techniques can organize your thoughts so you can identify connections and relevant themes within a broad topic.

When searching for a topic, it's wise to choose an area of study that you are genuinely interested in, since your interest in a topic will affect your motivation levels throughout your research. It's also wise to consider the interests being addressed recently by the research community, as this may affect your paper's chances of getting published.

2. Do preliminary research to learn about topical issues.

Once you have picked a topic, you can start doing preliminary research. This initial stage of research accomplishes two goals. First, a preliminary review of related literature allows you to discover issues that are currently being discussed by scholars and fellow researchers. This way, you get up-to-date, relevant knowledge on your topic.

Second, a preliminary review of related literature allows you to spot existing gaps or limitations in existing knowledge of your topic. With a certain amount of fine-tuning, you can later use these gaps as the focus of your research question.

Moreover, according to Farrugia et al. (2010), certain institutions that provide grants encourage applicants to conduct a systematic review of available studies and evidence to see if a similar, recent study doesn't already exist, before applying for a grant.

3. Narrow down your topic and determine potential research questions.

Once you have gathered enough knowledge on the topic you want to pursue, you can start focusing on a more specific area of study. One option is to focus on gaps in existing knowledge or recent literature. "gap-spotting," method involves constructing research questions out of identified limitations in literature and overlooked areas of study.

Similarly, researchers can choose research questions that extend or complement the findings of existing literature.

Another way of identifying and constructing research question is problematization. As a methodology for constructing research questions, problematization aims to challenge and scrutinize assumptions that support others' and the researcher's theoretical position. This means constructing research questions that challenge your views or knowledge of the area of study.

4. Evaluate the soundness of your research question.

Your initial research and review of related literature will have produced some interesting questions that seem like they're worth pursuing. However, not all interesting questions make for sound research questions. Keep in mind that a research question draws its answer or conclusion through an analysis of evidence.

5. Construct your research question properly.

Research questions should be structured properly to ensure clarity. There are a number of frameworks that you can use for properly constructing a research question. The two most commonly used frameworks are explained below.

PICOT framework

The PICOT framework was first introduced in 1995 by Richardson et al. Using the PICOT framework; research questions can be constructed to address important elements of the study, including the population to be studied, the expected outcomes, and the time it takes to achieve the outcome. With these elements, the framework is more commonly used in clinical research and evidence-based studies.

P – population, patients, or problem
I – intervention or indicator being studied C – comparison group

O – outcome of interest
T – timeframe of the study

CONCLUSION

literature review is a comprehensive summary of previous research on a topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area of research. The review should enumerate, describe, summarize, objectively evaluate and clarify this previous research. It should give a theoretical base for the research and help you (the author) determine the nature of your research. The literature review acknowledges the work of previous researchers, and in so doing, assures the reader that your work has been well conceived. It is assumed that by mentioning a previous work in the field of study, that the author has read, evaluated, and assimiliated that work into the work at hand.

Developing the right research question is a critical first step in the research process. A strong research question guides the design of a study. Moreover, it helps determine the type of research and identify specific objectives. Research questions state the specific issue you are addressing and focus on outcomes of the research for individuals to learn. Therefore, it helps break up the study into easy steps to complete the objectives and answer the initial question.

Introduction

A hypothesis is usually considered as an important mechanism in Research. A hypothesis is a tentative assumption made in order to test its logical or empirical consequences. If we go by the origin of the word, it is derived from the Greek word- 'hypotithenai' meaning 'to put under' or to 'to suppose'. Etymologically hypothesis is made up of two words, "hypo" and "thesis" which means less than or less certain than a thesis. It is a presumptive statement of a proposition or a reasonable guess, based upon the available evidence, which the researcher seeks to prove through his study. A hypothesis will give a plausible explanation that will be tested. A hypothesis may seem contrary to the real situation. It may prove to be correct or incorrect. Hypothesis needs to be clear and precise and capable of being tested. It is to be limited in scope and consistent with known or established facts and should be amenable to testing within the stipulated time. It needs to explain what it claims to explain and should have empirical references.

Definition of Hypothesis

"A hypothesis can be defined as a tentative explanation of the research problem, a possible outcome of the research, or an educated guess about the research outcome". Goode and Hatt have defined it as "a proposition which can be put to test to determine its validity". "Hypotheses are single tentative guesses, good hunches – assumed for u in devising theory or planning experiments intended to be given a direct experimental test when possible". According to Lundberg, "A hypothesis is a tentative generalisation, the validity of which remains to be tested. In its most elementary stage, the hypothesis may be any hunch, guess, imaginative idea, which becomes the basis for action or investigation". Hence, a hypothesis is a hunch, assumption, suspicion, assertion or an idea about a phenomenon, relationship or situation, the reality or truth of which you do not know. A researcher calls these assumptions/ hunches hypotheses and they become the basis of an enquiry. In most studies the hypothesis will be based upon your own or someone else's observation. Hypothesis brings clarity, specificity and focus to a research problem, but is not essential for a study. You can conduct a valid investigation without constructing formal hypothesis. The formulation of hypothesis provides a study with focus. It tells you what specific aspects of a research problem to investigate. A hypothesis tells you what data to collect and what not to collect, thereby providing focus to the study. As it provides a focus, the construction of a hypothesis enhances objectivity in a study. A hypothesis may enable you to add to the formulation of a theory. It enables you to specifically conclude what is true or what is false. Ludberg observes, quite often a research hypothesis is a predictive statement, capable of being tested by scientific methods, that relates an independent variable to some dependent variable.

Nature of Hypothesis:

The hypothesis is a clear statement of what is intended to be investigated. It should be specified before research is conducted and openly stated in reporting the results.

  ✓ Identify the research objectives.

✓ Identify the key abstract concepts involved in the research.

✓ Identify its relationship to both the problem statement and the literature review.

✓ A problem cannot be scientifically solved unless it is reduced to hypothesis form.

✓ It is a powerful tool of the advancement of knowledge, consistent with existing knowledge and conducive to further enquiry.

✓ It can be tested – verifiable or falsifiable.

✓ Hypotheses are not moral or ethical questions.

✓ It is neither too specific nor to general.

✓ It is a prediction of consequences.

✓ It is considered valuable even if proven false.

Importance of Hypothesis:

Hypothesis though an important part of research may not be required in all types of research. The research which are based on fact finding (historical or descriptive research) do not need hypothesis. Hillway also says that "When fact-finding alone is the aim of the study, a hypothesis is not required". Whenever possible, a hypothesis is recommended for all major studies to explain observed facts, conditions or behaviour and to serve as a guide in the research process.

1. Hypothesis facilitates the extension of knowledge in an area. They provide tentative explanations of facts and phenomena, and can be tested and validated. It sensitizes the investigator to certain aspects of the situations which are relevant from the standpoint of the problem in hand.

2. Hypothesis provide the researcher with rational statements, consisting of elements expressed in a logical order of relationships which seeks to describe or to explain conditions or events, that have yet not been confirmed by facts. The hypothesis enables the researcher to relate logically known facts to intelligent guesses about unknown conditions. It is a guide to the thinking process and the process of discovery.

3. Hypothesis provides direction to the research. It defines what is relevant and what is irrelevant. The hypothesis tells the researcher what he needs to do and find out in his study. Thus it prevents the review of irrelevant literature and provides a basis for selecting the sample and the research procedure to be used in the study.

4. Hypothesis implies the statistical techniques needed in the analysis of data, and the relationship between the variables to be tested. It also helps to delimit his study in scopeso that it does not become broad or unwieldy.

5. Hypothesis provides the basis for reporting the conclusion of the study. It serves as a framework for drawing conclusions. In other word, we can say that it provides the outline for

setting conclusions in a meaningful way

So, Hypothesis has a very important place in research although it occupies a very small place in the body of a thesis.

Sources of Hypothesis:

A good hypothesis can only be derived from experience in research. Though hypothesis should precede the collection of data, but some degree of data collection, literature review or a pilot study will help in the development and gradual refinement of the hypothesis. A researcher should have quality of an alert mind to derive a hypothesis and quality of critical mind of rejecting faulty hypothesis. The following sources can help the researcher in coming up with a

good hypothesis:

✓ Review of literature.

✓ Discussion with the experts in the given field to understand the problem, its origin and objectives in seeking a solution.

✓ Intuition of the researcher also sometimes helps in forming a good hypothesis.

✓ Previous empirical studies done on the given area.

The Types of Hypothesis

Research Hypothesis: The Research Hypothesis could be understood in terms of Simple Research hypothesis and Complex Research Hypothesis. A simple research hypothesis predicts the relationship between a single independent variable and a single dependent variable. A Complex hypothesis predicts the relationship between two or more independent variables and two or more dependent variables. A research hypothesis must be stated in a testable form for its proper evaluation and it should indicate a relationship between variables in clear, concise and understandable language. Research Hypothesis are classified as being directional or non-directional.

Directional Hypotheses: These are usually derived from theory. They may imply that the researcher is intellectually committed to a particular outcome. They specify the expected direction of the relationship between variables i.e. the researcher predicts not only the existence of a relationship but also its nature.

Non-directional Hypotheses: Used when there is little or no theory, or when findings of previous studies are contradictory. They may imply impartiality. Do not stipulate the direction of the relationship.

Associative and causal Hypotheses:

Associative Hypotheses: Propose relationships between variables - when one variable changes, the other changes. Do not indicate cause and effect.

Causal Hypothesise: Propose a cause-and-effect interaction between two or more variables. The

independent variable is manipulated to cause effect on the dependent variable. The dependent variable is measured to examine the effect created by the independent variable.

Statistical Hypothesis: To test whether the data support or refute the research hypothesis, it needs to be translated into a statistical hypothesis. It is given in statistical terms. In the context of inferential statistics, it is statement about one or more parameters that are measures of the population under study. Inferential statistics is used for drawing conclusions about population values. To use inferential statistics, we need to translate the research hypothesis into a testable form, which is called the null hypothesis. A testable hypothesis contains variables that are measurable or able to b manipulated. They need to predict a relationship that can be 'supported' or 'not supported' based on data collection and analysis.

Null Hypothesis: These are used when the researcher believes there is no relationship between two variables or when there is inadequate theoretical or empirical information to state a research hypothesis. The null hypothesis represents a theory that has been put forward, either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved. Has serious outcome if incorrect decision is made. Designated by: Ho or Hn.

- Null hypotheses can be: simple or complex, associative or causal

Alternative Hypothesis: The alternative hypothesis is a statement of what a hypothesis test is set up to establish. Designated by: H1 or Ha. It is opposite of Null Hypothesis. It is only reached if Ha is rejected. Frequently "alternative" is actual desired conclusion of the researcher

We give special consideration to the null hypothesis. This is due to the fact that the null hypothesis relates to the statement being tested, whereas the alternative hypothesis relates to the statement to be accepted if when the null is rejected. The final conclusion, once the test has been carried out, is always given in terms of the null hypothesis. We either 'reject Ho in favour of Ha' or 'do not reject Ho'; we never conclude 'reject Ha', or even 'accept Ha'. If we conclude 'do not reject Ho', this does not necessarily mean that the null hypothesis is true, it only suggests that there is not sufficient evidence against Ho in favour of Ha; rejecting the null hypothesis then, suggests that the alternative hypothesis may be true.

For example: Ha= the males visited cinema more than females.
 Ho= the males and females do not differ in respect of the frequency of seeing cinema. So, Alternative hypothesis is usually the one which one wishes to prove and the Null hypothesis is the one which one wishes to disapprove.

Steps in developing hypothesis
Step -1: Ask a question

- Begins with a research question that you want to answer.
- Focused, specific &researchable

- Eg: Do students who attend more lectures get better exam results?<u>Step</u>

<u>– 2: Do some preliminary research</u>

- Theories & previous studies to help you from educated assumptions.
- Construct a conceptual framework to identify which variables you will study andwhat you think the relationships are between them.

<u>Step-3 formulate your hypothesis</u>

Now you should have some idea of what you expect to find. Write your initial answer to the question in a clear, concise sentence.

<u>Step – 4 Refine your hypothesis</u>

Hypothesis should contain

- Relevant variables
- Specific group being studied
- Predicted outcome of the experiment or analysis.

<u>Step -5 Phrase your hypothesis in 3 ways</u>

- Simple prediction in ***if ……then*** form
- First part sta   tes independent variable & second part states the dependent variable.
- Eg: *if a first-year student starts attending more lectures,* *then* *their exam scores will improve.*
- Hypothesis are phrased in correlational effects, where you directly state thepredicted relationship between variables.
  - Number of lectures attended by first year students has a positive effect ontheir exam scores.
  - If you are comparing 2 groups, the hypothesis can state what difference you expect to find between them.
  - First year students who attend most lectures will have better exam scores **than** those who attend few lectures.

Step- 6 write a null hypothesis

- Research involves statistical hypothesis testing then write a null hypothesis.
- Null hypothesis is default position that there is no association between the variables.
- Null hypothesis Ho
- Alternative hypothesis H 1 or H A
- Eg: Ho - number of lectures attended by first year students has no effect on theirfinal exam scores.

