



Educational Research

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UNIT-1: Introduction to Research

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Research is an in-depth inquiry (investigation) into a problem which needs an amicable (agreeable) solution. Every invention in the world happens as a result of a scientific enquiry. See the example of Isaac Newton when the apple falls on his head, he started the question with why? He searched for truth, reason or discovery to new knowledge. He applied common sense in his enquiry. The continuous search resulted in solving his problem. Finally, he built a theory named as Gravitation force theory with empirically proved body of knowledge. Hence research can be termed as the search for truth or discovery of new things or builds body of knowledge regarding a phenomenon. **Research is a systematic, scientific, objective activity, which includes the collection relevant information, and careful analysis of data, recording and reporting of valid conclusion, that 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 also means that the process of testing the validity of assumptions and formulated hypotheses. When we come to the educational research it is the process of scientific inquiry to solve the problems of educational sector of a country. It includes theoretical elaboration, quality enhancement matters, policy draft and implication, classroom dimension and so forth. It involves a continuous enquiry in search of knowledge, advancement, problem solving methodology and an attempt to realize the truth from an objective point of view based on factual understanding and systematic study. Hence research is a systematic process of inquiry consisting of three elements or components: (1) a question, problem or hypothesis (2) Data (3) Analysis and interpretation of data.

1.1 Meaning of Research

The term "research" has clearly visible two morphemes, 're' and 'search'. The prefix 're' may refer to **the way of doing things again and again**. The root 'search' has a dictionary meaning, i.e. to **examine things closely and carefully to find out a solution**. Thus, the word 'research' refers to a process of examining and finding out a solution to the particular problem that we have identified in our field. It is also defined as a systematic field of inquiry. It is totally academic and systematic process that is aimed at searching for knowledge through logical and justifiable means. Logic, evidence and data are central in every research work.

Definition of research

- Research is a systematic process of inquiry consisting of three elements or components: 1. question, problem or hypothesis. 2. Data. 3. Analysis and interpretation of data. **(Nunan)**
- Research is the study of an event, problem or phenomenon using systematic and objective methods, in order to understand it better and to develop principles and theories about it. **(Richards et al.)**
- Research is one of the ways to find answer to your questions. **(Kumar)**

These definitions of research successfully lead us to precise conclusion that it is a process which involves a systematic investigation about a problem that is identified in one's field.

The systematic investigation usually involves data collection and analysis procedures. The results of such systematic process may also help us to sketch new theories, principles and understanding about an issue of the related field.

Characteristics of research

Research is commonly defined as a systematic process of investigation facts and theories about an identified issue. This process involves basically collecting, analyzing and interpreting the relevant information. There are some characteristic /features of research that prove it to be systematic process of investigation. The characteristics pointed out by Kumar (2014) are briefly discussed below.

1. Controlled

Research is a controlled activity. A researcher has to control the factors that influence its results. For example, if one is carrying out research on the role of motivation in the learning of IT, there can be other various factors to influence IT learning.

2. Rigorous

Research is a rigorous study. Being rigorous is one of the characteristic features of social science research. It means that the researcher must be sincere, careful and serious about each component and procedure of the research.

3. Systematic

Research is a systematic process of investigation. Each step must follow systematic procedures. There is a logical sequence of the activities in the research. When the problem is mapped out, the research questions and objectives are set.

4. Valid and verifiable

The research results need to be valid and verifiable. They provide the answers of all research questions accurately with facts, figures and logics. The accuracy and effectiveness of research findings can be tested and verified by anyone else through further research and examination.

5. Empirical

Another important characteristic feature of research includes being empirical which means that research is mostly based on hard evidence such as experiments, experiences, observations, face to face interactions, authentic responses and so on.

6. Critical

Research allows 'critical scrutiny'. According to Ranjit Kumar, critical scrutiny of the procedures used and the methods employed is crucial to research enquiry.

7. Consistent, formal and academic

Research writing is characterized by the features such as being consistent, formal and academic

Characteristics of research

- The research should focus on priority problems.
- The research should be systematic. It emphasizes that a researcher should employ a structured procedure.
- The research should be logical. Without manipulating ideas logically, the scientific researcher cannot make much progress in any investigation.
- The research should be reductive. This means that the findings of one researcher should be made available to other researchers to prevent them from repeating the same research.
- The research should be replicable. This asserts that there should be scope to confirm the findings of previous research in a new environment and different settings with a new group of subjects or at a different point in time.
- The research should be generative. This is one of the valuable characteristics of research because answering one question leads to generating many other new questions.
- The research should be action-oriented. In other words, it should be aimed at reaching a solution leading to the implementation of its findings.
- The research should follow an integrated multidisciplinary approach, i.e., research approaches from more than one discipline are needed.
- The research should be participatory, involving all parties concerned (from policymakers down to community members) at all stages of the study.

- The research must be relatively simple, timely, and time-bound, employing a comparatively simple design.
- The research must be as much cost-effective as possible.
- The results of the research should be presented in formats most useful for administrators, decision-makers, business managers, or the community members

1.2 INTRODUCTION TO EDUCATIONAL RESEARCH

Educational research refers to the systematic collection and analysis of data related to the field of *education*. Educational Research may involve various aspects of *education* including student learning, teaching methods, teacher training, and classroom dynamics.

Education research is the scientific field of study that examines education and learning processes and the human attributes, interactions, organizations, and institutions that shape educational outcomes. Scholarship in the field seeks to describe, understand, and explain how learning takes place throughout a person's life and how formal and informal contexts of education affect all forms of learning. Education research embraces the full spectrum of rigorous methods appropriate to the questions being asked and also drives the development of new tools and methods.

Education research is a process of solving problems related to education. It is a careful and critical search for knowledge related to education. It is the formal process to correct previous errors, manipulate and control variables, verify and extend theories and generalities and discover new things with an ultimate objective to advance for the welfare of the society.

The overall aim of **educational research** is to provide teachers, clinicians, managers and learners with systematically obtained information that helps to improve the quality of the learning process. The difference between doing educational research and other healthcare research is that often the immediate effects of the intervention are seen and assessed on the educators or their students, rather than on the processes and outcomes of patients.

MEANING OF EDUCATIONAL RESEARCH:

Educational Research as nothing but cleansing of educational process. Many experts think Educational Research as under-

According to **Mouly**, — Educational Research is the systematic application of scientific method for solving educational problem.

Travers thinks, — Educational Research is the activity for developing science of behavior in educational situations. It allows the educator to achieve his goals effectively.

According to **Whitney**, — Educational Research aims at finding out solution of educational problems by using scientific philosophical method.

Thus, Educational Research is to solve educational problem in systematic and scientific manner, it is to understand, explain, predict and control human behavior.

Educational Research Characterizes as follows:

- It is highly purposeful.
- It deals with educational problems regarding students and teachers as well.
- It is precise, objective, scientific and systematic process of investigation.
- It attempts to organize data quantitatively and qualitatively to arrive at statistical inferences.
- It discovers new facts in new perspective. i.e. It generates new knowledge.
- It is based on some philosophic theory.
- It depends on the researcher's ability, ingenuity and experience for its interpretation and conclusions.
- It needs interdisciplinary approach for solving educational problem.
- It demands subjective interpretation and deductive reasoning in some cases.
- It uses classrooms, schools, colleges department of education as the laboratory for conducting researches.
- Educational research is scientific in the sense that it involves the testing of hypotheses.
- Educational research corrects previous errors and misconceptions and brings new facts into light.
- -It suggests improvements in different areas related to education.
- It opens new channels for investigation.
- Constructivism of knowledge is the goal of education research.

1.3 Steps in educational research

Research is a systematic process of investigation. In term of process and procedure it is rather complex and requires careful operation of these process. Kumar presents the eight model of doing research in the field of social science such as education, psychology, English language teaching learning, and so on. The model is:

Step 1: Formulating a research problem

Step 2: Conceptualizing a research design

Step 3: Selecting an instrument for data collection

Step 4: Selecting a sample

Step 5: Writing a research proposal

Step 6: Collecting data

Step 7: Processing and displaying data

Step 8: Writing a research report

According to course of study of ICT the following step should be follow in education research:

- Selecting the problem
- Reviewing the literature
- Designing the research
- Collecting the data
- Analyzing the data
- Interpreting the findings
- Drawing the conclusion