- Eg: H A - Number of lectures attended by first year students has a positive effecton their final exam scores

Hypothesis examples

Research questions	Hypothesis	Null Hypothesis
Which airlines have the most delays?	Low-cost airlines are *more* likely to have delays than premium airlines.	Low cost and premiumairlines are *equally* likely to have delays.
Can flexible work arrangements improve job satisfaction?	Employees who have flexible working hours will report *greater* job satisfaction than employees who work fixed hours.	There is *no relationship* between working hour flexibility and jobsatisfaction.
What are the health benefits ofeating an apple a day?	Increasing apple consumptionover -60s will result in *decreasing* frequency of doctors' visits.	Increasing apple consumption over -60s will have *no effect* on frequency of doctors' visits.
What effect does daily use of social media have on the attention span of under -16 s?	There is a *negative correlation* between time spent on social media and attention span inunder – 16s	There is *no relationship* between time spent on social media use and attention spanin under – 16s

LEGAL RESTRICTIONS IN RESEARCH FORMULATIONSINTRODUCTION

Education is considered as a vital tool for social as well as national development. It hassignificant role in evaluating the human development of a country. When assessing the development of a person, society, community or a nation, the educational attributes, such as educational qualifications, number of educated people in the society or community, number of educational institutions in the state or country with respects to its population, rate of enrolment, retention, quality of education provided, equity and equality for educational opportunity, and so forth, are considered as the prime criteria for consideration. Hence, every nation in the world has been giving emphasis to the development of educational sector of their country. Many innovative programmes and projects are preparing by the policy makers as well as the academic bodies across the world to improve their educational quantity as well as the quality. Educational researches are the main input as well as the output to bring such change in the educational sector. Research is an in-depth inquiry in to a problem which needs an amicable solution. Every invention in the world happens as a result of a scientific enquiry. Research is a systematic, scientific, objective activity, which includes the collection relevant information, and careful analysis of data, recording and reporting ofvalid conclusion, which may lead to creation of new knowledge, development of theory, principles, and generalization. The developed theory, knowledge, principles, or generalization may help the researcher or concerned authority to predict occurrences of certain possible events and thereby make possible to ultimate control of unwanted events.

Research contributes to the advancement of knowledge and ultimately, to the betterment of human beings, it is essential that human beings fully participate and cooperate with the researcher but not at the cost of human rights. Researchers on the other hand have aclear responsibility to ensure that they recognise and protect the rights and general well-being of their participants, regardless of the nature of their research.

Why Ethical and Legal Considerations?

Ethics is concerned with a set of social and moral principles that guide research. Legal refers to the law. Thus, research which is both Ethical and Legal is research that follows

the 'Guiding Principles' and stays within the confines of the law. Educational research often involves people as participants in experiments, respondents to surveys, or the focus of observations. Even use of school records involves people. Because human participants are involved, ethical and legal considerations are of concern.

- People must be respected and seen not as sources of data but as people whose rights and welfare must be protected;

- Physical risk and psychological harm must be minimized;

- Risk and benefits from studies should be distributed fairly and evenly in populations.

Ethics approval for research with human participants is needed for the following reasons:

- To protect the rights and welfare of participants and minimize the risk of physical and mental discomfort, harm and/or danger from research procedures.
- To protect the rights of the researcher to carry out any legitimate investigation as well as the reputation of the University for Research conducted and/or sponsored by it.
- To minimize the likelihood of claims of negligence against individual researchers, the university, and any collaborating persons or organizations.

The aim of research ethics and legal consideration is to encourage integrity in the conduct of educational research and practices among teachers, scholars, and professionals. The Legal restrictions in research are the most important consideration for every researcher. These restrictions should be considered on every step of the research: be it the problem formulation stage; data collection phase; or the data analysis and interpretation phase of the research. The researcher should take into account that none of the legal restrictions have been violated. None of the journals approve manuscript for publication until the research is proved to be legally correct. Here some of the common legal restrictions in research and how to safeguard against failure to abide by these rules.

Restrictions/Issues related to Research Participants

1. The author should take consent from the research participants about the participation in the research. The researcher should also take consent about the part of the information that the participant provides and will be published in the research. No information can be published in the research without research participant's consent.

2. The researcher should make sure that the identities of the research participants are kept anonymous. When it is required to show the identity the research participant should be informed and a written consent should be taken.

3. The subjects or participants of the research should not be forced to participate or to provide any information. They should not be forced to give consent for any publication of information they have provided.

4. The researcher should make sure that any disclosure of information provided by the participant will not lead to any harm to the participant.

5. In any way the participants of the research should benefit from the research and its outcomes. There should not be any possibility that the research will provide any harm if not good to them.

6. If the research participants are children a written consent should be asked from the parents or guardians of the children.

7. The researcher can express thanks to the participants by different means. The researcher can even pay the respondents for their participants, the participants can also be given incentives for their participation, or the researcher can verbally or in written form thank the participants.

Restrictions/ Issues related to Researchers

1. A scientific research has no place for personal biases and prejudices. The researcher can introduce bias at any stage of the research. The researcher should be well aware of the biases that he can introduce in the research. He should make sure that the analysis and interpretation of the research should be free of personal biases. Biases can be introduced in the research due to some preconceived views of the topic. In qualitative research the researcher can use various ways to improve the validity and reliability of the research. In quantitative research the researcher should make sure each step of the research has been taken precisely to avoid any bias.

    Bias is deliberate attempt either to hide what you have found in your study or to highlight something to its true existence. The researcher or experimenter should always try to avoid biased attitude. Don't get emotionally involved with participants. Bias could occur at any point in the research process from the very identification of the research questions, through the research design, to the drawing up of research instrument, to the writing up of and dissemination of work. Bias is to be avoided because it reflects covert distortion of the reality that the researcher is seeking to analyze.

2. Fraud is cheating and a crime. The researcher can do fraud by deceiving the publication body, the audience, and the sponsors. A fraud in research can be the publication of someone else's work by your own name. A fraud can also be the publication of someone

    else's research findings or experimental data in your research. The researcher can also fraud by duplicate publication of almost same research in different journals. Some of the fraud can be easily detected by the publication journals while others are very difficult to identify.

3. The legal restrictions in research also include the authorship and the order of authorship in research. When there is only one investigator involved in the research the authorship naturally goes to that one. When there are more than one authors involved the order of authorship should be discussed among them. Each contributor of the research should be well aware of his position in the final manuscript. It is a crime to provide false authorship to a manuscript. The roles of the authors and their order in the final manuscript should be decided well in the beginning of the research. This will help in having any conflicts at the end of the research.

4. The copyright protection of the research can help the researchers in protecting their work from any commercial or non-commercial use. The authors and the publishers should define and sign the copyright protection so that other users can use the work

accordingly.

5. The sponsors of the research can be the private organization that has sponsored the research, or the university under which the research is conducting the research,

it can also be a government organization. The sponsors should be clearly identified and acknowledged in the research. Any other person who contributed in any form to the research should also be acknowledged in the research.

Major Other Legal Restrictions in Research

✓ Seeking Permission from the Authority:

The researcher or the experimenter should seek the permission from the concerned authority before conducting the research for example heads of organizations, parents or guardians etc.

• Approval of research project by academic institution.

• Permission from authority where one is going to conduct research e.g.: - manager of organisation, community leader, head of family and so on.

• The researcher should not make use of hidden cameras, microphones, tape-recorders without the respondent's permission. Similarly, private correspondence should not be used without the respondent's permission.

✓ Informed Consent:

Consent to participate is the fundamental component in research ethics and should, in all circumstances, be valid, voluntary and informed. It is a process in which a participant consents to participate in a research project after being informed of its procedures, risks etc. The subjects should be informed about the purpose of the research. The researchers should explain the procedures to be followed in the research completely to the participants along with the risks and benefits involved. It is unethical to collect information without the knowledge of participants. While dealing with school children (minors) or mentally challenged student parent's or guardian's consent should be obtained.

✓ Confidentiality and Anonymity:

The researcher should maintain strict confidentiality about the information obtained from the respondents. Sharing information about a respondent with others for purposes other than research is unprincipled. No information about the personal details of the respondents should be revealed in any of the records, reports without the respondent's permission. Identify the subjects not by their names but by the number assigned.

✓ Freedom to Withdraw or Participate:

Participants must be informed that they are free to withdraw from the experiment at anytime without penalty. If you have a strong relationship with the participants you must be extra careful to make sure that they really do feel free to withdraw or participate.

✓ Avoid unethical questions:

The researcher should avoid asking questions about family income, age, marital status and so on. These are unethical questions.

✓ Respect for human dignity

This is the cardinal ethical principle underlying research ethics and is intended to protect the interests and the physical, psychological or cultural integrity of the individual. Respect participants culture especially their moral and legal standards. Researcher should see things from the view point of participants whether he agrees personally or not.

✓ Appropriate Methodology:

It is mandatory on the part of researcher to use appropriate methodology. It is unethical to use inappropriate methodology.

✓ Avoiding Plagiarism:

Plagiarism is a practice of using or copying someone else's idea or work and pretending that you thought of it and created it. It is the presentation of others' ideas as your own. It is still plagiarism even if you do not do it intentionally. It can take many forms: -

- Quoting someone's words but not properly citing the author's information.

- Paraphrasing an idea and not citing the source.

- Using someone's image, audio, video, spreadsheet, etc. without proper citation.

- Buying or submitting some else's research paper.

- Using all or parts of a speech found on the Internet without citing.

- Not expose your research to two organisations at the same time.

- Citing a source with fake bibliographic information. Style of referencing is also a legal issue because references give complete information.

As per UGC regulations (2018), plagiarism would be quantified into following levels in ascending order of severity for the purpose of its definition:

i. Level 0: Similarities up to 10%—minor similarities, no penalty.

ii. Level 1: Similarities above 10% to 40%.

iii. Level 2: Similarities above 40% to 60%.

iv. Level 3: Similarities above 60%.

Penalties.

Penalties in the cases of plagiarism shall be imposed on students pursuing studies at the level of masters and research programs and on researcher, faculty and staff of the HEI only after academic

misconduct on the part of the individual has been established without doubt, when all avenues of appeal have been exhausted and individual in question has been provided enough opportunity to defend himself or herself in a fair ortransparent manner.

Penalties in case of plagiarism in submission of thesis and dissertations: Institutional Academic Integrity Panel (IAIP) shall impose penalty considering theseverity of the Plagiarism.

i. Level 0: Similarities up to 10%—minor similarities, no penalty.

ii. Level 1: Similarities above 10% to 40%—such student shall be asked to submit a revised script within a stipulated time period not exceeding six months.

iii. Level 2: Similarities above 40% to 60%—such student shall be debarred from submitting a revised script for a period of one year.

iv. Level 3: Similarities above 60%—such student registration for that programme shallbe cancelled.

Note 1: Penalty on repeated plagiarism—such student shall be punished for the plagiarism of one level higher than the previous level committed by him/her. In case where plagiarism of highest level is committed, then the punishment for the same shallbe operative.

Note 2: Penalty in case where the degree/credit has already been obtained if plagiarismis proved on a date later than the date of award of degree or credit as the case may be, then his/her degree or credit shall be put in abeyance for a period recommended by the IAIP and approved by the Head of the Institution.

Penalties in case of plagiarism in academic and research publications:

I. Level 0: Similarities up to 10%—minor similarities, no penalty.

II. Level 1: Similarities above 10% to 40%.

(i) Shall be asked to withdraw manuscript.

III. Level 2: Similarities above 40% to 60%.

(i) Shall be asked to withdraw manuscript.

(ii) Shall be denied a right to one annual increment.

(iii) Shall not be allowed to be a supervisor to any new Master's, M.Phil., Ph.D. student/scholar for a period of two years.

IV. Level 3: Similarities above 60%.

(i) Shall be asked to withdraw manuscript.

(ii) Shall be denied a right to two successive annual increments.

(iii) Shall not be allowed to be a supervisor to any new Master's, M.Phil., Ph.D.

student/scholar for a period of three years.

Note 1: Penalty on repeated plagiarism: shall be asked to withdraw manuscript and shall be punished for the plagiarism of one level higher than the lower level committed by him/her. In case where plagiarism of highest level is committed, then the punishment for the same shall be operative. In case Level 3 offence is repeated, then the disciplinary action including suspension/termination as per service rules shall be taken by the HEI. Note 2: Penalty in case where the benefit or credit has already been obtained if plagiarism is proved on a date later than the date of benefit or credit obtained as the case may be, then his/her benefit or credit shall be put in abeyance for a period recommended IAIP and approved by the Head of the Institution.

Note 3: HEIs shall create a mechanism so as to ensure that each of the paper publication/thesis/dissertation by the student, faculty, researcher, or staff of the HEI is checked for plagiarism at the time of forwarding/submission.

Note 4: If there is any complaint of plagiarism against the Head of an HEI, a suitable action, in line with these regulations, shall be taken by the Controlling Authority of the HEI.

Note 5: If there is any complaint of plagiarism against the Head of Department/Authorities at the institutional level, a suitable action, in line with these regulations, shall be recommended by the IAIP and approved by the Competent Authority.

Note 6: If there is any complaint of plagiarism against any member of DAIP or IAIP, then such member shall excuse himself/herself from the meeting(s) where his/her case is being discussed/investigated.

✓ Avoiding Falsification and Fabrication:

Falsification of data is the selective alteration of data collected in the conduct of scientific investigation. Falsification also includes the selective omission/deletion/suppression of conflicting data without scientific or statistical justification e.g. altering data to render a modification of the variances in the data. Fabrication is inventing or making up data.eg:-completing a questionnaire without interviewing participant.

✓ Feedback:

The respondents/subjects/participants should be provided with the reasons for the experimental procedures as well as the findings of the study if they demand so. Feedback is very important both from ethical and practical point of view. Participants have assisted you and you have a responsibility to inform them about results. Feedback is also important in order to seek co-operation on follow-up visits. Care should be taken while disclosing results before participants.

✓ Safety of the research participant:

The primary concern of the investigator should be the safety of the research participant. This is accomplished by carefully considering the risk/benefit ratio, using all available information to make an appropriate assessment and continually monitoring the research as it proceeds. In an experimental

research, which may have a temporary or permanenteffect on the subjects, the researcher must take all precautions to protect the subjects from mental, psychological, physical harm, danger and stress.

Legal responsibilities

There are legal responsibilities to consider when creating, preserving, and sharing data.These include data protection (GDPR), Intellectual Property Rights, Copyright, and Licences.

Intellectual Property Rights

Intellectual property rights (IPR) refers to the legal rights given to the inventor or creator to protect his invention or creation for a certain period of time. These legal rights confer an exclusive right to the inventor/creator or his assignee to fully utilize his invention/creation for a given period of time.

Copyright and legal protection

Copyright exists in textbooks, scholarly articles, online lectures, presentations, library collections, and research databases and, therefore, plays an integral role ineducation. Copyright consists of a bundle of economic and moral rights using which theauthor can allow or disallow the usage of their work.

Today, the internet acts as a breeding ground for plagiarism, duplication and other acts that are a blatant breach of academic and publication ethics. The essence of copyright law is to protect, recognize and up to an extent, commercially exploit the work produced by a creator. In an academic context, copyright law would facilitate the recognition and commercial exploitation of academic works. Legally protecting one's academic work can reduce the possibilities of illegal duplication and plagiarism related activities. Copyright protection may also expedite the legal actions taken against those who may commit unethical research practices.

Mechanisms to permit the re-use of your research data and materials

If you wish to share and allow re-use of your data but with some restrictions, Creative Commons licences provide standard options to enable use of your data in selected waysand restrict other uses.

Using online materials in your research

There are a number of issues when using online materials. This partly depends on howthese materials are licensed. Even if there is no '©' or 'all rights reserved' notice, intellectual property rights are still applicable. When in doubt, contact the website administrator or publisher directly. However it is also essential to ensure that the sourceof the online materials has the rights to use them, and to allow you to use them for yourspecific research purpose.

General Data Protection Regulation (GDPR)

GDPR applies to the collection, storage and use of anything that might in any way be used to identify an individual. This includes name, ID number, location (including IP address and data from cookies), online identifiers, physical and physiological factors, biometrics, and genetic, mental,

economic, cultural or social identity.

GDPR does not apply if your research involves only fully anonymised data (so there is no way of linking it back to the individual it relates to, including through use of a code or numerical identifier).

GDPR requires additional conditions to be satisfied when dealing with 'Special category data'. These are particularly sensitive personal data including racial/ethnic origin, political opinions, religious/philosophical beliefs, trade union membership, genetic and biometric data, physical or mental health, sex life, and sexual orientation. If you are dealing with identifiable personal information you have a responsibility to keep the data safe and report any breaches. To comply with data minimisation requirements, you should that the data collected is:

- adequate – sufficient to properly fulfil your stated purpose
- relevant – has a rational link to that purpose
- limited to what is necessary – you do not hold more than you need for that purpose.

Conclusion

Legal and ethical issues form an important component of modern research, related to the subject and researcher. The recent increase in research activities has led to concerns regarding ethical and legal issues. Various guidelines have been formulated by organisations and authorities, which serve as a guide to promote integrity, compliance and ethical standards in the conduct of research. A general overview of legal principles will enable research to be conducted in accordance with the best practices.

APA/ BPS ETHICS CODE
INTRODUCTION

To write a research paper, the first thing is to find out the citing sources. In academic research, it is standardized by many institutions and the publication venues such as conferences and journals are somehow strict about their formats. Hence, the researchers know that how to cite a research paper and other sources in their works. There are many reasons for citing sources properly and one of the most important ones is that we can easily establish to your reviewers and readers the context around and relevancy of your work. But, creating a reference section for paper or dissertation can be a tedious task.

We must properly reference a source even if you have reworded the idea you lifted from it. Properly referencing a source is not only important that the right people get the proper recognition for their ideas. It is also crucial to the whole research publication and consumption process for some reasons such as avoids plagiarism, respect for intellectual property rights and provide evidence. Overall, referencing helps research communities place a work in its proper context to better judge its potential impact on its field. There are many different fields and disciplines in the research world. And, they have different styles and standards for what proper referencing is. Rules also vary from the types of sources you cite, including but not limited to research papers, technical reports, books, patents, court cases, conference journals, conference papers, podcasts, YouTube videos, and social media posts. But, most styles have common elements required for writers to include. There are many citation guides are includes research papers like the Rationale Behind Citations, APA Style Citation Guide, MLA Style Citation Guide, Chicago/Turabian Style Citation Guide and IEEE Style Citation Guide. Here, explain APA and BPS ethics code

AMERICAN PSYCHOLOGICAL ASSOCIATION (APA)

The Okanagan College Psychology and Business Administration Departments require the use of American Psychological Association (APA) style for citing references in student papers. APA style is also used in some courses in Arts, Science and Health. It is important to remain consistent within the paper and to use the style recommended by your college professor or instructor. The examples in this guide cover frequently used citation forms only. For more detailed information refer to the Publication Manual of the American Psychological Association (6th ed.), (BF 76.7 .P83 2009) and to the APAStyle website at www.apastyle.org.

General Rules:

- Double-space your paper, including the reference list.
- Format reference list entries with a hanging indent (.5 inch or 1.27 cm). See example on page 6 of this guide.
- Arrange reference list entries in alphabetical order by the surname of the first author or by title if there is no author.
- Use only the initial(s) of the author's given name, not the full name.
- If the reference list includes two or more entries by the same author(s), list them in chronological order (oldest first).
- Capitalize only the first letter of the first word in the article, report and book title and subtitle. Capitalize proper names. Capitalize all significant words of a journal title.
- Italicize journal titles and volume numbers. Do not italicize issue numbers. Italicize book and report titles.
- References cited in text must appear in the reference list and vice versa. The only exceptions to this rule are personal communications and secondary sources, which are

cited in text only and not included in the reference list (See examples 7 & 10 onpage 5).

- Any republished tables or figures (including photographs and illustrations) must beclearly marked as reprinted or adapted, and the original source must be provided both in the text and in a footnote to the table or figure.

- A DOI (Digital Object Identifier) is a unique string of numbers and letters applied to content. DOIs are typically on the first page of a journal article or are included in a database's article information.

- If you are unable to identify a specific example, follow an example that is most likeyour source.

AMERICAN PSYCHOLOGICAL ASSOCIATION (APA) ETHICS CODE

The American Psychological Association (APA) publishes the Ethical Principles of Psychologists and Code of Conduct which outlines aspirational principles as well as enforceable standards that psychologists should use when making decisions. The APA first published their ethics code in 1953 and has been continuously evolving the code ever since. The current version of the ethics code, which introduced the distinction between principles and standards, was developed in 2002 and later amended in 2010 and 2016.

The APA code of ethics is composed of key principles and ethical standards. The principles are intended as a guide to help inspire psychologists as they work in their profession, whether they are working in mental health, in research, or in business. The standards, on the other hand, are expectations of conduct that can lead to professional and legal ramifications when violated.

FIVE ETHICAL PRINCIPLES

The following are the five principles of APA code of ethics.

Principle 1: Beneficence and Non-maleficence

It states that psychologists should strive to protect the rights and welfare of those with whom they work professionally. This includes the clients they see in clinical practice, animals that are involved in research and experiments, and anyone else with whom they engage in professional interaction. It encourages psychologists to strive to eliminate biases, affiliations, and prejudices that might influence their work. This includes acting independently in research and not allowing affiliations or sponsorships to influence results.

Principle 2: Fidelity and Responsibility

The APA also suggests that psychologists have a moral responsibility to help ensure that others working in their profession also uphold high ethical standards. This principle suggests that psychologists should participate in activities that enhance the ethical compliance and conduct of their colleagues. Serving as a mentor, taking part in peer- review, and pointing out ethical concerns or misconduct are examples of how this principle might be put into action.

Principle 3: Integrity

The Psychologists should also strive for transparency and honesty in their practice. When deception is used in research, psychologists must make efforts to mitigate the effects. This type of research deception must be justified and the possible gains must outweigh potential drawbacks. The use of deception should be minimal, not result in distress, and be disclosed at the earliest possible opportunity.

Principle 4: Justice

In this principle, justice relates to a responsibility to be fair and impartial. This principle states that people have a right to access and benefit from advances that have been made in the field of psychology. It is important for psychologists to treat people equally.

Principle 5: Respect for People's Rights and Dignity

Psychologists should respect the right to dignity, privacy, and confidentiality of those they work with professionally. They should also strive to minimize their own biases as well as be aware of issues related to diversity and the concerns of particular populations. For example, people may have specific concerns related to their age, socioeconomic status, race, gender, religion, ethnicity, or disability.

ETHICAL STANDARDS

The 10 standards found in the APA ethics code are enforceable rules of conduct for psychologists working in clinical practice and academia. These standards tend to be broad in order to help guide the behaviour of psychologists across a wide variety of domains and situations. They apply to areas such as education, therapy, advertising, privacy, research, and publication.

1. Resolving Ethical Issues

This standard of the APA ethics code provides information about what psychologists should do to resolve ethical situations they may encounter in their work. This includes advice for what researchers should do when their work is misrepresented and when to report ethical violations.

2. Competence

It is important that psychologists practice within their area of expertise. When treating clients or working with the public, psychologists must make it clear what they are trained to do as well as what they are not trained to do. This standard stipulates that in an emergency situation, professionals may provide services even if it falls outside the scope of their practice in order to ensure that access to services is provided.

3. Human Relations

Psychologists frequently work with a team of other mental health professionals. This standard of the ethics code is designed to guide psychologists in their interactions with others in the field. This includes guidelines for dealing with sexual harassment, discrimination, avoiding harm during treatment, and avoiding exploitative relationships.

4. Privacy and Confidentiality

This standard outlines psychologists' responsibilities with regards to maintaining patient confidentiality. Psychologists are obligated to take reasonable precautions to keep client information private. However, the APA also notes that there are limitations to confidentiality.

5. Advertising and Other Public Statements

Psychologists who advertise their services must ensure that they accurately depict their training, experience, and expertise. They also need to avoid marketing statements that are deceptive or false. This also applies to how psychologists are portrayed by the media when providing their expertise or opinion in articles, blogs, books, or television programs. When presenting at conferences or giving workshops, psychologists should also ensure that the brochures and other marketing materials for the event accurately depict what the event will cover.

6. Record Keeping and Fees

Maintaining accurate records is an important part of a psychologist's work, whether the individual is working in research or with patients. Patient records include case notes and other diagnostic assessments used in the course of treatment. In terms of research, record keeping involves detailing how studies were performed and the procedures that were used. This allows other researchers to assess the research and ensures that the study can be replicated.

7. Education and Training

This standard focuses on expectations for behaviour when psychologists are teaching or training students. When creating courses and programs to train other psychologists and mental health professionals, current and accurate evidence-based research should be used.

8. Research and Publication

This standard focuses on ethical considerations when conducting research and publishing results. For example, the APA states that psychologists must obtain approval from the institution that is carrying out the research, present information about the purpose of the study to participants, and inform participants about the potential risks of taking part in the research.

9. Assessment

Psychologists should obtain informed consent before administering assessments. Assessments should be used to support a psychologist's professional opinion, but psychologists should also understand the limitations of these tools. They should also take steps to ensure the privacy of those who have taken assessments.

10. Therapy

This standard outlines professional expectations within the context of providing therapy. Areas that are addressed include the importance of obtaining informed consent and explaining the treatment process to clients. Confidentiality is addressed, as well as some of the limitations to confidentiality, such as when a client poses an immediate danger to himself or others.

BRITISH PSYCHOLOGICAL SOCIETY (BPS)

The British Psychological Society (BPS) is the representative body for psychologists and psychology in the United Kingdom. The BPS is a charity, and along with advantages, this imposes certain constraints on what the society can and cannot do - it cannot campaign on issues which are seen as political, for example the age of consent of homosexuality. It was founded on October 24 1901 at University College London as The Psychological Society; the organisation initially admitted only recognized teachers in the field of psychology. Its current name of The British Psychological Society was taken in 1906 to avoid confusion with another group named The Psychological Society.

BPS CODE OF ETHICS

The British Psychological Society (BPS) introduced an amended version of the Code of Ethics and Conduct on 31 March 2006. Research is one of the areas of psychological work that generates many concerns and complaints to the BPS. These include complaints about psychologists falsifying data, failing to obtain consent, plagiarism or failing to acknowledge another's work or contribution. The principles below are designed to help psychologists avoid problems such as these. They are not all of the principles provided in the much longer BPS Code of Ethics and Conduct, but a subset which highlights the kinds of issues that need to be considered when conducting psychological research. As the full BPS Code of Ethics and Conduct applies to psychology students as well as to professional psychologists, the complete document is available online via the BPS website. This box first summarises the ethical principles on which the code is based, and then focuses particularly on ethical responsibilities to do with research. Please note that while the focus here is on ethical conduct with research participants, the code covers clients who use psychological services as well as research participants and seeks to promote ethical behaviour, attitudes and judgements on the part of psychologists, including psychology students.

PRINCIPLES OF BPS ETHICS

Principle 1: Respect

Psychologists should 'respect individual, cultural and role differences, including (but not exclusively) those involving age, disability, education, ethnicity, gender, language, national origin, race, religion, sexual orientation, marital or family status and socio- economic status' (guideline 1.1 (i), page 10 of the Code). Respect also entails treating people fairly, keeping appropriate records, obtaining the consent of research participants and maintaining their confidentiality, including storing information about them in ways that are not likely to lead to accidental disclosure.

Principle 2: Competence

Psychologists must recognise the limits of their knowledge, skill, training, education, and experience and work within them. In order to do this, they should develop and maintain a comprehensive

awareness of professional ethics, including familiarity with the Code. They should also be able to justify their actions on ethical grounds.

Principle 3: Responsibility

Psychologists should avoid harming research participants and should take care to ensure that they themselves come to no harm in conducting their research. They should also avoid personal and professional misconduct that might bring the reputation of the profession (or the university) into disrepute. Psychologists take responsibility not only for their own actions, but also for the maintenance of ethical standards amongstcolleagues, students, employees, etc.

Principle 4: Integrity

Psychologists should strive to be fair, accurate and honest and maintain integrity in all of their professional dealings. Psychologists should be 'honest and accurate in representing their professional affiliations and qualifications, including such matters as knowledge, skill, training, education, and experience' (guideline 4.1 (i), page 20 of theCode).