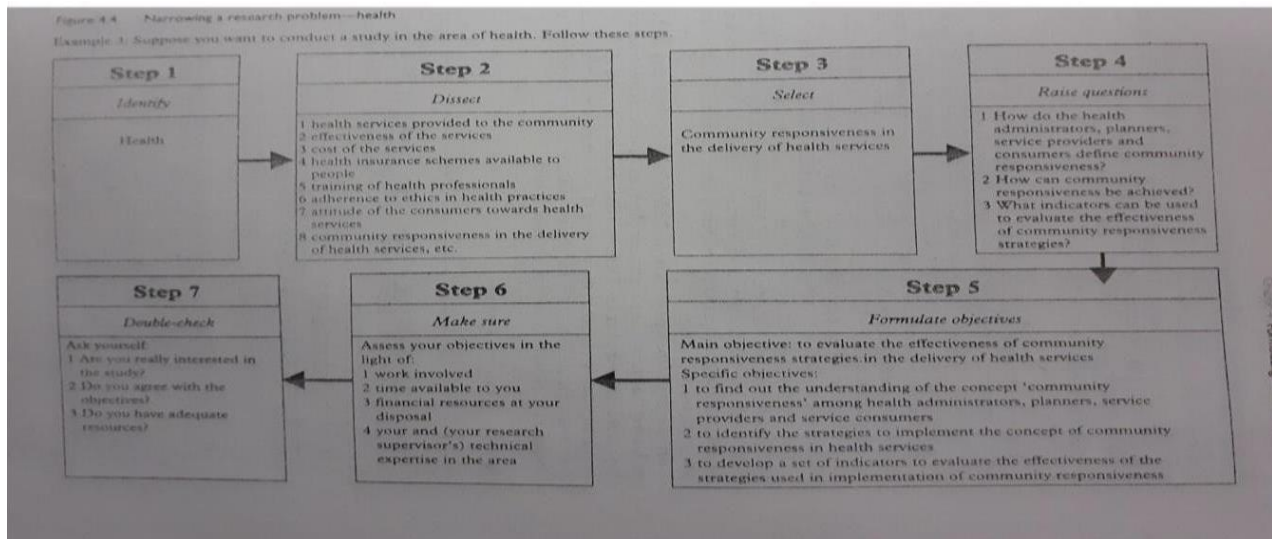
1.3.1 Selecting a problem:

The first step in the process is to select a problem or develop a research question. The journey of research begins with a research problem. It is the topic or area of your field that you think requires to be studied. It is not necessary a problem as difficulty. It is an issue or subject matter of one's field of occupation. The researcher identifies the problem for his or her research in many ways. When selecting the research problem /topic there are number of considerations to keep in mind. These help to ensure that your study will be manageable and that you will remain motivated. These considerations are:

- Interest
- Magnitude
- Measurement of concept
- Level of expertise
- Relevance
- Availability of data
- Ethical issues

We can follow the following steps to select the problem for educational:

- Identify a board field or subject area of interest to you
- Dissect the board area into subareas
- Select what is of most interest to you
- Raise research questions
- Formulate objectives
- Assess your objectives
- Double check



1.3.2 Reviewing the literature

After topic selection, the next step of researcher is to develop concept and ideas about the selected topic by reviewing all the relevant materials. In fact, review of literature begins with a search for a suitable topic and continues throughout the duration of the research work. Now that the problem has been identified, the researcher must learn more about the topic under investigation. To do this, the researcher must review the literature related to the research problem. This step provides foundational knowledge about the problem area. The review of literature also educates the researcher about what studies have been conducted in the past, how these studies were conducted, and the conclusions in the problem area.

There is a significant importance of review of literature in any types of research works, some are:

1. Identification of research problem and relevant variables:

When the researcher makes a careful review of the literature, he/she becomes aware of the important and unimportant variables in concerned area of research. A careful review also helps the researcher in selecting the variables lying within the scope of own interest, in defining and operationalizing variables and in identifying variables which are conceptually and practically important.

2. Avoidance of repetition:

A review of the literature helps the researcher in avoiding any duplication of work done earlier. A careful review always aims at interpreting prior studies and indicating their usefulness for the study to be undertaken. Thus, prior studies serve as the foundation for the present study.

3. Synthesis of prior work:

A careful review of literature enables the researcher to collect and synthesize prior studies related to the present study. This, in turn, helps the researcher in building a better perspective for future research. A synthesized collection of prior studies also helps a researcher to identify the significant overlaps and gaps among the prior works.

4. Determining meaning and relationship among variables:

A careful review of the literature enables the researcher in discovering important variables relevant to the area of the present research. When significant variable is discovered, the relationship among them can be identified.

Sources of review:

- Books and journals
- Reviews (short articles)
- Abstract (abstract provide a summary of the research report done by different field)
- Index (indexes show the title of the research report without any abstract.)
- Dissertation (thesis/essay/study)
- Encyclopedias
- Internal bibliography (A bibliography is a serially numbered list of written sources either published or unpublished, in the preparation of the report during the course of research, books, periodical articles, government document, unpublished materials, pamphlets, films, radio or television broadcast, records, lecture, interviews etc.)

Phases in the review:

1. Locating: (identify the source of review)
2. Obtaining: (the materials or sources from which researcher has to review are available: libraries, online sources, other resources)
3. Reading: After collecting the materials from concerned sources, the next step is traced out the position of review material and to read.
 - Efficient and selective reading
 - Keeping track of reference
 - Annotating the reference
 - Developing a structure
4. Organizing

1.3.3 Designing the research

Research design is defined as a framework of methods and techniques chosen by a researcher to combine various components of research in a reasonably logical manner so that the research problem is efficiently handled. It provides insights about “how” to conduct research using a

particular methodology. Every researcher has a list of research questions which need to be assessed – this can be done with research design.

The sketch of how research should be conducted can be prepared using research design. The design of a research topic is used to explain the type of research (experimental, survey, correlation, semi-experimental, review) and also its sub-type (experimental design, research problem, descriptive case-study). There are three main sections of research design: Data collection, measurement, and analysis.

The type of research problem an organization is facing will determine the research design and not vice-versa. Variables, designated tools to gather information, how will the tools be used to collect and analyze data and other factors are decided in research design on the basis of a research technique is decided.

An impactful research design usually creates minimum bias in data and increases trust on the collected and analyzed research information. Research design which produces the least margin of error in experimental research can be touted as the best. The essential elements of research design are:

1. Accurate purpose statement of research design
2. Techniques to be implemented for collecting details for research
3. Method applied for analyzing collected details
4. Type of research methodology
5. Probable objections for research
6. Settings for research study
7. Timeline
8. Measurement of analysis

Preparation of Research Design

Research design is considered as the blue print of the proposed research. It includes the preparation of following essential elements.

1. State the problem
2. Set up of research variables, such as dependent, independent, classificatory, extraneous and intervening variables.
3. Provide operational definition of the key terms or research variables which the investigator wants to measure or observe.
4. Set up Objectives for the study/ what exactly researcher wants to find out through the proposed study?
5. Formulate Hypotheses/ tentative solution based on intelligent guess (if applicable)
6. Determine the representative sample size from the population of the study

7. Identify suitable sampling Technique
8. Develop or make available standardized tool for data collection
9. Select suitable statistical techniques to fulfill the objectives as well as to test the hypotheses (if applicable)
10. Prepare the organization of research report and time bound budget allocation to complete the proposed study

Research Design Characteristics

There are four key characteristics of research design:

1. **Neutrality:** The results projected in research design should be free from bias and neutral. Understand opinions about the final evaluated scores and conclusion from multiple individuals and consider those who agree with the derived results.
2. **Reliability:** If research is conducted on a regular basis, the researcher involved expects similar results to be calculated every time. Research design should indicate how the research questions can be formed to ensure the standard of obtained results and this can happen only when the research design is reliable.
3. **Validity:** There are multiple measuring tools available for research design but valid measuring tools are those which help a researcher in gauging results according to the objective of research and nothing else. The questionnaire developed from this research design will be then valid.
4. **Generalization:** The outcome of research design should be applicable to a population and not just a restricted sample. Generalization is one of the key characteristics of research design.

Types of Research Design

A researcher must have a clear understanding of the various types of research design to select which type of research design to implement for a study. Research design can be broadly classified into quantitative and qualitative research design.

- Qualitative Research Design
- Quantitative Research Design

Further, research design can be divided into five types –

1. Descriptive Research Design
2. Experimental Research Design
3. Correlation Research Design
4. Diagnostic Research Design
5. Explanatory Research Design.

Information needed to answer the research question. Every study includes the collection of some type of data—whether it is from the literature

1.3.4 Collecting the data

The collection of data is a critical step in providing the from subjects—to answer the research question. Data can be collected in the form of words on a survey, with a questionnaire, through observations, or from the literature.

Method of data collection:

- Primary sources
- Secondary sources

1. Primary sources

- Observation: participant, nonparticipant
- Interviewing: Structure, unstructured
- Questionnaire: Mailed questionnaire, collective questionnaire

2. Secondary sources:

- Document: Govt publication, earlier research, personal records, client histories, service records (mass media)

1.3.5 Analyzing the data:

After collecting the information, the next step is what to do with this information. How do you find the answers to your research question? How do you prove or disprove your hypothesis if you had one? How should the information be analyzed to achieve the objectives of your study? To answer these questions, you need to edit and coding your collected or raw data.

Coded data can be analyzed manually or with the help of computer. If the number of respondents is reasonably small, there are not many variables to analyses and you are neither familiar with a relevant computer program nor wish to learn one, you can manually analyze the data. However, manual analysis is useful only for calculating frequencies and for simple cross tabulations. In addition, if you want to carry out statistical tests, they have to be calculated manually.