PROTECTION OF RESEARCH PARTICIPANTS

The principles listed next have been selected from the BPS Code of Ethics and Conduct (as written there or in slightly edited form) and are based on the ethical principles of respect and responsibility. We have organized these into four different sections, each of which relate to the protection of research participants. Psychologists should:

Recruitment of research participants

(i) Consider all research from the standpoint of research participants, for the purpose of eliminating potential risks to psychological well-being, physical health, personal values, or dignity (guideline 3.3 (i), page 18 of the Code).

(ii) Undertake such consideration with due concern for the potential effects of, for example, age, disability, education, ethnicity, gender, language, national origin, race, religion, marital or family status, sexual orientation, seeking consultation as needed from those knowledgeable about such effects (guideline 3.3 (ii), page18 of the Code).

(iii) Refrain from using financial compensation or other inducements for research participants to risk harm beyond that which they face in their normal lifestyles (guideline 3.3 (iv), page 18 of the Code). Page 244 Informed consent

(iv) Ensure that research participants, particularly children and vulnerable adults, are given ample opportunity to understand the nature, purpose, and anticipated consequences of research participation, so that they may give informed consent to the extent that their capabilities allow. The consent of those in positions of responsibility for children and vulnerable adults will also have to be sought (guideline 1.3)

(v) Seek to obtain the informed consent of all research participants to whom research

participation is offered (guideline 1.3 (ii), page 12 of the Code).

(vi)   Keep adequate records of when, how and from whom consent was obtained (guideline 1.3 (iii), page 12 of the Code). Participant control over participation.

(vii)   Ensure from the first contact that research participants are aware of their right to withdraw from research participation at any time (adapted from guideline 1.4 (ii), page 14 of the Code).

(viii) Comply with requests by research participants who are withdrawing from research participation that any data by which they might be personally identified, including recordings, be destroyed (guideline 1.4 (iii), page 14 of the Code).

(ix)   Inform research participants from the first contact that they may decline to answer any questions put to them (adapted from guideline 3.3 (vii), page 18 of the Code).

(x)   Exercise particular caution when responding to requests for advice from research participants concerning psychological or other issues. If it seems appropriate, suggest that they seek professional help (adapted from guideline 3.3 (ix), page 19 of the Code).

(xi)   Unless informed consent has been obtained, restrict research based upon observations of public behaviour to those situations in which persons being studied would reasonably expect to be observed by strangers, with reference to local cultural values and to the privacy of persons who, even while in a public space, may believe they are unobserved (guideline 1.3 (ix), page 13 of the Code).

Debriefing of research participants

(xii)   Debrief research participants at the conclusion of their participation, in order to inform them of the nature of the research, to identify any unforeseen harm, discomfort, or misconceptions, and in order to arrange for assistance as needed (guideline 3.4 (i), page 19 of the Code).

(xiii) Take particular care when discussing outcomes with research participants, as seemingly evaluative statements may carry unintended weight (guideline 3.4 (ii), page 19 of the Code).

CONCLUSION

The ethics code is intended to provide guidance for psychological research and standard of professional conduct that can be applied by the APA and other bodies that choose to adopt them. It is not intended to be a basis of civil liability. In APA style, there are very direct quotations of other researchers and many references and references citations. In BPS code of ethics is designed to guide all members of the society in their day-to-day professional conduct.

ETHICAL ISSUES-ASSESSING THE ETHICAL FEASIBILITY OF THE RESEARCH

INTRODUCTION

Ethics or moral philosophy is a branch of philosophy with standards or codes or value systems and involves defending, systematizing, recommending concepts of right, and minimizing wrong conduct. Ethical issues in research are some of the genres that researchers follow to protect the rights in developing research strategies and building a trusted relationship between the study participants and investigator.

In a scientific study, research ethics plays a crucial role, and it refers to a persistent experience towards producing new knowledge for the sake of unveiling a new stream of ideas in academia. Ethical considerations in research have always been challenging, including ethical concerns vis-a-vis time, funding, accessibility, and proper implementation of these concerns. These considerations need to apply throughout the study rather than at any specific time of the process.

BASIC PRINCIPLES OF RESEARCH ETHICS

Research ethics guide researchers conducting any research, educate, and monitor scientists to ensure a high ethical standard in research. Major ethical requirements of scientific study include five fundamental ethical principles, which needs to be considered at the research planning and designing phases: first, minimizing the risk of harm to the participants; second, securing informed consent from the identified research participants; third, protecting the anonymity and confidentiality of the participants; fourth, avoiding deceptive practices; and finally, offering participants the right to withdraw from the research at will (Principles of research ethics; Homan 1991; Israel and Hay 2006; Kimmel 1988).

Two major concepts are in consideration here:

(a) The researcher should focus on the participants' welfare as a goal of any research study, which is known as beneficence, and

(b) The researcher must avoid harming and maintain confidentiality, which is known as non-malfeasance (Principles of research ethics).

Based on country or institution, ethical requirements in research may differ. While reviewing the approval process, the ethics committee of the concerned institution might find inadequacy of ethical requirements in the proposal and may reject any study that fails to meet the basic ethical standards.

ETHICAL PRACTICES IN RESEARCH

1. MINIMIZING THE RISK OF HARM

No research is supposed to do any harm to participants. Even then, participants could be subjected to

several types of harm, such as physical harm, psychological distress, social humiliation, financial loss, and invasion into privacy by breaking the anonymity rule. Strong justifications are crucial if there are any possibilities that participants could be harmed or feel discomfort. Additional strategies and planning mentioning the harm or discomfort reduction strategy, including detailed debriefing, may contain the situation. Therefore, it is important to minimize the risk of harm by ensuring, inter alia, informed consent, protection of anonymity and confidentiality, and non-use of any deceptive practices, including options for participants to withdraw from the research at any time (Principles of research ethics; Homan 1991; Israel and Hay 2006; Kimmel 1988; Fisher and Anushko 2008).

2. OBTAINING INFORMED CONSENT

"Informed consent" is known as the cornerstone of ethical research. The informed consent process is also known as a contract between the researcher and the participants. The term consists of two important elements, and each requires careful consideration: "informed" and "consent." The required information in the consent form should include the purpose of the research, what will be asked to them, the methods being used, how the data will be used, the possible outcomes of the research, and associated inconveniences and risks/consequences (if any) that the participants might face. The participants must provide explicit, signed consent to participate in the research, including understanding their rights to access their information and the right to withdraw anytime at will. It is also a standard practice to mention in the consent form that the participant is volunteering and his/her participation in the study is without being coerced and deceived. There are situations where informed consent may not be possible to collect from participants; in that situation, the researcher must thoroughly explain the case before approaching the actual research activity with the participant(s) and ethics committee (Principles of research ethics; Homan 1991; Israel and Hay 2006; Kimmel 1988; Fisher and Anushko 2008).

3. PROTECTING ANONYMITY AND CONFIDENTIALITY

If the participants are willing to volunteer to share private or sensitive information, the researchers must ensure extra efforts to keep the information confidential. Insensitive data collection methods might hurt the research participants' privacy. It is likely to face a greater risk of data breach after collection if data is not stored and treated sensibly, including even during the publication process. However, some research may not be mandatory to keep the information of the research participants confidential or anonymous. If the investigator needs to disclose confidential information of the research participants, an entirely understandable "informed consent" has to be taken from the participants (Principles of research ethics; Homan 1991; Israel and Hay 2006; Kimmel 1988; Fisher and Anushko 2008).

4. AVOIDING DECEPTIVE PRACTICES

The deception of subjects may occasionally be a requirement in research studies, known as covert research. This is typically needed to promote scientific validity, where subjects are given false or

incomplete information about the research to obtain unbiased data with respect to their attitudes and behavior. This is generally used when complete or truthful disclosure is expected to produce biased results. For example, the research study team may inform subjects that they will be engaged in a cooperative task with other subjects, but in reality, subjects will be interacting with study personnel, of course unknowingly (Principles of research ethics; Homan 1991; Israel and Hay 2006; Kimmel1988; Fisher and Anushko 2008).

Few things must be remembered in such a situation:

- The potential scientific value to the research should justify deception, not otherwise.
- Deception should only be used when there are no reasonably effective, alternative methods available to achieve the research study's goals.
- Deception is only used with study components having potential risks.
- In the interest of full disclosure, researchers must debrief subjects about the deceptionto the extent possible.

5. PROVIDING THE RIGHT TO WITHDRAW

Most ethics committees for research, which review research protocols, generally emphasize reserve unconditional or absolute "right" of withdrawal of participants at any time and without giving any reason. The right to withdraw, by design, is to protect research participants from an inherent uncertainty, information imbalance, and inabilityto hedge, and untoward bodily invasion. This is important because it strengthens public trust in the research institution and the research domain. Research participants must have the right to withdraw anytime at will from the research process, except for covert observations. The research team must ensure that when a participant considers withdrawing from the research process, there should not be any way to stop them fromwithdrawing (Principles of research ethics; Homan 1991; Israel and Hay 2006; Kimmel 1988; Fisher and Anushko 2008).

Brief Historical Background of Research Ethics

Individuals, communities, and social values govern scientific research work as human activities. Research ethics involve protecting subjects' dignity required in daily works and the publication of the information in research. Ethical concerns and dilemmas are part of the everyday practice of conducting all types of research. Ethical issues are not confined to qualitative research or studies involving human subjects and equallypertinent in clinical trials that involve animals. Moreover, ethical issues are also equallyimportant for non-empirical research that has remarkable direct and indirect impacts and research investigating humans or documents related to people. The traditional starting point and focus for ethical issues were mainly in quantitative biomedical

research. However, social scientists have started discussing ethical issues in qualitative social research since 1960s (Homan 1991; Bulmer 1982; Robley 1995).

Research Strategy and Research Ethics

It is important to understand how research strategy affects research ethics. Any research strategy introduces a research study or project's main components, such as research perspective, research area, focus, research method, and research design, including sampling and data analysis techniques. It means how researchers propose answering their research questions and implementing the methodological aspects. All these components have inherent ethical implications for the research study. Therefore, when a research strategy is undertaken, it is supposed to guide the study and determine the research approach, leading to research ethics (Homan 1991).

Ethical Issues in Research Designs

Each type of research design comes with unique ethical challenges. There are three types of research designs: quantitative, qualitative, and mixed-method designs.

- #### Quantitative Research Design

Quantitative research design is more structured and well-defined, allowing researchers to plan most of the research process in clear terms ahead of time. There tends to be relatively little deviation from these design specifics even during the research implementation phase. Clarification about the quantitative design and associated process makes it easier to understand potential ethical challenges during the research phase. Accordingly, the researchers can plan to address these possible ethical challenges, including an appropriate ethics proposal (Kimmel 1988).

In non-experimental research, the researcher only needs to convince the supervisor that potential ethical challenges were covered instead of submitting an ethics proposal to an ethics committee. In experimental research, especially involving human subjects, the researcher needs to submit an appropriate ethics proposal, although that process can slow down the research process (Hill and Wright 2001).

- #### Qualitative Research Design

The primary way of conducting qualitative research is to use structured, semi- structured, and unstructured interviews. Researchers can get rich and in-depth information using interview techniques. However, extensive planning to develop the

structure; decide whom to interview and how, individual or group interviews; and record and analysis is mandatory. Interviewees should have multiple skill sets of conducting qualitative interviews, including rapport building, social skills, communication, and good listening skills. All these are prone to problems of uncertainty associated with individual behavior, thereby generating possible biases, leading to ethical challenges (Robley 1995; Orb et al. 2001; Wiles et al. 2006).

A research project may have several stages. Qualitative research design and data obtained during implementation may affect selecting research methods in the following phase(s) of a research project. Therefore, potential ethical issues, therefore, may arise in the next stage of a research project only become apparent after completing a certain preceding stage(s). This raises difficulty in understanding possible ethical challenges that may evolve in the process of qualitative research. Furthermore, subsequent planning should be at the outset of the research process to write an ethical proposal and overcome these ethical challenges. The ethical approval process may even get more complicated if the research involves deceptive practices (like covert observation) or sensitive segments of human subjects like children or marginalized people. Thus, the inclusion of a qualitative component, with its uncertainty, makes the ethics approval process more challenging (Robley 1995; Orb et al. 2001).

- **Mixed-Method Research Design**

Researchers should consider the potential ethical challenges inherent in quantitative and qualitative research, including possible synergy to apply mixed-methods research design. Often, this forces a greater burden on the researcher to clarify the overall design process and slow down the research process. This is particularly prominent if the researcher needs to finish the qualitative phase (e.g., interviews) before settling on the appropriate quantitative technique (e.g., experimental or non-experimental) (Fisher and Anushko 2008).

Ethical Issues in Research Methods

Potential ethical issues may be raised from research methods (e.g., surveys, in-depth interviews) to be used. The ethical issues may also be different due to how a method is used (e.g., covert versus overt observation). Surveys and Structured Interviews Surveys and structured interviews usually employ closed-ended questions, and respondents choose answers from the predefined options, which should be designed before starting research. Thus, it becomes easier for respondents to understand predefined questionnaires and for researchers to get informed consent. However, researchers should clearly explain the structured questionnaires, options, ethical issues, and rights for the respondents, which help researchers get informed consent and ease the research participant's mind, minimizing potentials for distress (Israel and Hay 2006; Kimmel 1988).

Observation: Overt and Covert

Compared to surveys and structured interviews, overt or covert observation methods warrant higher ethical scrutiny. In covert observation, participants do not know which research method is applied that can raise significant ethical concerns. It is reassuring to note that most research that uses observation as a research methodology generally tends to use an overt method, where the participants are aware that the researchers are making them subjects. It is relatively easier to obtain informed consent from those participants who undergo overt observations. On the other hand, covert observation is a form of deceptive practice and problematic in terms of ethical aspects. The participants' absence of informed consent and the researcher's wilful attempt to keep the observation covert can give rise to ethical concerns. It could be considered contentious to use covert observation and deceptive practices, especially when used intentionally (Kimmel 1988;Bulmer 1982).

Informal and In-Depth Interviews

Informal and in-depth interviews can lead to greater exposure to ethical standards. Potential ethical issues may arise from the types and quality of data that needs to be obtained, the procedure of storing the data, and how to inform the participants that their data will be used (Orb et al. 2001; Wiles et al. 2006).

Ethical Issues in Sampling Strategies

Sampling that the researcher may choose to investigate can also raise several ethical issues that need a clear understanding and appropriate attention to be resolved.

Sampling Techniques

During the sampling process, the researcher needs to decide on sampling units (e.g., people, organizations) – criteria to include as a sample and exclude from the included samples –sampling techniques (probabilistic and non-probabilistic) help in selecting such units. The researcher selects units for the sample from an existing population list with specific confidentiality and data protection issues in the probability sampling technique. Until the researcher gets permission to access the population list and its details, it is unethical to use it for research purposes. This warrants the researcher to obtain the right to have access to the list he/she intends to use. For non-probability sampling, the researcher may include or exclude units for theoretical or practical reasons. For example, in purposive sampling, the choice of units to be included and excluded is entirely driven by theoretical elements, raising few ethical concerns. On the other hand, if units are included or excluded for practical reasons like ease of access or personal preferences (e.g., convenience sampling), there exists the risk that some units may be excluded unnecessarily, which also raises ethical issues (Principles of research ethics; Butler 2002).

Sample Size

Sample size depends on sampling techniques, whether probabilistic or non-probabilistic aspects of it. Ethical issues might appear in determining sample size for two reasons:

(a) An oversized sample, more people or organizations in the sample than necessary to achieve the research goals, is an ethical issue because it would expose more people (or other units) than it is necessary for the study; and

(b) An undersized sample limits the researcher to achieve the goals of the study, due to insufficient units of the sample.

The ethical issue is that the researcher fails to correctly answer the research questions, not because of the lack of answer; instead, it is due to the small sample size for such an answer to be explored, derived, or interpreted (Principles of research ethics; Butler 2002).

Ethical Issues in Data Analysis

The participants' confidentiality and data privacy issues often face challenges during the data analysis and reporting phases. Ethical challenges are different for quantitative and qualitative data analysis, which requires particular attention. Quantitative data analysis techniques (e.g., data aggregation and data summarization) have built-in protection mechanisms towards respondents' anonymity with some exceptions (Hill and Wright 2001). On the other hand, both presentation style and the depth of qualitative data quality often create potential ethical challenges, mainly due to researchers' style of reporting qualitative data in all its richness, increasing the risks of identifying research participants (Wiles et al. 2006).

CONCLUSION

Research ethics are important moral signposts for researchers to avoid deception when conducting and reporting research outcomes. Research ethics also protect against any possible harm to the study participants. This further helps validate any research. Following ethical standards in research also ensures credibility and public trust. Ethical issues in research should be prioritized in the study design phase. Therefore, tackling ethical issues and challenges aligns with the research strategy to get maximum impact.

ETHICAL GUIDANCE IN CONDUCTING RESEARCH WITH CHILDREN

INTRODUCTION

Looking from a historical perspective at the vast field of social sciences, it is evident that

formal investigation and research involving children have undoubtedly contributed not only to the generalization of knowledge but also towards the construction of a body of information that can provide scientists and researchers with an amazing insight into the minds and behaviours of children. There are numerous ways of achieving knowledge and various methods in conducting research involving children. However, it is necessary for the researcher to recognize the reality of studying children's participants in the further pursuit of knowledge, that is, identify the difference between adult and children participants. Research and their conclusions can promote and protect children's rights, while they can bring human rights abuse into the light. But the way of conducting such research could ignore, most times unintentionally, children's rights. When children are presented as the 'silent' victims of a tragedy, or are included in clinical research without their consent, their human rights and their right to be protected are being jeopardized. Research involving children has indeed many potential benefits and drawbacks. The benefits and drawbacks concern the children themselves, not just the science. Children can gain and loose too much at the same time. Thus, it is important to promote more thoughtful attention to the complex ethical problems that arise when conducting research that involves children. The different ethical issues and situations in which children's rights are being put at risk, while providing foundations for a better understanding not only of the ethical issues but also of the children's special nature.

In recent years there has been a considerable increase in research and evaluation activities involving children and young people, across a range of contexts including family, school, work and out-of-home care. Previously, research tended to inquire into children's lives through the perspectives of parents or other significant adults. The increased direct involvement of children and young people is attributable in large part to shifts in the ways in which children and childhood are viewed, which has been substantially aided by scholarship around children's rights and the emergence of the interdisciplinary field of childhood studies. The United Nations Convention on the Rights of the Child (UNCRC) has been instrumental in drawing international attention to children's rights to protection from harm, provision of care and resources, and participation in matters that affect them, including through research. Developments in childhood studies have seen a paradigmatic shift from constructions of children and childhood framed in terms of vulnerability, dependency and immaturity, to perspectives that highlight competence and agency, leading to increased emphasis on accessing and listening to children's views. Consequently, there is considerably more involvement of children and young people in research with a range of well-documented research approaches and methods to engage them actively.

HISTORICAL BACKGROUND

The historical origin of current ethical principles for conducting research with children arises from the Nuremberg Trials, which took place after the Second World War, the Code, which emerged

from these is called Nuremberg Code . The code sets out statements of certain moral, ethical and legal principles relating to research involving human subjects. "Taken literally, research on children would be prohibited.

Requires the voluntary consent of the subject "as absolutely essential" Later, the emergence of the Declaration of Helsinki in 1964, most recently amended in 1989 and 1996, now includes examination of the issues of children as research subjects relation to informed consent

The ethics of research with children is a balance. On the one hand, the focus is on ways of preventing and reducing harms in research and ensuring adequate protection of children and young people. On the other hand, there is concern about the risks and harms of silencing and excluding children from research about their views, experiences and participation.

There are, however, ongoing debates in the academic literature about the ethics of social research with children, related to different disciplinary perspectives (for example, developmental psychology and the sociology of childhood) and in relation to the differences between children and adults in research. The ethics principles that apply to research with adults – such as that of ensuring freely given fully informed consent, and the right to withdraw from research participation – apply equally to children, but there are four additional provisos specific to research involving children:

i.   children's competencies, perceptions and frameworks of reference, which may differ according to factors including – but not only – their age, may differ from those of adults.

ii. children's potential vulnerability to exploitation in interaction with adults, and adults' specific responsibilities towards children.

iii. the differential power relationships between adult researcher and child participant.

iv. the role of adult gatekeepers in mediating access to children, with concomitant ethical implications in relation to informed consent.

RESEARCH WITH CHILDREN

Many of the ethics questions that relate to adults apply equally to children.

Researchers should ensure that risk and harm in research is minimised and that adequate protection of children and young people is ensured. They should also consider

the ethics implications of silencing and excluding children from research about their views, experiences and participation. Researchers should not assume that children are necessarily vulnerable and incapable of providing consent because of their age. Researchers should consider children's competencies and vulnerabilities based on the purpose and context of the research as well as factors such as age, gender, socio- economic circumstances, and disability. Specifically, the researchers may consider the following, children's potential vulnerability to exploitation in interaction with adults, and adults' specific responsibilities towards children

- the differential power relationships between adult researcher and child participant, and how this may affect the child's right to withdraw or decline participating in research
- the role of adult gatekeepers in mediating access to children, with associated ethics issues in relation to informed consent
- the expectations of the child participants and their parents/gatekeepers and whether the involvement in research is meaningful for the children
- the children's understanding of the purpose of the research and what they are contributing to
- whether the information on the research and requested tasks is provided to the children in an accessible way
- providing information on potential disclosure and breach of confidentiality and the reasons that this may occur
- incentives and compensation for participation for children and young people, and how this may affect the principle of voluntary participation and freely given informed consent
- whether data deposit has been explained appropriately and in a way that children can understand
- legal requirements of working with the specific population (including Disclosure and Barring Service clearance).

DIFFERENT RESEARCH METHODS

There are three main kinds of research that can involve children or child protection issues.

- Asking children about their feelings, opinions and experiences. This can be done either in face-to-face interviews with children or by questionnaire. Data can also be gathered by asking parents about their children's experiences.
- Observing children's behaviour. Using monitored experiments or activities or observing children in an uncontrolled environment to see how they react during specific situations.
- Analysing information contained in files about children (for example, social care case records, serious case reviews, and schools records).

ETHICAL CHALLENGES DURING RESEARCH

The general purpose of research that involves children is to obtain and produce scientific information about them. In this backdrop, the researchers should focus on the issues arising during research and take all reasonable precautions to ensure children will not be harmed or adversely affected by participating in the research. Similarly, researchers have to ensure that the children participating do so at their own volition and that the rights of the child are fully respected in the research process. The researcher is also obligated at all times to use the least stressful research procedure whenever possible. But the benefits of conducting such research must be balanced with ethical concerns.

The research in children has based its ethical guidance around some of the following principles:

1.   **Informed consent:** In every case informed consent must be obtained from the child's legal representative and the child's assent should be obtained through the provision of age-appropriate information. The application of general principles indicates that, where children have "sufficient understanding and intelligence to understand what is proposed", it is they and not their parents whose consent is required by law. The Nuremberg Code 1949 appears to introduce the concept of consent for the participation of children in research. According to the Declaration of Helsinki, even though a child may not be legally competent to give consent, researchers should gain informed consent. This means that parental consent is not enough and that both the parents and child should be informed about the implications of the research. Parental and/or guardian's (informed) consent is required for a child to participate in research. It is essential that the child has the full information about the research in order to give their 'informed consent' to take part, and that consent is 'freely volunteered'.

2.   **Assent and children's indications of rejection:** Information presented to the child and parent, should explain: what will happen; what is being asked of the child; that the child can agree – or disagree to take part – without adverse consequences; and may withdraw at any time; and be given in clear language at a level that the child can understand, using visual aids if necessary. 15 If children are not fully informed of the research topic, informed consent is automatically denied even if the children are able to decide about participation, since informed consent exists only when one is fully informed.

3.   **Child protection and well-being:** Research involving children is important for the benefit of all children and should be supported, encouraged and conducted in an ethical manner. In the course of research, information comes to the researchers' attention that may jeopardize the child's well-being. The researcher has a responsibility to discuss the information with the parents or guardians and with those experts in the field in order that they may arrange the necessary assistance for the child. Thus, if at any time during the research process there is an indication that a child's safety or well-being is being negatively affected; the research must be kept suspended until the issue has been addressed. If the child appears to be

negatively affected by the research, the parent or guardian must be informed and the child and family must be offered with appropriate support. Besides, extra time and support should be given for the children. Similarly, dissemination of findings will need to be informed by an understanding of the specific communication needs of the children and their families.

4.   **Minimizing the risk of harm:** Ethical guidance and practices aim to minimize possible exploitation and ensure that the rights and welfare of children in research. Accordingly, a key ethical consideration in research involving children is the level of risk to which children may be exposed. Risk refers to the potential harm (physical,psychological or social) that may arise from the research. The researcher should pose more identifiable risks of harm. Similarly, researchers should not use those types of research procedure that may harm the child either physically or psychologically.

ETHICS AFTER RESEARCH

Ethics after the research in children of equal importance like the ethics upheld throughout. The researcher has to ensure the ethical processing of data, the way this data will be stored and made available to others. Personal data are usually protected by data protection laws, but there could be situations where a parent, who has provided consent, requires information about the research results, while the child participating in the research has been assured that her/ his answers will not be revealed. The topic of confidentiality is very problematic both for achieving the previously mentioned balance and protecting children participants from disclosure. One way of getting over this challenge is to ask for permission of the child subject to disclose information about the research afterwards although what the child understands can be very different19. Hence,confidentiality is very important since the disclosure of information can put the children and their rights at risk. Most of the researchers treat all information as confidential, butconfidentiality cannot be guaranteed. So, in order to ensure the confidentiality of actualresearch, some researchers may think that compromising the results to parents and caregivers is not something that could harm the children subjects. The issue of privacy,for example, encompasses the trade-offs between confidentiality and child safety and the need to maintain confidentiality in the dissemination of research findings.

CONCLUSIONS

The key objective for researchers who involve children in their research is to use tools and methods that could empower and enable children to be active participants in the research process, not

just objects of protection. Children should be given the chance to express their opinions, learn about themselves and their rights, while research activity must be regulated and the researchers must ensure that their rights of consent, confidentiality and unobstructed communication are protected at all times. On the same grounds, what also needs to be emphasized is the difference between conducting research with children and with adults. Children are more sensitive and ethical issues are of equal importance with methodological issues. However, and despite the differences, researches involving children can also function as examples of good practice, even for research involving adults, with close attention paid to the process of obtaining informed consent and to providing understandable information for research participants, attention to the unequal power relations between participants and researchers, etc. Thus, research involving children, when ethical, can set the standards for all types of researches, while at the same time help researchers learn even more about childhood systematically and

In order to safeguard and promote the rights, dignity and well-being of children in and through research, it is important to promote more thoughtful attention to the complex ethical problems that arise when conducting research that involves children. Before engaging in research on children it should first be clearly established that similar results could not possibly be obtained or derived from participants who are able to provide informed consent. Even if this is established, the vulnerability of children must always be considered and they should not take part in research unless there is potential for the participating child to benefit from the results of that research. Researchers should inform the children that they respect their right to withdraw from the research at any stage. Thus, it is the obligation of researchers to protect both the rights and welfare of research subjects. Hence, children should be given the chance to express their opinions, learn about themselves and their rights, while research activity must be regulated and the researchers must ensure that their rights of consent, confidentiality and unobstructed communication are protected at all times.