Researcher has to analyze the data using suitable statistical techniques. Data analysis can be done by manual or with the help of the computer using software packages specially design for data analysis such as software package for social science research. When considering the qualitative analysis the following steps should be followed.

1. Exploration
2. Description
3. Explanation
4. Evaluation

When dealing with qualitative data the researcher has to explore the data thoroughly. Even though the researcher had been explored the information at the time of data collection from the

respondents, again he has to explore more inherent information from the description also. For the purpose he has to rewind the gestures, body language, facial expressions, and eyes' movement of the respondents while s/he responds to the particular question or contexts to comprehend more relevant information regarding the study.

1.3.6 Interpretation the findings

- Interpretation refers to the task of drawing inferences from the collected facts after an analytical experimental study.
- The effort to establish continuity in research through linking the results of a given study with those of another and the establishment of some explanation concept.
- In fact, interpretation is a search for broader meaning of research findings.

In this step in quantitative research the researcher has to interpret the data as per the result found through the application of statistical procedure. Hypotheses can be tested as per the standard norms and procedure using the level of significance. Qualitative researcher can explain his interpretation in detail with empirical observation of the event or behavior. S/he has to elaborate his observation regarding the subject under study. The interpretation and writing skill of the researcher have crucial role in explanation or interpretation of the research.

1.3.7 Drawing the Conclusion

Based on the analysis and interpretation of the research the investigator has to draw valid conclusion regarding the study. He has to ensure the fulfillment of the objective, acceptance or rejection of the hypotheses formed for the study and so forth. Further the researcher has to evaluate the validity and rationality of the conclusion drawn from the study. Based on the conclusion the researcher has to project the implications of the study undergone. Suggestions and recommendations should be given to concerned authority to bring progressive changes regarding the problem studied. Researcher can also trace the areas of further research which may add additional necessary information or knowledge in this regard that he felt while he completed his study.

1.4 Research issues and problems in education field:

Research problem is one of the basic components of investigation. Simply a topic or specific area of research identifies a particular field. First of all, the researcher identifies the actual problem or issue in the area which he or she interest to work. By collecting data and performing analysis, those who address research topics in education can help to change the scope and quality of education around the world. Education research aims to develop new and improved teaching methods to resolve issues in learning and enhance overall understanding on behalf of students from all backgrounds, as well as discover the environments in which they learn best.

Some major topics within the field include:

1. Ability Grouping

Ability grouping, or tracking, is the practice of pairing students together based on their abilities rather than age. In early childhood education, this is easier to do, but as time progresses and students develop at varying (changeable) rates, it becomes harder to incorporate in a school setting successfully. You can look at how to strategically assess and define ability levels to group students beneficially, as well as how teachers can prepare lessons based on ability level.

2. Blended Learning

Blended learning is the mixture of online educational methods with traditional in-person practices. It combines a teacher's presence with a student's responsibility to take control of their own time to learn. This is a different style of learning than what University of the People offers, as everything at Uo People is completely online. Blended learning is hybrid learning.

3. Busing

The research on busing examines the impact of bringing students from different districts to a school via (using) buses. It may examine how this impacts student life, as well as the overall educational outcome for the institution. Busing began as a practice to decrease school segregation (isolation), but it continues to be a controversial and often analyzed situation in many public schools.

4. Class Sizes

As a growing problem, the supply of teachers worldwide falls short of the student demand. Therefore, class sizes are increasing. But how does a bigger student-to-teacher ratio impact learning? That's what educational research aims to find out.

5. Computer Literacy

The growing reliance on technology and computers means that students worldwide should be prepared and taught how to use them. However, different countries and school districts have different access. Research on the topic looks at how computer literacy within the classroom affects a student's present learning and future capabilities.

6. Early Childhood Education

Is preschool important, and if so, why? Education research utilizes various methods to analyze this and more. It examines the system at various levels since there are multiple jobs in early childhood education.

7. Home Schooling

Do homeschoolers perform better? What percentage of those who were homeschooled goes to college? This and many more questions may be answered by conducting statistics surrounding

the differences between homeschooled students and those who attend traditional educational settings.

8. Learning Styles

There are said to be 4 different learning styles in education, including: visual learners, auditory learners, reading/writing preference and kinesthetic. With the diversity of students, different learning styles and teaching methods may be effective for one student and not another. So how do institutions and schools devise teaching methods that work? Understanding and testing learning styles could be the answer.

9. Merit Pay

Should teachers be paid based on their performance or should every teacher receive a standard salary? There has been a lot of controversy over merit pay and how to record the effectiveness of a teacher's work. Therefore, the research topic of merit pay is timely and important.

10. Standardized Testing

Regardless of where you are from or what you study, there's a high chance you've had to take a standardized test in your educational career. But are standardized tests fair and accurate? If standardized testing did not exist, how would school districts and governments evaluate the effectiveness of public education? These are questions that education research around standardized testing looks to answer because they have serious monetary implications.

List of 40 Hot Topics in Education

1. The development of critical thinking as the primary goal of the educational process
2. The evolution of approaches to education throughout history
3. Education and modern technologies, their positive and negative impact
4. Virtual reality worlds and education. Virtual classes and research rooms
5. The overview of the main modern approaches to education
6. Sex education: pros and cons
7. Education and gender: same-sex school and their comparison to the mixed-sex ones
8. Theoretical education vs. practical education
9. The phenomenon of apprenticeship and its role in developing systems of education
10. What is considered basic education in different countries and why?
11. Preschool education: knowledge or social skills?
12. Shall the development of emotional intelligence be one of the goals of modern education?

13. Educational discrimination and its impact on the future of the pupils
14. Education and socialization of mentally challenged people. Similarities and differences.
15. Inclusive classes: how do pupils in such classes perform in comparison with non-inclusive ones?
16. Bell Curve controversy. How should grades be calculated?
17. Do we still need grades in the modern educational system?
18. Education and motivation: how to make pupils interested how to make pupils interested
19. How can modern education be compared with classical school education?
20. Bullying and unhealthy psychological atmosphere in class. Its impact on the quality of education
21. Shall parents be involved in the educational process?
22. Does education ever stop or it continues during the entire life?
23. Censorship and education. Shall we protect the students or guide them through everything they want to know?
24. Dress code and school rules. Are some of them outdated?
25. The role of discipline in education and its impact on the process of learning
26. Information overload: the bane of the modern world. How can we help the students to deal with it?
27. Summaries, audio books, and online problem solvers. Can the classical educational system endure this?
28. The authority of the teacher and its role in the educational process.
29. What qualities are essential for a modern teacher
30. Education and religion. Religious needs of the students. What if religion forbids some aspects of the study?
31. The Internet: the huge library and a very unsafe place. How to help students use it safely for educational purposes?
32. Standardized testing: a conventional way of checking the results of education or a new caste system?
33. Private education: what shall be in the school to get a license?
34. The history of the greatest universities in the world. What makes them so great now?
35. Alternative schooling: the main approaches and the results of it
36. Shall the development of personal morals be a part of school education?
37. Multicultural education. The teacher as a mediator if the cultural clash occurs.
38. Shall the teacher only teach? The role of a teacher as a negotiator and moral guide.
39. Response to Intervention (RTI): how shall it work?
40. School violence, dealing with it and minimizing harm.

UNIT 2: Quantitative Research

- 2.1 Meaning and characteristics of quantitative research
- 2.2 Random sampling: Simple and stratified
- 2.3 Data collection tools: Questionnaire, test, scales and check list
- 2.4 Statistical analysis: frequency, percentage, mean and standard deviation
- 2.5 Types of quantitative research
 - 2.5.1 Experimental research
 - 2.5.2 Survey research
 - 2.5.3 Correlational Research

2.1 Meaning of Quantitative Research

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

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

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

Quantitative Research Characteristics

The characteristics of quantitative research are as follows:

- Generation of models, theories and hypotheses.
- Collecting imperial data.
- Modeling of data.
- Analysis of data.
- Experimental control.
- Variable manipulation.
- Development of instruments.
- Measurement methods

Some distinctive characteristics of quantitative research, are:

- **Structured tools:** Structured tools such as surveys, polls or questionnaires are used to gather quantitative data. Using such structure methods helps in collecting in-depth and actionable data from the survey respondents.
- **Sample size:** Quantitative research is conducted on a significant sample size that represents the target market. Appropriate sampling methods have to be used when deriving the sample so as to fortify the research objective
- **Close-ended questions:** Closed-ended questions are created in accordance with the objective of research. These questions help collect quantitative data and hence are extensively used in quantitative research.
- **Prior studies:** Various factors related to the research topic are studied before collecting feedback from respondents.
- **Quantitative data:** Usually, quantitative data is represented by tables, charts, graphs or any other numerical form. This makes it easy to understand the data that has been collected as well as prove the validity of the market research.
- **Generalization of results:** Results of this research method can be generalized to an entire population to take appropriate actions for improvement.

2.2 Sampling

Sampling is the process by which inference is made to the whole by examining only a part. It is woven into the fabric of our personal and public lives. In some cultures, a couple enters into marriage partnership on the basis of a short courtship. With a single grain of rice, a village housewife tests if all the rice in the pot has boiled, from a cup of tea a tea taster determines the quality of the brand of tea.

When some of the elements are selected with the intention of finding out something about the population from which they are taken, that group of elements is referred as a sample and the process of selection is called sampling. Simply, speaking the method of selecting a portion of the universe with a view to draw conclusions about the universe under study is known as sampling.

Method of Sampling

The method of selecting a sampling is of fundamental importance in sampling theory and usually depends upon the nature of the investigation. The sampling procedures, which are commonly used, may be broadly classified under the following heads:

Probability sampling (random sampling)

- Simple random sampling
- Stratified sampling
- Systematic sampling
- Cluster sampling
- Multi stage sampling

Non-Probability sampling (or non-random sampling)

- Judgment of purposive sampling
- Convenience
- Accidental sampling
- Quota sampling
- Sequential sampling

A. Simple Random Sampling

The simplest and common most method of sampling is the simple random sampling in which the sample is drawn unit by unit, with equal probability of selection for each unit at each draw. Therefore, simple random sampling is a method of selecting 'n' units out of a population of size 'N' units by giving equal probability to all units. It is a sampling procedure in which all possible combination of 'n' units that may be formed from the population has same probability of selection. It is also sometimes referred to as unrestricted random sampling. If a unit is selected and noted and returned to the population before the next drawing, this procedure is called simple random sampling with replacement.

Procedure of selecting a random sample

Since the theory of sampling is based on the assumption of random sampling, the technique of random sampling is of basic significance. Some of the procedures used for selecting a random sample are as follows:

- Lottery method
- Use of random number tables

1. Lottery method

In lottery method, a ticket / slip / chit, which are homogeneous in shape and size, may be associated with each unit of the population. Thus, each sampling unit has its identification mark from 1 to N. The procedure of selecting an individual as sample. All the tickets are placed in a container, in which a thorough mixing or reshuffling is possible, before each draw, and drawing a ticket is continued until a sample of required size is obtained. For replacement method, each selected ticket is noted and replaced back in the container before subsequent draws. Thus, procedure of numbering units on ticket and selecting one after reshuffling becomes cumbersome, when the population size is large. It may be rather difficult to achieve a thorough shuffling in practice.

2. Use of Random Number table

A random number table is an arrangement of digits 0 to 9, either a linear or rectangular pattern, where each position is filled with one of these digits. A table of random numbers is so constructed that all 0, 1, 2, ..., 9 appear independent of each other. Some random Number tables in common uses are

- Tippet's random number tables
- Fisher and Yates tables
- Kendall and Smith table
- A million random digits

A practical method of selecting a random sample is to choose units through a row or column one by one with the help of a table of random numbers, we can obtain numbers from 00 to 99, all having the same

frequency; similarly, three or more-digit number may be obtained by combining three or more rows or columns of these tables.

The simplest way of selecting a sample of the required size is by selecting a random number from 1 to N (Population size) and then taking the unit bearing that number. This method is more simple and faster than lottery method, but involves a number of rejections since all numbers greater than N appearing in the table are not considered for selection. The use of random number is, therefore, modified and some of these modified procedures are:

- Remainder approach
- Quotient approach

Merits of simple random sampling

- No possibility of personal bias affecting the results because the selection of items in the sample depends entirely on chance.
- It presents the universe in a better way.
- Probability theory can be used to measure the precision of sample result because of sampling errors follow the principles of chance.

Demerits

- Expensive and time consuming especially when the population is large.
- Omission of any unit fails whole method.

B. Stratified sampling

When the population characteristics are heterogeneous, then simple random sampling does not serve as a good design so as to represent the sample units from each characteristic. Then the entire population is divided/ sub divided into homogeneous groups or classes called strata. Then a simple random sampling procedure is used to draw sample from each stratum. The results of the samples from all strata are combined to estimate the universe parameters.

The main objective of stratification is to give a better cross section of the population so as to gain a higher degree of relative precision. To achieve this, following points are to be examined carefully:

- Formation of strata
- Number of strata to be made
- Allocation of sample size within each stratum

Analysis of data from stratified design

- The general principles of stratification are
- The strata should be non-overlapping and should together comprise the whole population.

- The stratification of population should be done in such a way that strata are homogeneous within themselves, with respect to the characteristic under study and heterogeneous between themselves (strata).
- In many (Practical) situations when it is difficult to stratify with respect to the characteristic under study, administrative convenience may be considered as the basis for stratification.

A stratified sampling may be either proportionate or disproportionate. In a proportionate stratified sampling plan, the number of items drawn from each stratum is proportional to the size of the strata. On the other hand, if an equal number of units are drawn from each stratum regardless of how the stratum is represented in the universe, it is called disproportionate (or mixed) sampling.

Merits

- The units selected represent the whole universe.
- The estimation of population parameters is more efficient.
- For large and heterogeneous population, stratified sampling is the best design.

Demerits

- This method requires more time and cost.
- Stratification of the units is quite cumbersome.

2.3 Data collection tools

The process of collecting information for research is called the method of data collection and the tools used are called tools of data collection. Data are essential to every enquiry. The nature of data may vary from research to research according to its typical paradigm, i.e. qualitative, quantitative or mixed. Quantitative data are numerical, while qualitative data are non-numerical. The methods and tools for collecting the data are also different on the basis of whether the data to be collected are qualitative or quantitative. The methods of data collection are different according to the sources too. The methods to elicit data from primary sources are obviously different from those used to find data from the secondary sources. In this chapter we will examine some of the essentially useful methods of collecting data from the primary sources. The following methods of data collection are most commonly used in the quantitative research.

- Questionnaire
- Interview
- Observation
- Testing
- Scales
- Check list

1. Questionnaire

Questionnaire is most probably the most common method of collecting the data from the primary sources such as people and participants. It consists of a set of questions relevant to the research problem, questions

and objectives. The respondents, e.g. teachers, students and staff have to write the answer of the questions listed in the questionnaire.

Kumar (2014) defines questionnaire as:

A questionnaire is a written list of questions, the answers to which are recorded by respondents. Thus, respondents read the questions, interpret what is expected and when write down the answers.

Since the respondents are required to write answers of our questions for the purpose of our research (it not for their purpose), the questionnaire must be friendly and favorable to them. General features of such effective questionnaire may include:

The questions should be clear and easy for the respondents to understand they must not be ambiguous and vague.

The format, layout or design of questionnaire should be attractive and clear. "The layout of a questionnaire should be such that it is easy to read and pleasant to the eyes.:

The sequence of questions needs to be logical and meaningful. It should be easy to follow.

the questions are to be stated in an interactive style so that the entire questionnaire would be persuasive, polite and effective.

The instructions about what the respondents are required to do should be clear and easy. one item should have only one theme. More than one idea within one item may confuse the respondents.

Each item must be relevant to the research problem.

Purpose of questionnaires

As an important method of collecting primary data for both qualitative and quantitative research, the questionnaires have some of the obvious purpose as mentioned below.

These precise points may also tell us the importance or advantages of the questionnaire. To elicit relevant information required by the problems and questions of one's research; To serve as tools of data collection for both qualitative and quantitative research designs; To evidence one's research from the primary data;

1. To complete research with less expensive but more effective tool of data elicitation;
2. To offer greater 'anonymity'. It means that persons whose ideas were obtained from the questionnaire are not mentioned in the research. So, people can freely express their opinions about any issue given to them.
3. To survey authentic opinion, ideas or knowledge of people about any relevant issue in short period of time.
4. To enrich research with first hand data required by it.

Types of questionnaires:

- Closed ended questionnaires
- Open ended questionnaires

Closed ended questionnaires:

The closed ended questionnaires are those that provide respondents with limited number of options out of many for each problem. The respondents have to choose one of the options as their belief, attitude or preference. This means the closed questions are listed in such questionnaires. The questions do not allow respondents to express freely their ideas.

The commonly agreed advantages of the closed questions are that the information obtained from them is clear. It is easier and more scientific than longer pieces of information even for analysis and interpretation. So, the objectivity and reliability of research is ensured to maximum extent by closed-ended questionnaires. Such questionnaires are usually common in quantitative research.

Closed-ended questionnaires have some disadvantages, too. One of the main demerits often pointed out by the expert is that the information obtained through them lacks depth and variety. The creative and critical aspects of the respondents are totally ignored. There is also a chance that the respondents choose one of many options without thinking much about them. Then, the reliability of information may also be questioned. Similarly, the options of the closed questions may be guided by researcher's biasness.

Closed-ended questionnaire designs:

The closed ended questionnaires involve those questions which have options for respondents to choose as their attitude, preferences, ideas or opinions.

Some of the important designs of closed-ended questionnaires are as follow:

Model – 1:

Questionnaire with categorical scale

Please indicate your opinion by placing a tick in the appropriate category against each statement.