INTRODUCTION

Qualitative research uses non-quantitative methods to describe the conditions that exist. It uses systematic procedures to discover non-quantifiable relationship between existing variables. It is based on methods and techniques developed in humanities and social sciences. It seeks to obtain qualitative information and think descriptions of complex, dynamic processes using holistic, naturalistic and non-manipulative methods. It is descriptive and collects soft data consisting or rich descriptions which cannot always be reduced to numbers and analysed statistically as in quantitative methods. Qualitative research is a method of enquiry appropriated in many different academic disciplines traditionally in the social sciences.

Qualitative research may use different approaches in collecting data such as the grounded theory practice, narrator, storytelling, classical ethnography or shadowing. Forms of data collected can include interviews and discussions, observation and reflection, field notes, various texts, pictures and other materials.

QUALITATIVE RESEARCH

Qualitative research is a type of research methodology that aims to understand and interpret individuals' experiences, behaviors, beliefs, and perspectives in depth. It focuses on exploring subjective aspects of human life, such as emotions, motivations, and social interactions, rather than relying on numerical data and statistical analysis. This research approach is often used in social sciences, humanities, and some areas of health sciences.

Qualitative research methods involve collecting non-numerical data, such as interviews, observations, focus groups, and analysis of texts or artifacts. These methods allow researchers to gain a deeper understanding of the complexities and nuances of human experiences by capturing rich and detailed information.

Characteristics and components of qualitative research:

1. Research Questions: Qualitative research typically begins with open-ended research questions that aim to explore a particular phenomenon or understand a specific context. These questions guide the research process and help shape data collection and analysis.

2. Data Collection: Qualitative researchers gather data through various methods. Interviews involve in-depth conversations with individuals or groups, allowing participants to express their thoughts, experiences, and perspectives. Observations involve systematically watching and recording behaviors and interactions in natural settings. Other methods include focus groups, where a group of people discuss a topic, and analysis of texts, documents, or other artifacts.

3.Data Analysis: Qualitative data analysis involves systematically examining the collected data to identify patterns, themes, and insights. Researchers use techniques such as coding, categorization, and thematic analysis to organize and interpret the data. The goal is to uncover meaningful interpretations and generate rich descriptions that capture the essence of the participants' experiences.

4. Flexibility and Iteration: Qualitative research is often characterized by flexibility and adaptability throughout the research process. Researchers may refine their research questions, modify their data collection methods, or adjust their analysis strategies based on emerging insights and new information. This iterative nature allows for a deeper exploration of the research topic.

5. Contextual Understanding: Qualitative research emphasizes understanding phenomena within their social, cultural, and historical contexts. Researchers aim to capture the subjective realities of participants and provide a holistic understanding of the studied phenomenon. Contextual factors and individual perspectives are considered essential in interpreting the findings.

6. Validity and Trustworthiness: Qualitative research seeks to establish the credibility, transferability, dependability, and conformability of its findings. Researchers employ strategies such as member checking (verifying findings with participants), peer debriefing (seeking input from colleagues), and maintaining an audit trail (documenting research decisions) to enhance the rigor and trustworthiness of the study.

Qualitative research offers valuable insights into complex human phenomena, providing a deeper understanding of subjective experiences, meanings, and social interactions. It complements quantitative research approaches by offering a more in-depth exploration and capturing the richness and diversity of human perspectives.

Diversity in qualitative research:

In qualitative research, diversity refers to the inclusion of a wide range of perspectives, experiences, and voices from different individuals or groups within a study. It involves recognizing and valuing the unique characteristics and backgrounds of research participants and ensuring their representation in the research process and findings.

Key aspects of diversity in qualitative research:

1. Participant diversity: Researchers aim to include individuals or groups from various backgrounds, such as different ethnicities, genders, ages, socioeconomic statuses, or educational levels. This diversity ensures that the research captures a broader range of experiences and perspectives, leading to a more comprehensive understanding of the topic being studied.

2. Researcher diversity: Diversity can also be present among the researchers themselves. It involves having a research team that represents different backgrounds, experiences, and viewpoints. Having diverse researchers can enhance the research process by bringing in unique insights, reducing biases, and promoting a broader understanding of the research topic.

3. Inclusive recruitment and sampling: To ensure diversity, researchers must adopt inclusive approaches when recruiting participants. This may involve purposive sampling, where participants are selected based on specific characteristics or experiences relevant to the research question. Researchers should strive to include individuals who may be historically marginalized or underrepresented, as their perspectives can contribute to a more comprehensive analysis.

4. Reflexivity and positionality: Researchers should reflect on their own biases, assumptions, and positions of privilege, and how these may influence the research process and findings. Being aware of their own perspectives and engaging in reflexive practices helps researchers to navigate potential biases and ensure that diverse voices are adequately represented and respected.

5. Data analysis and interpretation: Researchers should analyze and interpret the data collected in a way that acknowledges and respects the diversity of perspectives. They should aim to identify common themes and patterns across participants while also highlighting the differences and nuances that arise from diverse viewpoints. This helps to present a comprehensive and nuanced understanding of the research topic.

6. Ethical considerations: Ensuring diversity in qualitative research also involves ethical considerations. Researchers should prioritize the well-being and autonomy of participants, seeking informed consent, and respecting their confidentiality. They should also consider how the research findings may impact marginalized communities and take steps to ensure that the research does not perpetuate harm or reinforce stereotypes.

Diversity in qualitative research involves actively including and valuing a wide range of perspectives and experiences. By embracing diversity, researchers can generate richer insights, promote social justice, and contribute to a more inclusive understanding of the phenomena under study.

CASE STUDIES

The case study is a way of organizing social data for the purpose of viewing social reality. It examines a social unit as a whole. The unit may be a person, a family, a social group, a social institution, or a community. The purpose is to understand the lifecycle or an important part of the life cycle of the unit. The case study probes deeply and analyzes interactions between the factors that explain present status or that influence change or growth. It is a longitudinal approach, showing development over a period of time. (Best)

The element of typicalness, rather than uniqueness, is the focus of attention, for an emphasis upon uniqueness would preclude scientific abstraction. As Bromley (1986) notes. 'A case is not only about a 'person' but also about that 'kind of person'. A case is an exemplar of, perhaps even a prototype for, a category of individuals"(p.25).Thus, the selection of subject of the case study needs to be done carefully in order to assure that he or she is typical of those to whom wish to generalize.

Data may be gathered by a wide variety of methods, including

- Observation by the researcher or his informants of physical characteristics, social qualities, or behaviour
- Interviews with the subject(s),relatives, friends, teachers, counsellors, and others
- Questionnaires, Opininnaires, psychological tests and inventories
- Recorded data from newspapers, schools, courts, clinics, government agencies, or other sources.

Characteristics of a Case Study:

- In-depth investigation: Case studies focus on a detailed exploration of a particular subject, enabling researchers to gain comprehensive insights into the phenomenon under study.
- Contextual analysis: They emphasize understanding the subject within its real-life context, considering various factors and influences that shape it.
- Holistic approach: Case studies often examine multiple aspects and variables related to the subject, aiming to provide a comprehensive understanding.
- Longitudinal or retrospective analysis: Case studies can be conducted over an extended period (longitudinal) or can analyze past events or situations (retrospective).
- Qualitative data: They primarily rely on qualitative data collection methods, such as interviews, observations, and analysis of documents or artifacts.
- Unique or rare cases: Case studies often focus on unique or rare cases that provide valuable insights due to their distinct characteristics or circumstances.
- Steps involved in conducting a case study
- Select the case: Identify the specific subject or case to study based on its relevance and the research objectives.
- Define research questions: Clearly articulate the research questions or objectives to guide the study.
- Determine the research design: Decide on the appropriate type of case study design, such as exploratory, descriptive, or explanatory.
- Collect data: Gather relevant data using methods like interviews, observations, document analysis, or surveys.
- Analyze the data: Carefully examine and analyze the collected data to identify patterns, themes, or key findings.
- Draw conclusions: Synthesize the data and draw meaningful conclusions based on the research questions and analysis.
- Report findings: Document the case study, including an introduction to the subject, methodology, data analysis, and the overall findings.

Advantages of Case Studies:

- In-depth understanding: Case studies provide a detailed and comprehensive analysis of a specific subject, allowing for a deeper understanding of complex phenomena.
- Contextual insights: By examining the subject within its real-life context, case studies offer valuable insights into the influences and factors that shape behavior or outcomes.
- Rich qualitative data: Case studies often rely on qualitative data, which allows researchers to capture nuances, motivations, and subjective experiences.
- Exploration of rare cases: Case studies are particularly useful when studying rare or unique cases that may not be easily replicated or observed through other research methods.
- Theory development: They can contribute to the development of new theories or refine existing ones by providing detailed empirical evidence.

Disadvantages of Case Studies:

- Limited generalizability: Since case studies focus on specific cases, the findings may have limited generalizability to broader populations or contexts.
- Potential bias: Researchers' biases and subjectivity may influence data collection, analysis, and interpretation, potentially impacting the validity of the findings.
- Time and resource-intensive: Case studies often require significant time, effort, and resources to conduct, especially when examining complex subjects or conducting longitudinal studies.
- Ethical considerations: Researchers must address ethical concerns related to privacy, informed consent, and confidentiality when conducting case studies involving human subjects.

Ethnography

Ethnography is a research method used in social sciences, particularly in anthropology and sociology, to study and understand human cultures and societies. It involves immersing oneself in the field or community being studied, observing and participating in everyday activities, and conducting interviews and conversations with individuals to gain an in-depth understanding of their perspectives and experiences.

The primary purpose of ethnography is to studying the culture of groups of people, meaning their patterns of social interactions, behaviors, beliefs, language, and ideation. Ethnography is appropriate when the goal is to describe how a cultural group works or explore shared lived experiences of the group (Creswell & Poth, 2018). A group culture may fit a classic definition of such, as is historically a focus of the field of anthropology, or a smaller or more contemporary perspective of culture, such as followers of a particular music group or volunteers at a non-profit organization (Wolcott, 2008). The culture may encompass the group's language or terminology, behaviour patterns, belief systems, or other shared qualities (Creswell & Poth, 2018).

Ethnography relies heavily on researcher observational skills, which may include participant observation (Glesne, 2016), and extended fieldwork or periods of contact with the culture being studied. As a consequence, a researcher may require a gatekeeper or key informants for access to the group (Merriam & Tisdell, 2015). The goal of the study is to identify the organizational structures and shared beliefs or ideas of the cultural group. Therefore, the result of an ethnographic study is a complex and complete description of a group's culture, with an emphasis on understanding how the group functions with respect to the original focus of the study (Creswell & Poth, 2018).

Characteristics of ethnography:

1. Participant Observation: Ethnography relies heavily on participant observation, which means the researcher actively engages in the daily activities and lives of the people being studied. By participating, observing, and documenting these activities, the researcher aims to understand the cultural norms, values, and behaviors within the community.
2. Long-Term Engagement: Ethnographic research often requires a significant amount of time spent in the field. Researchers may spend months or even years living with the community, establishing trust, and building relationships. This extended period allows for a deeper understanding of the culture and enables researchers to identify patterns and changes over time.
3. Holistic Approach: Ethnography seeks to capture the holistic nature of a culture or social group. It goes beyond individual behaviors and examines the interconnections between various aspects such as language, rituals, beliefs, social structures, and material culture. This comprehensive perspective helps researchers gain a nuanced understanding of the community being studied.
4. Emic Perspective: Ethnographers aim to adopt an emic perspective, meaning they strive to understand the culture from the viewpoint of the people being studied. By suspending their own preconceptions and biases, researchers can better grasp the cultural meanings and interpretations that shape people's lives within that community.

Advantages of Ethnography

1. Rich and Contextual Data: Ethnography generates rich and detailed data about the social and cultural practices of a community. Through first hand experiences and observations, researchers can provide in-depth insights into the lives of the people being studied.

2. Naturalistic Setting: By conducting research in the natural environment of the community, ethnographers can better understand the community's behaviors and practices as they occur naturally, rather than in controlled laboratory conditions. This helps to capture the complexity and dynamics of real-life situations.

3. Cultural Sensitivity: Ethnography allows researchers to approach communities with cultural sensitivity and respect. By immersing themselves in the culture, researchers can develop a deep understanding of local customs, values, and social norms, enabling them to avoid misinterpretations and misunderstandings.

Disadvantages of Ethnography:

1. Limited Generalizability: Due to the focus on specific communities or social groups, findings from ethnographic research may have limited generalizability to other contexts. The in-depth nature of the study often makes it difficult to draw broad conclusions about larger populations.

2. Subjectivity and Bias: Ethnography is influenced by the researcher's own perspectives and biases. Researchers may interpret and present data based on their own cultural, personal, or theoretical leanings, which can introduce subjectivity into the research process.

3. Time-Intensive: Ethnographic research demands a significant investment of time, as researchers need to spend extended periods in the field. This can be challenging in terms of funding, logistics, and personal commitments.

4. Ethical Challenges: Ethnographers must navigate ethical considerations, such as ensuring informed consent, protecting participants' privacy and confidentiality, and addressing power imbalances within the research process. Maintaining ethical standards can be complex, especially in studies involving vulnerable populations.

Grounded theory

Grounded theory is a qualitative research methodology developed by sociologists Barney Glaser and Anselm Strauss in the 1960s. It is an inductive approach to data analysis that aims to generate theories or explanations directly from empirical evidence.

The central idea behind grounded theory is that theories should be derived from the data itself rather than imposing preconceived theories on the data. It starts with the collection and analysis of qualitative data, such as interviews, observations, or documents. Researchers immerse themselves in the data, systematically coding and categorizing the information to identify patterns, concepts, and relationships.

The key steps involved in grounded theory:

•**Data collection**: Researchers gather rich qualitative data, often through interviews or observations, focusing on a specific research question or topic.