The lecturer	strongly agree	agree	uncertain	disagree	strongly disagree
1 knows the subject well					
2 Shows concern for students					
3 Has poor communication skills					
4 Knows has to teach					
5 Can explain difficult concepts in simple terms					
6 Is hard to approach					

Model 2 (Questionnaire with numerical scale)

Circle a number below to show how often you do the following activities. 5 indicates most often and 1 indicates least often.

Questions	Frequency				
1 Do you record new vocabulary items while watching English movies and videos?	5	4	3	2	1
2 Do you list new vocabulary from newspapers?					
3 Do you regularly practice vocabulary exercise additional to your lessons?					
4 Do you have a different vocabulary journal?					
5 Do you download and practice vocabulary games?					
6 Do you and your friends share new words regularly?					

Model 3 (Questionnaire with multiple choice items)

Tick the best option

1 What learning materials do you frequently use?

a. Books b. Teachers' notes c. Others

Model 4 (Questionnaire with the options of statements)

Tick (✓) the options that you find important. More than one option can also be ticked. If you want to give new ideas, you may use separate paper.

1 What physical changes can be brought to improve the academic environment of your college?

- Classrooms need to be equipped with multi media / power point
- Teaching materials and equipment need to be managed properly as required.
- Recreation and sports materials need to be availed to the students.
- College buildings need to be painted regularly.
- Library facilities and management need to be revised.

Model 5 (Questionnaire with rank order design)

Who encourage students in the classroom interaction? Put the persons in the order of importance, beginning from the most important one.

Teacher	Parents	Group leaders	peers	discipline incharge
Group members	Principal	class captain	A-graders	

Model 6 (Questionnaire with contingency questions, i.e. additional questions)

Did you think teachers need to explain the rules of grammar for their students?

☐ Yes ☐ No

Open ended Questionnaire

The questionnaires that involve a list of open-ended question are termed as open-ended questionnaires. These are the questions which allow respondents to freely express their ideas, opinion, attitude and experiences. The respondents have to write down answers in their own words. Usually, qualitative research makes use of this type of question.

The different designs of the open-ended questionnaire too. The questions included in the list may determine the design of the questionnaire. Some of the popular designs are presented below. These designs are more often used in the qualitative research rather than in the quantitative study.

Model 1 (Questionnaire with information question)

Write your opinions about the following issues.

1 It is good to allow your students to use the mobile phone in the college? Why?

.....

Model 2 (Questionnaire with double barreled items)

1 What do you think about the role of extensive reading in the learning of a language?

.....

Model 3 (Questionnaire with contingency items)

1 Do you prefer listening English songs?

☐ Yes ☐ No

If yes, what is its role in the learning of English

If no, what is the reason behind not listening English song? Elaborate if there are more than one reason too.

Differences between open-ended questionnaires and closed-ended questionnaires:

open-ended questionnaire	closed-ended questionnaire
1. The respondents are not conditioned by a set of limited ideas.	1. The respondents have to choose from the only options given by the researcher.
2. The research result may be more subjective and flexible.	2 The research result may be more objective, scientific and rigid.
3. The findings may be less reliable.	3 There's a greater possibility of reliability of research findings.
4. The construction of questions is easier, but analysis is more complex and subjective.	4 The construction of questions is rather complex and time consuming but analysis is systematic, easy and objective.
5. The respondents may feel difficult and time-consuming to answer.	5 The respondents may feel easy to answer since they're nothing to do more than choosing options.
6. There's enough space for creativity and critical aspect of the respondents.	6 There's no room for respondents to express their critical and creative thoughts.

2. Test

Tests are very useful in different phases of research. As a data collection method, testing is essential in the experimental research. Basically, in the experimental research, students' achievement and proficiency need to be assessed. For this testing is the only method for data collection since questionnaire, interview or observation may not accurately assess the proficiency of people. Testing as a procedure is a method, and test item are the tools of data collection. If the research is focused on assessment of people such as students, teachers or so, the data collection method is obviously testing and test items are used in such research as data collection tools. In the experimental/ research usually in the ELT classroom, certain techniques or materials are experimented. For example, 'effectiveness' of group work in learning English can be experimented by research. For this there may be tests for students before and after they are taught by using group work. Their test scores in English before and after group work teaching can be

compared and effectiveness of the group work (i.e. the new treatment) can be determined objectively. Thus, tests are useful tools of experimental research.

Purposes of tests

Tests are useful tools and method of collecting the primary data research. Particularly in the educational research which is focused on testing and learning, tests are essential. Though they may not be remarkable in the surveys of attitudes, opinions and conditions, they are remarkably important in the surveys and experimental design which are focused on the proficiency, achievement and aptitude of students in the language learning research. So, the importance and purposes of tests are concerned with finding out accurately the proficiency level of the sampled population. Tests are obviously more useful in quantitative research than in the qualitative one. Some of clearly recognized purposes of tests particularly in the research are;

- To determine the proficiency level of students.
- To state test scores as the numerical data for experimental and other types of research.
- To help to experiment the effectiveness of certain variables.
- To assess the standard of knowledge/ skill possessed by the samples such as students, teachers, etc. Other tools such as questionnaires and observation are not used for assessment, but for description and comparison. When questionnaires find out attitudes, backgrounds and opinions of students, test items find out their level of knowledge, achievement in learning and proficiency in student matter.
- To state subjective as well as objective skills and knowledge of students.
- To state the achievement and proficiency of students before (pre- test) and after (posttest) the experiment on them.

Types of tests

1. pretest and post test
2. subjective test and objective test
3. Oral test and written test
4. Norm- referenced test and criterion reference test

Pre- test and post test

Pretest and posttest are very common tools for collecting primary data in the educational research. These types of tests are commonly used in the action research and experimental research. In such research design students or subjects are given special 'treatment', e.g. group work, use of only target language, use of the internet and so on. Then this treatment needs to be assessed. To determine the effectiveness of the treatment, one test is administered before the treatment and another test is administered after the treatment. The test results will show how much the students have achieved from that treatment.

Subjective test and objective test

Both modes of test subjective and objective are important in the research focused on teaching and learning. The choice will depend on the basic goal of research. If the research is related with assessing the ability of subjects to express freely on given issue, the subjective tests are preferred. And if research is focused on small components of different skill. However, from the subjective tests too, grammatical

knowledge, vocabulary, listening/speaking abilities, reading/ writing abilities can be tested both individually as well as interactively. Integration of skills and aspects is easier and more effective in subjective tests than in the objective ones.

Subjective tests are those which require subjects to express something orally or in written form in rather freeway. But objective tests provide limited chance for subjects to express freely their knowledge. The options for answers are given or very short responses (e.g. true/false, matching, filling in, etc.) are required. Both types of test items, i.e. subjective and objective are important in their places.

Oral and written test

In terms of the channels used in the tests, they can be classified into oral and written types. The oral tests are those which, as their name suggest, have the spoken form. The subjects (e.g. students) are required to respond the test item orally. On the other hand, written tests are those which require the subjects to reply in the written form.

Norm-referenced test and criterion-referenced test

The two types of tests, norm-referenced tests and criterion-referenced tests are also very common and important tools of data collection for primary research. These two tests have two different purposes, so usefulness of each is so unique. The norm-referenced test compares students' achievements relative to other students' achievements. There is a standard norm which the students of a level and age of group need to meet. For example, the average score obtained by grade x students of a school in English is 52. This may be norm. And, the preference of other students is also measured comparing with this norm. This type of test that involves comparison between the achievement of student is known as norm referenced test. This is really useful in the research when we have to compare student's ability with a standard established norm. For example, if one wants to research how many students of his or her class meet the national standard of English, the norm-referenced tests will be absolutely important.

Another type of test that we can use as a data collection tool is criterion referenced test. It is more common than the norm referenced test. The criterion referenced test does not compare between students' an achievement, but "it provides the researcher with information exactly what a student has learnt, what he or she can do". It requires students to fulfill a given a set of criteria, e.g. in listening, in speaking or so. Students' actual proficiency and achievement are tested by this category of test. If we have to find out the effectiveness of any variable (such as authentic books, or the internet) in learning English, we can teach students using the given variable, and at the end we can test their achievement using criterion referenced test. It will give us data about how much they can do in English.

3. What is a rating scale?

A rating scale is a tool used for assessing the performance of tasks, skill levels, procedures, processes, qualities, quantities, or end products, such as reports, drawings, and computer programs. These are judged at a defined level within a stated range. Rating scales are similar to checklists except that they indicate the degree of accomplishment rather than just yes or no. Rating scales list performance statements in one column and the range of accomplishment in descriptive words, with or without numbers, in other columns. These other columns form "the scale" and can indicate a range of achievement, such as from poor to excellent, never to always, beginning to exemplary, or strongly disagree to strongly agree. Some tasks, such as procedures and processes, need to be observed in order to be assessed. Characteristics of rating scales Rating scales should:

- Have criteria for success based on expected outcomes
- Have clearly defined, detailed statements this gives more reliable results. For assessing end products, it can sometimes help to have a set of photographs or real samples that show the different levels of achievement. Students can visually compare their work to the standards provided.
- Have statements that are chunked into logical sections or flow sequentially
- Include clear wording with numbers when a number scale is used as an example, when the performance statement describes a behavior or quality, 1 = poor through to 5 = excellent is better than 1 = lowest through to 5 = highest or simply 1 through 5. The range of numbers should be the same for all rows within a section (such as all being from 1 to 5). The range of numbers should always increase or always decrease. For example, if the last number is the highest achievement in one section, the last number should be the highest achievement in the other sections.
- Have specific, clearly distinguishable terms using good then excellent is better than good then very good because it is hard to distinguish between good and very good. Some terms, such as often or sometimes, are less clear than numbers, such as 80% of the time.
- Be short enough to be practical
- Highlight critical tasks or skill
- Indicate levels of success required before proceeding further, if applicable
- Sometimes have a column or space for providing additional feedback
- Have space for other information such as the student's name, date, course, examiner, and overall result
- Be reviewed by other instructors

4. Checklists

What is a checklist?

A checklist is a tool for identifying the presence or absence of conceptual knowledge, skills, or behaviors. Checklists are used for identifying whether key tasks in a procedure, process, or activity have been completed. The tasks may be a sequence of steps or include items to verify that the correct sequence was followed. You may need to observe the tasks being followed because, in general, you cannot judge what tasks the learner did from the end product. Remember that some attitudes may be indirectly observed. For example, safety attitudes can be observed by seeing if safety equipment is worn. A checklist may also be given to students to follow in completing a procedure (e.g., in a shop or lab). A checklist itemizes task descriptions in one column and provides a space beside each item in a second column to check off the completion of the task.

Characteristics of checklists

Checklists should:

- Have criteria for success based on expected outcomes

- Be short enough to be practical (e.g., one sheet of paper)
- Have tasks chunked into logical sections or flow from start to finish
- Highlight critical tasks
- Have sign-off points that prevent students from proceeding without approval, if needed
- Be written with clear, detailed wording to minimize the risk of misinterpretation
- Have space for other information such as the student's name, date, course, examiner, and overall result
- Be reviewed by other instructors

2.4 Statistical analysis

What is statistical analysis? It's the science of collecting, exploring and presenting large amounts of data to discover underlying patterns and trends. Statistics are applied every day – in research, industry and government – to become more scientific about decisions that need to be made. For example:

Researchers keep children healthy by using statistics to analyze data from the production of viral vaccines, which ensures consistency and safety.

2.5 Types of quantitative research:

1. Experimental research
2. Survey research
3. Correlational research

2.5.1 Experimental research

Experimental research tries to ascertain through experiment the effect of any special treatment on a given situation, people or entity. Technically, such special treatment is termed as independent variable or cause.

Different definitions of experimental research can be found in the literature of research. Though their focuses are different, the basic assumption is identical, that is experimental research is aimed at finding out the cause effect relationship between different variables with the help of systematic experiments and tests. Let us now view some of the well-known definitions.

In experimental studies a researcher starts with the cause and waits to observe its effects, (Kumar) Experimental research is an investigation conducted under controlled circumstances, usually involving subjecting someone or something to some kind of treatment and measuring the result. (Wallace)

Characteristics of Experimental research:

As an important design of research, experimental study has the following common characteristic features.

- The basic purpose of the research is to test the cause-effect relationship between two or more variables.
- It is focused on making and testing the hypothesis about the effectiveness of certain factor in a given area, but not on making survey, narratives or descriptions.

- It is systematic, objective and scientific.
- It involves experimentation of special treatment or variable.
- It usually has two groups: control and experimental. The control group is not given any treatment, whereas the experimental group receives special treatment.
- It involves two kinds of tests too: pre-test and post-test. The pre-test is also termed as 'before observation', and the post test is also termed as 'after observation'. The pretest is given before the special treatment and the post test is given after it.
- It involves a comparison leads to an objective conclusion of the research.

Types of experimental research:

1. **Pre-experiment study:** It refers to the research design which involves only one group in the experiment. There is no control group in this type of experimental research. Only experimental group is experimented about the particular treatment with the help of re-test and post-test.
2. **Quasi-experiment study:** In this type of research, both groups are involved. The control group is actually controlled from the treatment. They are not exposed to any special treatment. They are kept in the usual environment. The experimental group is provided with special treatment and special environment. There are both types of tests, too. The pre-test and post-test results of both groups are compared for the conclusion. The uniqueness of this type of experimental research is that there's no random sampling for the groups. The experimental group and control group are formed by the researcher purposively.
3. **True experimental study:** All the basic features of experimental research are present in this type of research. There are control and experimental groups. Data are collected through pretests and posttest. Data are analyzed by using statistical means. There's comparison between control and experimental groups. And most importantly, subjects are sampled randomly within each group. The researcher does not choose particular subject for particular group.

Research Methodology

Experimental design states a clear and unique roadmap for the research. Experimental research is particularly different from other designs of research regarding methods of sampling, formation of the research groups, data collection tools and data analysis procedures. Several designs of experimental research are also suggested regarding their methodology. In this sub section we discuss in brief specific features of research methodology used in the experimental research.

1. Sampling procedures:

In the experimental research both random and non-random sampling procedures can be used. There are usually two groups: control group and experimental group. The standard and ability of the subjects of each group need to be equal. So, while sampling the subjects, random-sampling strategies are preferred. Each subject gets equal chance to be in the control and in the experimental groups.

If we sample the population with random- procedures, our possible biasness can be minimized. Sometimes a researcher may wish to select more able subjects in the experimental group. But random sampling discourages this. The differences between the results of the two groups can be the true effect of the treatment.

Purposive sampling is also useful in certain context. If the researcher is familiar about the ability of the subject (e.g. students), it is more effective to form the groups purposively according to their abilities.

2. Data collection tools:

The common data collection tools in the experimental research are pre- test. These tests are also called pre-observation and post observation. The pre-test is administered before the treatment or intervention to the experimental group. And the post test is administered after the treatment. The gap between the results of the two tests indicates the effectiveness of the treatment or experiment.

3. Data analysis procedure:

The primary data for experimental research are usually the scores of the pre-test and the post test. These data are analyzed by using the statistical methods such as mean, standard deviation and t-test. These help to detect accurately the effect of the treatment upon the dependent variable. The basic formulae to calculate mean and standard deviation are:

2.5.2 Survey Research

Survey is a research design that usually collects the views, opinions and perceptions of people about a striking situation, issue or topic. For example, views of students about their English class can be collected by using a structured questionnaire. Then the views can be analyzed to reach to a conclusion. The survey is mostly guided by the quantitative paradigm of research and this makes use of structured tools of data collection. The analysis is usually numerical calculations. However, if surveys are conducted with the help of open-ended tools and the information is interpreted by using descriptions and narratives, then they may be reflecting typically the qualitative paradigms. What is more recently found in the educational sectors such as English language teaching and learning is that surveys are guided by mixed method approach. Both quantitative and qualitative procedures are used in the collection and analysis of data. Numerical and objective data are interpreted with supportive information in the form of descriptions and narratives.

Definitions and features of survey

Survey can be defined from various perspectives such as topic and objectives, data collection and analysis methods, findings and conclusion and so on. Let us review some of the definitions.

The basic goal of survey is to establish a baseline of the existing situation or to obtain a snapshot of conditions, attitudes and events at a single point in time. (Nunan, 2010)

Surveys, in which people are asked questions about their opinions or behavior, are common feature of academic work, especially in the fields such as education, psychology and social science. (Bailey, 2010)

Some specific features of the survey design can be drawn from the review of these definitions. The surveys:

- Are focused on particular condition, issue or behavior of a particular context;
- Aim at finding out people's attitudes and views about the identified problem;
- Gather information about the problem at a particular time;
- Describe the existing conditions without any interference on it;
- Are carried out to make generalizations from majority of opinions and attitudes;
- Are common in the educational sectors including English language teaching and learning, English language teacher's professional development, second language

acquisition, curriculum development and so on.

Research methodology in surveys

A typical methodology is used for survey research. As an important research design, the survey research gives clear guidelines for the researcher about its research procedures, particularly about the methods of sampling, data collection tools and data analysis procedures. The major considerations about the research methods used in survey are precisely discussed in the points below.

Since the basic goal of survey is to generalize views or opinions, the data must be gathered from a larger sample size. If sample size is large, only then the generalization made by survey becomes reliable and representative of the total population.

The sample needs to be representation of the population as a whole. So, while sampling the population the researcher needs to pay attention not only on the sample size but also on their characteristics (distribution, status and qualities). Respondents should be selected from different geographical area, backgrounds, ages, interests, fields, gender and so on. The characteristics of respondents are based on survey topic and objectives.

Sampling procedure are open for survey. Both probability and non-probability sampling procedure can be used in the surveys. These are also called random and non-random sampling. Basically, random sampling procedures (e.g. systematic sampling stratified sampling and cluster sampling) are more preferable in the surveys. Here, the samples are selected without any preference or biasness of the researcher. Selection is more scientific and systematic. Every unit in the total population get equal chance to be selected. So, sample becomes representative of the whole population. From every stratum and cluster and population is sampled. Purpose sampling is also use in the small-scale surveys.