•**Open coding**: Researchers engage in line-by-line coding of the data, identifying discrete units of meaning and labeling them with descriptive codes. This process involves breaking down the data into smaller parts and assigning codes to capture the essence of each segment.

•**Axial coding**: In this stage, researchers categorize and link the codes to develop broader categories or themes. They explore the relationships between different codes and concepts, looking for connections and patterns within the data.

•**Selective coding**: Researchers further refine and develop the core categories or themes identified in the previous step. They identify the central category or core concept that best captures the essence of the data and begin to develop a theoretical framework around it.

•**Theoretical saturation**: Throughout the process, researchers engage in constant comparison, continuously revisiting and re-analysing the data to refine and expand their emerging theories. Theoretical saturation occurs when new data no longer significantly adds to the emerging theory.

•**Theory development**: The final step involves synthesizing the various categories and concepts into a coherent theoretical framework. The resulting theory should be grounded in the data and provide an explanation or understanding of the phenomenon under study.

Grounded theory emphasizes flexibility, iterative analysis, and theoretical sampling, where researchers purposefully seek out new data to explore emerging concepts or theories. It allows for the development of rich, context-specific theories that capture the complexity and nuances of the research topic.

It's important to note that grounded theory is just one approach among many qualitative research methods, and its application may vary depending on the researcher's interpretive lens and research context.

Discourse analysis

Discourse analysis is a qualitative research method that examines the use of language in social interactions, such as conversations, interviews, texts, or any form of communication. It aims to understand how language shapes and reflects social reality, power dynamics, ideologies, and cultural practices.

In qualitative analysis, discourse analysis focuses on interpreting and understanding the meaning of language beyond its surface-level content. It examines the linguistic structures, patterns, and strategies used by individuals or groups to construct, negotiate, and convey meaning in specific contexts.

Steps in Discourse Analysis

1. Research question and context: Identify a research question that explores the relationship between language and the social phenomenon under investigation. Define the context in which the discourse occurs, such as political speeches, online forums, or everyday conversations.

2. Data collection: Gather relevant data, such as interviews, focus group discussions, documents, media texts, or any other sources of discourse. The data should reflect the social context and interactions of interest.

3. Transcription or documentation: Convert the data into written or digital formats, ensuring accuracy and capturing the nuances of spoken language. Transcription is particularly crucial for analysing spoken discourse.

4. Familiarization with the data: Immerse yourself in the data to become familiar with the content, context, and language used. Read and re-read the transcripts to identify patterns, recurring themes, and significant linguistic features.

5. Coding and categorization: Develop a coding scheme or set of categories that capture important aspects of the discourse. This can involve assigning labels or codes to segments of text that reflect specific themes, concepts, or linguistic features. Coding helps organize and systematically analyze the data.

6. Analysis and interpretation: Analyze the coded data by examining the relationships between categories, identifying patterns, and exploring connections between language use and social phenomena. This involves examining the context, linguistic choices, tone, metaphors, presuppositions, and rhetorical strategies employed in the discourse.

7. Theory development: Use the insights gained from the analysis to develop or refine theoretical frameworks that explain the relationship between language, social reality, power dynamics, or other relevant concepts. Discourse analysis often contributes to the development of theories related to social and cultural phenomena.

8. Reflexivity and validity: Reflect on the researcher's positionality, assumptions, and potential biases throughout the analysis process. This reflexivity helps ensure the validity and reliability of the findings and interpretations.

9. Reporting: Present the findings in a clear and coherent manner, using relevant quotations or excerpts from the data to support the analysis. Provide an explanation of the analytical process and the interpretation of the data, along with any limitations or potential alternative explanations.

Discourse analysis in qualitative research provides insights into how language shapes and is shaped by social interactions, power relations, and cultural norms. It helps researchers understand the social construction of meaning and how discourse contributes to the production and reproduction of social reality.

Interpretive Phenomenological Analysis (IPA)

Interpretive Phenomenological Analysis (IPA) is a qualitative research approach used to explore and understand individual experiences and their subjective meanings. It was developed primarily in psychology and has since been adopted in various disciplines, including sociology, health sciences, and education.

IPA is rooted in phenomenology, a philosophical perspective that focuses on how individuals perceive and interpret the world around them. It aims to uncover the underlying structures and meanings that shape individuals' experiences and how they make sense of them.

Steps in Interpretive Phenomenological Analysis

1. Data Collection: Researchers typically conduct in-depth interviews with a small number of participants. The interviews are semi-structured, allowing flexibility for participants to express their experiences in their own words. Other data sources, such as diaries or written accounts, may also be used.

2. Transcription: The interviews are transcribed verbatim, capturing the exact words and expressions used by the participants. This preserves the richness of the data and allows for detailed analysis.

3. Phenomenological Reduction: Researchers engage in a process called phenomenological reduction, which involves bracketing or temporarily setting aside their preconceptions, biases, and assumptions to approach the data with fresh eyes.

4. Line-by-Line Analysis: Researchers conduct a detailed analysis of the transcripts, often line-by-line. They identify meaningful units of text, known as "units of meaning" or "meaningful statements." These units capture the essence of participants' experiences and subjective interpretations.

5. Coding and Clustering: The identified units of meaning are coded, categorized, and grouped into clusters based on similarities and shared themes. This process involves iterative reading and re-reading of the data to ensure a comprehensive understanding.

6. Development of Themes: The clusters of codes are further refined and developed into overarching themes that capture the core aspects of participants' experiences. These themes represent the researcher's interpretation of the data and provide a framework for understanding the phenomena under investigation.

7. Interpretation and Writing: Researchers interpret the themes in light of relevant theoretical perspectives and literature. They aim to provide a coherent and insightful narrative that captures the essence of the participants' experiences and their underlying meanings. The findings are often presented in a written report or publication.

It is important to note that IPA acknowledges the co-constructed nature of knowledge, meaning that the interpretations are influenced by both the participants' perspectives and the researchers' own experiences and perspectives. Thus, the analysis is seen as an on-going dialogue between the researcher and the participants' voices embedded in the data.

IPA offers a rigorous and systematic approach to exploring and understanding subjective experiences, allowing researchers to delve into the complexities and nuances of human lived experiences.

Interpretive Phenomenological Analysis (IPA) is a qualitative research approach that focuses on understanding the lived experiences of individuals and how they make sense of their world. It was developed by Jonathan Smith, Paul Flowers, and Michael Larkin in the field of psychology.

Key characteristics of Interpretive Phenomenological Analysis:

1. Phenomenological: IPA is rooted in phenomenology, which emphasizes the subjective experiences and meanings attributed to phenomena. It aims to explore how individuals interpret and understand their experiences rather than focusing solely on objective facts or generalizations.

2. Interpretive: IPA involves interpretation and sense-making of participants' experiences. Researchers engage in a reflective and iterative process of analysis to uncover and interpret the meanings participants ascribe to their experiences.

3. Idiographic: IPA is idiographic in nature, meaning it seeks to understand the unique and individual experiences of participants. It emphasizes the richness and depth of each participant's perspective rather than seeking to establish universal generalizations.

4. In-depth interviews: IPA typically relies on in-depth interviews as the primary method of data collection. These interviews allow participants to provide detailed descriptions of their experiences, thoughts, emotions, and perspectives, enabling the researcher to explore the nuances and complexities of their experiences.

5. Small sample size: IPA generally involves a small sample size, typically between six to ten participants. This allows for a thorough exploration of each participant's experiences and facilitates a detailed analysis of the data.

6. Iterative analysis: IPA involves a cyclical and iterative process of analysis. Researchers engage in multiple readings of the interview transcripts, identifying emerging themes, and developing a detailed understanding of the participants' experiences. This process continues until a coherent and rich interpretation of the data is achieved.

7. Contextualization: IPA emphasizes the importance of understanding experiences within their socio-cultural and historical contexts. Researchers aim to situate participants' experiences within broader societal frameworks, recognizing the influence of cultural, social, and historical factors on the meaning-making process.

8. Reflexivity: Researchers employing IPA acknowledge their own subjectivity and actively engage in reflexivity throughout the research process. They reflect on their own biases, assumptions, and preconceptions, which may influence the interpretation of the data, and consider how their own experiences shape their understanding.

Interpretive Phenomenological Analysis offers a rigorous and systematic approach to exploring and understanding individuals' subjective experiences, aiming to capture the complexity and uniqueness of their lived realities.

Advantages of Interpreted Phenomenological Analysis (IPA):

1. In-depth exploration: IPA allows for a deep exploration of participants' experiences, perceptions, and perspectives. It emphasizes the richness and complexity of human experiences, enabling researchers to capture the nuances and details that might be missed in quantitative methods.

2. Subjectivity and context: IPA recognizes the subjectivity of human experiences and acknowledges the role of context in shaping these experiences. It highlights the importance of understanding the social, cultural, and historical influences on participants' lived realities.

3. Rich descriptions: IPA aims to provide rich and detailed descriptions of participants' experiences. By capturing the vividness and depth of these experiences, IPA can help researchers and readers gain a comprehensive understanding of the phenomenon being studied.

4. Interpretive flexibility: IPA allows for interpretive flexibility, meaning that researchers can generate multiple interpretations and meanings from the data. This openness enables researchers to explore various perspectives and avoid rigid categorizations, leading to a more nuanced understanding of the phenomenon.

Disadvantages of Interpreted Phenomenological Analysis (IPA):

1. Subjectivity and bias: The interpretive nature of IPA opens the possibility of researchers' biases influencing the analysis and interpretation of the data. Researchers' preconceived notions, beliefs, or theoretical orientations may unintentionally shape the findings, potentially leading to a lack of objectivity.

2. Small sample sizes: IPA often involves studying a small number of participants in detail. While this allows for a thorough exploration of individual experiences, it may limit the generalizability of the findings. The small sample sizes may also make it challenging to identify patterns or common themes across a broader population.

3. Time-consuming process: Conducting IPA requires substantial time and effort. The process involves multiple stages, such as transcribing interviews, coding data, identifying themes, and interpreting the findings. The meticulous nature of IPA demands significant investment in data analysis and interpretation, which can be time-consuming for researchers.

4. Lack of standardized procedures: IPA lacks standardized procedures or a strict set of rules for data analysis. This flexibility can be an advantage in terms of allowing researchers to tailor the analysis to their research question. However, it also means that different researchers may approach IPA differently, leading to variations in analysis and potentially affecting the reliability and consistency of the findings.

Overall, interpreted phenomenological analysis (IPA) offers a valuable qualitative approach for exploring and understanding human experiences. While it provides rich insights and a deeper understanding of participants' subjective realities, researchers must be aware of potential biases and limitations associated with the interpretive nature of the analysis.

Triangulation

Triangulation in qualitative research refers to the practice of using multiple sources, methods, or perspectives to investigate a research topic or question. It involves combining different data collection and analysis techniques to enhance the validity and reliability of findings in qualitative research.

In qualitative research, data collection methods can include interviews, observations, focus groups, documents, and artifacts. Each method may provide unique insights into the research topic, but they may also have limitations or biases. By employing triangulation, researchers aim to overcome these limitations and provide a more comprehensive understanding of the phenomenon under investigation.

There are several types of triangulation that can be used in qualitative research:

1. Data triangulation: This involves using multiple sources of data to corroborate or validate findings. For example, if a researcher is studying a particular social issue, they may collect data from interviews, observations, and documents to ensure that the findings are consistent across different sources.

2. Methodological triangulation: This refers to using multiple research methods to investigate the same research question. For instance, a researcher might conduct interviews, observations, and a survey to gather data from different angles. By using different methods, researchers can gain a more comprehensive understanding of the research topic.

3. Investigator triangulation: In this approach, multiple researchers or investigators collaborate to analyze and interpret data. Each researcher brings their unique perspectives, experiences, and biases to the research process, which can enhance the credibility and reliability of the findings.

4. Theory triangulation: This involves using multiple theoretical perspectives or frameworks to interpret the data. By applying different theories, researchers can gain a richer understanding of the phenomenon being studied and ensure that their findings are not limited by a single theoretical perspective.

The purpose of triangulation is to increase the trustworthiness and rigor of qualitative research findings. By employing multiple sources, methods, investigators, or theories, researchers can reduce the potential biases or limitations associated with any single approach. Triangulation provides a more robust and holistic understanding of the research topic, thereby enhancing the validity and reliability of the research findings.

Triangulation is a technique used in various fields, including mathematics, surveying, navigation, and scientific research. It involves the process of determining the location of a point by measuring angles or distances to that point from known reference points

The key characteristics of triangulation:

1. Reference Points: Triangulation requires at least three known reference points or landmarks, forming a triangle. These points should be precisely located and easily identifiable.

2. Angles or Distances: Triangulation can be based on measuring either angles or distances. Angle-based triangulation involves measuring the angles between the reference points and the unknown point, while distance-based triangulation relies on measuring the distances between the reference points and the unknown point.

3. Geometric Calculation: Triangulation uses geometric calculations to determine the coordinates of the unknown point. By applying principles of trigonometry, the lengths of the sides of the triangle formed by the reference points and the unknown point can be used to calculate the position of the unknown point.

4. Accuracy: The accuracy of the triangulation depends on the precision of the measurements taken and the geometry of the triangle formed. Smaller angles or longer baselines (distances between reference points) generally result in higher accuracy.

5. Repeatability: Triangulation measurements can be repeated to improve accuracy and reliability. Multiple measurements from different perspectives or at different times can be combined to obtain a more precise location estimate.

6. Applications: Triangulation is widely used in various fields. In surveying and mapping, it is used to determine the positions of landmarks and create accurate maps. In navigation, it is used to determine the position of a ship or aircraft by using known reference points. In astronomy, triangulation is used to determine the distances to celestial objects.

7. Variations: There are different variations of triangulation techniques depending on the specific application and available equipment. For example, GPS (Global Positioning System) uses satellite-based triangulation to determine precise locations on Earth.

Overall, triangulation is a fundamental technique for determining the position of an unknown point based on measurements taken from known reference points, using geometric calculations. Its versatility and accuracy make it applicable in numerous fields where precise positioning is required.

Triangulation is a method used in various fields, including mathematics, surveying, navigation, and social sciences. It involves using multiple reference points or measurements to determine the position or shape of an object or location. While triangulation offers several advantages, it also has certain limitations. Let's explore them in detail:

Advantages of Triangulation:

- Accuracy: Triangulation can provide highly accurate results when properly executed. By using multiple reference points and measurements, it helps minimize errors and enhances the precision of the final calculation. This accuracy makes triangulation useful in applications such as surveying land, determining distances, or locating objects.
- Flexibility: Triangulation can be applied to various scenarios and environments. It can be used in both two-dimensional and three-dimensional spaces, making it a versatile technique. It finds applications in navigation systems, astronomy, geodesy, and even in social sciences for data analysis and research.
- Reliability: The redundancy offered by multiple measurements or reference points makes triangulation a reliable method. Even if one measurement or reference point is incorrect or imprecise, the overall result can still be accurate by considering the data from other points. This robustness makes triangulation resistant to minor errors or fluctuations in the measurements.
- Cost-effectiveness: Triangulation often offers a cost-effective solution compared to alternative methods. Instead of relying on expensive equipment or extensive fieldwork, triangulation can be performed using simple tools like rulers, compasses, or surveying instruments. This affordability makes it accessible to a wider range of applications and users.

Disadvantages of Triangulation:

- Complexity: Triangulation can become complex when dealing with intricate geometries or large-scale applications. Calculating the coordinates or angles of multiple reference points and considering their interconnections requires advanced mathematical calculations. This complexity can pose challenges for inexperienced users or in situations where sophisticated modelling or analysis is required.
- Limited Accuracy in certain cases: While triangulation generally provides high accuracy, it may encounter limitations in specific scenarios. For instance, in situations where there is significant distortion, such as uneven terrain or atmospheric refraction, the accuracy of triangulation may be compromised. In such cases, other methods or technologies may be more suitable.
- Dependency on Reference Points: Triangulation relies heavily on the availability and accuracy of reference points. If the reference points are limited, misplaced, or have measurement errors, it can lead to inaccurate results. Establishing and maintaining these reference points can be time-consuming and require careful calibration.
- Vulnerability to External Factors: Triangulation can be affected by external factors such as environmental conditions, atmospheric disturbances, or signal interference. For example, in the field of GPS navigation, buildings, dense foliage, or electromagnetic interference can impact the accuracy of triangulation-based positioning. These external factors can introduce errors and affect the reliability of the results.

It's important to consider these advantages and disadvantages when choosing to apply triangulation in a particular context. While triangulation is a valuable technique in many situations, there may be cases where alternative methods or technologies better suit the specific requirements and challenges.

Mixed methods research

Mixed methods research is a research approach that combines both quantitative and qualitative methods in a single study. It involves collecting and analysing both numerical data (quantitative) and non-numerical data (qualitative) to gain a more comprehensive understanding of a research topic or question.

In mixed methods research, researchers typically integrate the strengths of both quantitative and qualitative methods to overcome the limitations of each approach when used alone. By combining these methods, researchers can capture a broader range of information, explore different aspects of the research topic, and provide a more nuanced interpretation of the findings.

The process of conducting mixed methods research involves several key steps:

1. Research Design: Researchers start by designing a study that incorporates both quantitative and qualitative methods. They need to consider the specific research questions, the purpose of the study, and the availability of resources and expertise.

2. Data Collection: Data collection involves gathering both quantitative and qualitative data. Quantitative data is typically collected through surveys, experiments, or other structured methods that yield numerical data. Qualitative data is collected through methods such as interviews, focus groups, observations, or document analysis, which provide detailed narratives, descriptions, or interpretations.

3. Data Analysis: After collecting the data, researchers employ appropriate analysis techniques for both quantitative and qualitative data. Quantitative data is analyzed using statistical methods to examine relationships, patterns, and trends. Qualitative data is analyzed through techniques like coding, thematic analysis, or discourse analysis to identify themes, patterns, and meanings within the data.

4. Integration: The integration phase involves combining the quantitative and qualitative findings to create a cohesive interpretation of the research results. This can be done by comparing and contrasting the findings, using one dataset to complement or explain the other, or by merging the findings to provide a more comprehensive understanding of the research question.

5. Interpretation and Reporting: Researchers interpret the integrated findings and draw conclusions based on the combined analysis. They provide a clear and coherent narrative that explains the research results and their implications. The final report should address both quantitative and qualitative aspects of the study, highlighting the strengths and limitations of each approach.

Characteristics of mixed methods research:

1. Integration of qualitative and quantitative data: Mixed methods research involves the collection and analysis of both qualitative and quantitative data. This integration allows researchers to explore research questions from multiple perspectives and gain a deeper understanding of the phenomenon under investigation.

2. Complementary nature: Qualitative and quantitative data are seen as complementary rather than competing sources of information. By using both methods, researchers can take advantage of the strengths of each approach and address limitations or gaps in their findings.

3. Sequential or concurrent design: Mixed methods research can be conducted using either a sequential or concurrent design. In a sequential design, one phase of data collection and analysis (qualitative or quantitative) is conducted first, followed by the other phase. In a concurrent design, both qualitative and quantitative data are collected and analyzed simultaneously.

4. Triangulation: Triangulation refers to the process of cross-validating findings from different methods. Mixed methods research often uses triangulation to enhance the credibility and reliability of the study's results. By examining the convergence or divergence of findings, researchers can gain a more robust understanding of the research question.

5. Flexibility and customization: Mixed methods research allows for flexibility and customization in the research design and data collection procedures. Researchers can tailor their approach based on the research question, the context, and the available resources. This flexibility allows for a more nuanced exploration of complex phenomena.

6. Contextual understanding: Mixed methods research emphasizes the importance of understanding the context in which the research is conducted. By combining qualitative and quantitative data, researchers can capture both the breadth and depth of the research topic, considering the broader context while also exploring individual experiences and perspectives.

7. Iterative and cyclical process: Mixed methods research often involves an iterative and cyclical process, where data collection, analysis, and interpretation inform subsequent phases of the research. This iterative nature allows for refinement and modification of the research design throughout the study.

Mixed methods research refers to a research approach that combines qualitative and quantitative methods to gather and analyze data. It involves integrating both qualitative and quantitative data collection and analysis techniques to gain a more comprehensive understanding of a research problem.

Steps involved in conducting mixed methods research:

1. Identify the research problem: Clearly define the research problem or question that you want to investigate. Ensure that the problem can be addressed using both qualitative and quantitative methods.

2. Determine the research design: Select an appropriate mixed methods research design. There are several designs to choose from, including sequential explanatory design, sequential exploratory design, convergent design, and embedded design. The choice of design depends on the research problem and the purpose of the study.

3. Develop research questions: Develop specific research questions that can be addressed using both qualitative and quantitative data. These questions should align with the research problem and provide a framework for data collection and analysis.

4. Collect qualitative data: Implement qualitative data collection methods such as interviews, focus groups, observations, or document analysis. Ensure that the data collected is relevant to the research questions and captures participants' perspectives and experiences.

5. Analyze qualitative data: Use appropriate qualitative analysis techniques, such as thematic analysis, content analysis, or grounded theory, to identify themes, patterns, or categories in the qualitative data. This analysis helps in deriving meaning and understanding from the qualitative data.

6. Collect quantitative data: Implement quantitative data collection methods such as surveys, experiments, or structured observations. The data collected should be relevant to the research questions and provide measurable and numerical information.

7. Analyze quantitative data: Employ statistical analysis techniques to analyze the quantitative data. This may involve descriptive statistics, inferential statistics, correlations, or regression analysis, depending on the research questions and the nature of the data.

8. Integrate the findings: Compare and contrast the qualitative and quantitative findings to identify similarities, differences, and patterns. Look for convergence or divergence in the results, and seek to explain any inconsistencies or contradictions between the two types of data.

9. Interpret the results: Synthesize the qualitative and quantitative findings to develop a comprehensive interpretation of the research problem. Consider how the findings from each method contribute to the overall understanding and implications of the research.

10. Draw conclusions and make recommendations: Based on the integrated analysis, draw conclusions regarding the research problem and provide recommendations for practice, policy, or future research.

It's important to note that these steps provide a general framework, and the specific details may vary depending on the research design, research field, and research objectives.

Advantages of Mixed Methods Research:

1. Comprehensiveness: Mixed methods research allows researchers to gain a deeper understanding of a research problem by incorporating both qualitative and quantitative data. It provides a comprehensive picture by combining the strengths of both approaches.

2. Triangulation: By using multiple methods, researchers can triangulate their findings, which means they can cross-validate their results. This enhances the validity and reliability of the research findings and helps to reduce bias.

3. Enhanced Validity: Qualitative methods can provide rich and in-depth insights into participants' perspectives and experiences, while quantitative methods can provide statistical generalization. By combining these methods, researchers can increase the validity of their findings by validating qualitative insights quantitatively or vice versa.

4. Exploration and Explanation: Mixed methods research allows researchers to explore a research problem in a more holistic manner. Qualitative methods can be used to explore the research area, generate theories or hypotheses, and provide in-depth explanations. Quantitative methods can be used to test and verify these theories or hypotheses.

5. Flexibility: Mixed methods research provides flexibility in data collection and analysis. Researchers can adapt their approach based on the nature of the research problem and the available resources. They can also modify their methods during the research process to address emerging questions or insights.

Disadvantages of Mixed Methods Research:

1. Complexity: Conducting mixed methods research can be complex and time-consuming. It requires expertise in both qualitative and quantitative research methods, as well as skills in integrating and analysing data from different sources. This complexity may pose challenges for researchers who are not familiar with both approaches.

2. Resources: Mixed methods research often requires more resources compared to using a single research method. It involves additional time, effort, and potentially higher costs for data collection, analysis, and interpretation. Researchers need to carefully plan and allocate resources to ensure the feasibility of the study.

3. Integration Challenges: Combining qualitative and quantitative data can be challenging. Researchers must carefully integrate the two types of data to create a coherent analysis. This integration requires expertise and can be subjective, potentially introducing bias or misinterpretation.

4. Time Constraints: Mixed methods research can take longer to complete compared to studies that focus solely on qualitative or quantitative methods. The process of collecting, analysing, and integrating data from multiple sources requires more time and effort, which can be a limitation in research settings with tight deadlines.

5. Reporting Complexity: Communicating findings from mixed methods research can be challenging. Researchers need to present and explain both qualitative and quantitative findings effectively, which may require different reporting styles or formats. This complexity can make it difficult for readers to fully understand and interpret the research results.

It's important to consider these advantages and disadvantages when deciding to use mixed methods research. Researchers should carefully evaluate the research objectives, available resources, and the specific research problem to determine if mixed methods research is the most appropriate approach.

Mixed methods research refers to a research approach that combines qualitative and quantitative methods in a single study or research project. The design of mixed methods research involves integrating both qualitative and quantitative data collection, analysis, and interpretation to gain a comprehensive understanding of the research problem.

Designs in Mixed Method Research

These are some of the common designs used in mixed methods research. The choice of design depends on the research question, the objectives, the available resources, and the overall purpose of the study. It is essential for researchers to carefully plan and justify their chosen design to ensure the integration and synergy of qualitative and quantitative components in the research process.

1. Sequential explanatory design: In this design, the researcher first collects and analyzes quantitative data, followed by the collection and analysis of qualitative data. The purpose is to use qualitative data to explain or elaborate on the quantitative findings. This design allows researchers to explore complex phenomena in depth.

2. Sequential exploratory design: This design begins with qualitative data collection and analysis, followed by quantitative data collection and analysis. It is used when the researcher wants to explore a topic or develop a theory using qualitative data and then test the findings or theories using quantitative data. It helps in understanding the nuances of the research problem before quantitatively examining it.

3. Sequential transformative design: This design involves collecting and analyzing quantitative and qualitative data separately and then integrating the findings in a transformative way. It is used when the researcher aims to bring about social change or influence policy through their research. The transformative design emphasizes the impact of research on societal practices.

4. Concurrent triangulation design: In this design, quantitative and qualitative data are collected and analysed concurrently, and the findings are compared and integrated. The purpose is to provide a more comprehensive understanding of the research problem by complementing the strengths of both approaches. Triangulation enhances the validity and reliability of the research findings.

5. Concurrent nested design: This design involves collecting both qualitative and quantitative data concurrently, but one type of data plays a supporting role within the larger study. For example, qualitative data may be used to enrich or explain the quantitative findings. The nested design allows for a more detailed exploration of specific aspects of the research problem.

6. Convergent design: In this design, qualitative and quantitative data are collected separately and then merged during the interpretation phase. The purpose is to provide a convergence or corroboration of findings from different methods, strengthening the overall validity of the research. This design helps in obtaining a comprehensive understanding of the research problem.

CONCLUSION

Qualitative research often involves small sample sizes, as the focus is on gaining in-depth insights rather than generalizability to a larger population. The data collected is typically analysed through a process of coding, categorization, and thematic analysis, which involves identifying patterns, themes, and recurring ideas within the data. Researchers may also engage in reflexivity, acknowledging their own biases and positionality to enhance the quality and interpretation of the findings.

The results of qualitative research are typically presented in narrative form, using quotes and examples to illustrate key themes or concepts. Findings can contribute to theory development, inform policy and practice, and provide a deeper understanding of social phenomena from the perspectives of those directly involved.

Overall, qualitative research is a flexible and exploratory approach that allows researchers to delve into the complexities of human experiences, providing valuable insights and uncovering nuanced understandings that quantitative methods may overlook.