The data collection tools used for the survey research are commonly questionnaires, structured interviews and observation checklist. Test is also used to find out the common tendency of students' proficiency and achievements in their learning. It is suggested that the survey tools such as questionnaires, interview schedule, observation checklist and tests need to be piloted in a smaller

group before employing them in the target group, i.e. the sample.

2.5.3 Correlation Research:

Correlation research is a type of descriptive research (as opposed to experimental research). There are two main situations where you might choose to do correlation research.

Correlation research is a type of non-experimental research method, in which a researcher measures two variables, understands and assess the statistical relationship between them with no influence from any extraneous variable.

Our mind can do some brilliant things. For example, it can memorize the jingle of a pizza truck. Louder the jingle, closer is the pizza truck to us. Who taught us that? Nobody! We relied on our understanding and came to a conclusion. We just don't stop there, do we? If there are multiple pizzatrucks in the area and each one has a different jingle, we would be able to memorize it all and relate the jingle to its pizza truck.

This is precisely what correlation research is, establishing a relationship between two variables, "jingle" and "distance of the truck" in this particular example. Correlation research is looking for variables that seem to interact with each other so that when you see one variable changing, you have a fair idea how the other variable will change.

Correlation Research Example

The correlation between two variables is shown through correlation coefficient (A correlation coefficient is a statistical measure that calculates the strength of the relationship between two variables), that is a value measured between -1 and +1. When the correlation coefficient is close to

+1 then there is a positive correlation between the two variables and the value is close to -1, then there is a negative correlation between the two variables and when the value is close to zero then there is no relationship between the two variables.

Let us take an example to understand correlation research.

Consider hypothetically, a researcher is studying a correlation between cancer and marriage. In this study, there are two variables: cancer and marriage. Let us say marriage has a negative correlation with cancer. This means that people who are married are less likely to develop cancer.

However, this doesn't necessarily mean that marriage directly avoids cancer. In correlation research, it is not possible to establish the fact, what causes what. It is a misconception that correlation research involves two quantitative variables, however the fact is two variables are measured, but neither is changed. This is true independent of whether the variables are quantitative or categorical.

BASIS FOR COMPARISON	SURVEY	EXPERIMENT
Meaning	Survey refers to a technique of gathering information regarding a variable under study, from the respondents of the population.	Experiment implies a scientific procedure wherein the factor under study is isolated to test hypothesis.
Used in	Descriptive Research	Experimental Research
Samples	Large	Relatively small
Suitable for	Social and Behavioral sciences	Physical and natural sciences
Example of	Field research	Laboratory research
Data collection	Observation, interview, questionnaire, case study etc.	Through several readings of experiment.

Types of Correlation Research

Essentially there are three types of correlation research that have been identified:

1. **Positive correlation:** A positive correlation between two variables is when an increase in one variable leads to an increase in the other variable and a decrease in one variable will see

a decrease in the other variable. For example, the amount of money a person has might positively correlate with the number of cars he has.

2. **Negative correlation:** A negative correlation is quite literally the opposite of positive correlation. This means, if there is an increase in one variable, the second variable will show a decrease and vice versa.

For example, the level of being educated might negatively correlate with the crime rate when an increase in one variable leads to a decrease in another and vice versa. This means if in some ways the level of education in a country is improved, it can lead to lowering the crime rates. Please note, that this doesn't mean that lack of education leads to crimes. This means lack of education and crime is believed to have a common reason: poverty.

3. **No correlation:** In this third type, two variables are not correlated. This means a change in one variable may not necessarily see a change in the other variable. For example, being a millionaire and happiness is not correlated. This means an increase in money doesn't lead to happiness.

Data Collection in Correlation Research

The distinctive feature of correlation research is that neither of the variables involved is manipulated. It doesn't matter how or where the variables are measured. A researcher could observe participants in a closed environment or in a public setting.

There are two data collection methods that are used to collect information in correlation research.

Naturalistic Observation

Naturalistic observation is a way of data collection in which people's behavior is observed in their natural environment, in which they typically exist. This method is a type of field research. It could mean a researcher might be observing people in a grocery store, at the cinema, playground or similar places.

Researchers who are usually involved in this type of data collection make observations as unobtrusively as possible so that the participants who are involved in the study are not aware that they are being observed else they might deviate from being their natural self.

Ethically this method is acceptable if the participants remain anonymous and if the study is conducted in public setting, where people would not normally have an expectation of complete privacy. As mentioned previously, taking an example of the grocery store where people can be observed while collecting an item from the shelf and putting in the shopping bags. This is ethically acceptable and that the reason most researchers choose public settings for recording their observation. This data collection method could be both qualitative or quantitative.

Archival Data

Another approach to correlation data is the use of archival data. Archival data is the data that has been previously collected by doing similar kind of research. Archival data is usually made available through primary research.

In contrary to naturalistic observation, the information collected through archived data can be quite straightforward. For example, counting the number of people named Richard in the various states of America based on social security records is quite straightforward.

Unit 3: QUALITATIVE RESEARCH

- 3.1 Meaning and characteristics of qualitative research
- 3.2 Purposive sampling
- 3.3 Data collection strategies: semi-structured and unstructured interview, participant observation, focus group discussion
- 3.4 Coding and thematic analysis
- 3.5 Types of qualitative research
 - 3.5.1 Ethnography
 - 3.5.2 Narrative study

Qualitative research is a scientific method of observation to gather non-numerical data. This type of research "refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and description of things" and not to their "counts or measures". This research answers why and how a certain phenomenon may occur rather than how often. Qualitative research approaches are employed across many academic disciplines, focusing particularly on the human elements of the social and natural sciences; In less academic contexts, areas of application include qualitative market research, business, service demonstrations by non-profits, and journalism.

3.1 Qualitative Research: Definition

Interviewer/researcher also tries to understand their motivation. Qualitative research is defined as a market research method that focuses on obtaining data through open-ended and conversational communication.

This method is not only about “what” people think but also “why” they think so. For example, consider a convenience store looking to improve its patronage. A systematic observation concludes that the number of men visiting this store are more. One good method to determine why women were not visiting the store is to conduct an in-depth interview of potential customers in the category.

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

Therefore, the qualitative research methods allow for in-depth and further probing and questioning of respondents based on their responses, where the and feelings.

Attributes	Qualitative Research Methods	Quantitative Research Methods
Analytical objectives	This research method focuses on to describe individual experiences and beliefs.	Quantitative research method focuses on describing the characteristics of a population.
Types of questions asked	Open ended questions	Closed ended questions

Data collection Instrument	Use semi-structured methods such as in-depth interviews, focus groups discussion, and participant observation	Use highly structured methods such as structured observation using questionnaires and surveys
Form of data produced	Descriptive data	Numerical data
Degree of flexibility	Participant responses affect how and which questions researchers ask next	Participant responses do not influence or determine how and which questions researchers ask next

Characteristics of Qualitative Research

Qualitative observational research can be characterized by at least ten overlapping themes that researchers should be aware of when collecting and analyzing data. In *Qualitative Evaluation Methods*, Patton (1980) discusses these characteristics to help researchers design studies. These characteristics are explained below using examples relating to Black English Vernacular (BEV) and the African American rhetorical tradition.

1. Naturalistic Inquiry

Qualitative observational research is naturalistic because it studies a group in its natural setting. Patton explains, "Naturalistic inquiry is thus contrasted to experimental research where the investigator attempts to completely control the condition of the study".

2. Inductive analysis

This characteristic is prevalent (established) in qualitative research because it allows the observer to become immersed in a group. The researcher starts with answers, but forms questions throughout the research process. Hypotheses and theories can continuously change depending on what the observer wants to know. For instance, an observer might realize that the purpose of many of BEV speech acts is to build up the reputation of the speaker. Thus, the observer's job is to find out why. This could lead to further research into the rhetorical strategies and purposes of BEV.

3. Holistic perspective

Almost every action or communication must be taken as a part of the whole phenomenon of a certain community or culture. However, this characteristic of qualitative observational research can be bothersome because it can lead researchers into taking every little action into consideration when writing a narrative. For instance, a researcher might notice that many speakers of BEV employ a particular rhetorical strategy in their writing. However, this phenomenon might not have anything to do with BEV and its traditions or strategies. It might be linked to something else in their lives.

4. Personal contact and insight

The researcher is responsible for becoming a part of a group to get a more in-depth study. However, the researcher also has to be aware of biases (both good and bad). For example, researchers who do not consider BEV a legitimate form of discourse should be aware of and acknowledge that bias before studying BEV. In contrast, a researcher who speaks BEV might ignore some negative implications of this discourse.

5. Dynamic systems

Qualitative observational research is not concerned with having straightforward, right or wrong answers. In addition, change in a study is common because the researcher is not concerned with finding only one answer. For example, a researcher could gain a different perspective on BEV by observing and interviewing a wide range of BEV speakers; the researcher could study both male and female speakers and speakers from different educational and geographical locations.

6. Unique case orientation

Researchers must remember that every study is special and deserves in-depth attention. This is especially necessary for doing cultural comparisons. For instance, a researcher may believe that "Jive" (a way of talking in the 1970s) and BEV are the same because they both derive from African-American culture. This is untrue, and BEV should be considered a unique form of discourse, with its own history, conventions, and uses/contexts.

7. Context sensitivity

Researchers must realize the different variables, such as values and beliefs that influence cultural behaviors. For example, knowing that the rhetorical strategies of BEV--signifying, running it down, putting down, putting on, etc.--are context specific, a researcher might examine what values and beliefs influence this context specificity.

8. Empathic neutrality

Ideally, researchers should be non-judgmental when compiling findings. Because complete neutrality is impossible, this characteristic is a controversial aspect of qualitative research. For instance, it would be difficult for a researcher not to judge students who completely stop speaking BEV upon coming to college, since BEV has strong roots in African-American culture and is strongly tied to speakers' identities. This example might illustrate the difficulties in remaining completely neutral.

9. Design flexibility

Researchers can continue to do research on other topics or questions that emerge from the initial research. Some topics that could emerge from studying college students who are speakers of BEV are student composing processes, their academic success, or their assimilation or accommodation to academic discourse.

10. Qualitative data

This is a detailed description of why a culture is the way it is. Triangulation or the use of many data gathering methods, such as field notes, interviews, writing samples, and other data helps determine the cultural phenomenon of a group. For example, a researcher could collect personal letters from different BEV speakers to find a common bond that is inherent in all their personal letters. The researcher could then interview the participants about their letter writing to get diverse points of view.

3.2 PURPOSIVE SAMPLING

Purposive sampling represents a group of different non-probability sampling techniques. Also known as judgmental, selective or subjective sampling, purposive sampling relies on the judgment of the researcher when it comes to selecting the units (e.g., people, cases/organizations, events, pieces of data) that are to be studied. Usually, the sample being investigated is quite small, especially when compared with probability sampling techniques.

Unlike the various sampling techniques that can be used under probability sampling (e.g., simple random sampling, stratified random sampling, etc.), the goal of purposive sampling is not to randomly select units from a population to create a sample with the intention of making generalizations (i.e.,

statistical inferences) from that sample to the population of interest [see the article: Probability sampling]. This is the general intent of research that is guided by a quantitative research design.

The main goal of purposive sampling is to focus on particular characteristics of a population that are of interest, which will best enable you to answer your research questions. The sample being studied is not representative of the population, but for researchers pursuing qualitative or mixed methods research designs, this is not considered to be a weakness. Rather, it is a choice, the purpose of which varies depending on the type of purposive sampling technique that is used. For example, in homogeneous sampling, units are selected based on their having similar characteristics because such characteristics are of particular interest to the researcher. By contrast, critical case sampling is frequently used in exploratory, qualitative research in order to assess whether the phenomenon of interest even exists (amongst other reasons).

During the course of a qualitative or mixed methods research design, more than one type of purposive sampling technique may be used. For example, critical case sampling may be used to investigate whether a phenomenon is worth investigating further, before adopting a maximum variation sampling technique is used to develop a wider picture of the phenomenon. We explain the different goals of these types of purposive sampling technique in the next section.

There are a wide range of purposive sampling techniques that you can use (see Patton, 1990, 2002; Kuzel, 1999, for a complete list). Each of these types of purposive sampling technique is discussed in turn:

- Maximum variation sampling
- Homogeneous sampling
- Typical case sampling
- Extreme (or deviant) case sampling
- Critical case sampling
- Total population sampling
- Expert sampling

1. Maximum variation sampling

Maximum variation sampling, also known as heterogeneous sampling, is a purposive sampling technique used to capture a wide range of perspectives relating to the thing that you are interested in studying; that is, maximum variation sampling is a search for variation in perspectives, ranging from those conditions that are viewed to be typical through to those that are more extreme in nature. By conditions, we mean the units (i.e., people, cases/organizations, events, pieces of data) that are of interest to the researcher. These units may exhibit a wide range of attributes, behaviors, experiences, incidents, qualities, situations, and so forth. The basic principle behind maximum variation sampling is to gain greater insights into a phenomenon by looking at it from all angles. This can often help the researcher to identify common themes that are evident across the sample.

2. Homogeneous sampling

Homogeneous sampling is a purposive sampling technique that aims to achieve a homogeneous sample; that is, a sample whose units (e.g., people, cases, etc.) share the same (or very similar) characteristics or traits (e.g., a group of people that are similar in terms of age, gender, background, occupation, etc.). In this respect, homogeneous sampling is the opposite of maximum variation sampling. A homogeneous

sample is often chosen when the research question that is being address is specific to the characteristics of the particular group of interest, which is subsequently examined in detail.

3. Typical case sampling

Typical case sampling is a purposive sampling technique used when you are interested in the normality/typicality of the units (e.g., people, cases, events, settings/contexts, places/sites) you are interested, because they are normal/typical. The word typical does not mean that the sample is representative in the sense of probability sampling (i.e., that the sample shares the same/similar characteristics of the population being studied). Rather, the word typical means that the researcher has the ability to compare the findings from a study using typical case sampling with other similar samples (i.e., comparing samples, not generalizing a sample to a population). Therefore, with typical case sampling, you cannot use the sample to make generalizations to a population, but the sample could be illustrative of other similar samples. Whilst typical case sampling can be used exclusively, it may also follow another type of purposive sampling technique, such as maximum variation sampling, which can help to act as an exploratory sampling strategy to identify the typical cases that are subsequently selected.

4. Extreme (or deviant) case sampling

Extreme (or deviant) case sampling is a type of purposive sampling that is used to focus on cases that are special or unusual, typically in the sense that the cases highlight notable outcomes, failures or successes. These extreme (or deviant) cases are useful because they often provide significant insight into a particular phenomenon, which can act as lessons (or cases of best practice) that guide future research and practice. In some cases, extreme (or deviant) case sampling is thought to reflect the purest form of insight into the phenomenon being studied.

5. Critical case sampling

Critical case sampling is a type of purposive sampling technique that is particularly useful in exploratory qualitative research, research with limited resources, as well as research where a single case (or small number of cases) can be decisive in explaining the phenomenon of interest. It is this decisive aspect of critical case sampling that is arguably the most important. To know if a case is decisive, think about the following statements? If it happens there, it will happen anywhere? or? if it doesn't happen there, it won't happen anywhere? and? If that group is having problems, then we can be sure all the groups are having problems? (Patton, 202, p.237). Whilst such critical cases should not be used to make statistical generalizations, it can be argued that they can help in making logical generalizations. However, such logical generalizations should be made carefully.

6. Total population sampling

Total population sampling is a type of purposive sampling technique where you choose to examine the entire population (i.e., the total population) that has a particular set of characteristics (e.g., specific experience, knowledge, skills, exposure to an event, etc.). In such cases, the entire population is often chosen because the size of the population that has the particular set of characteristics that you are interested in is very small. Therefore, if a small number of units (i.e., people, cases/organizations, etc.) were not included in the sample that is investigated, it may be felt that a significant piece of the puzzle was missing.

7. Expert sampling

Expert sampling is a type of purposive sampling technique that is used when your research needs to glean knowledge from individuals that have particular expertise. This expertise may be required during the exploratory phase of qualitative research, highlighting potential new areas of interest or opening doors to other participants. Alternately, the particular expertise that is being investigated may form the basis of your research, requiring a focus only on individuals with such specific expertise. Expert

sampling is particularly useful where there is a lack of empirical evidence in an area and high levels of uncertainty, as well as situations where it may take a long period of time before the findings from research can be uncovered. Therefore, expert sampling is a cornerstone of a research design known as expert elicitation.

3.3 Data collection strategies

Different methods are used in qualitative research. The most common are interviews, focus group discussions, observational methods and document analysis. Combining two or more data collection methods, for instance interviews as well as focus groups ('data triangulation') enhance the credibility of the study.

- Semi structured interview
- Unstructured interview
- Participant observation
- Focus group discussion

1. Semi structured interview:

A semi-structured interview is a meeting in which the interviewer does not strictly follow a formalized list of questions. They will ask more open-ended questions, allowing for a discussion with the interviewee rather than a straightforward question and answer format.

The interviewer may prepare a list of questions but does not necessarily ask them all, or touch on them in any particular order, using them instead to guide the conversation. In some cases, the interviewer will prepare only a list of general topics to be addressed, called an interview guide.

The employer usually analyzes the requirements for the job and builds a profile of the ideal candidate. They will then develop questions and conversation starters to draw information from the interviewee about their qualifications. Depending on how the candidate answers, the interviewer may ask follow up questions to gain a more in-depth understanding.

Semi-Structured Interview Technique

The employer usually analyzes the requirements for the job and builds a profile of the ideal candidate. They will then develop questions and conversation starters to draw information from the interviewee about their qualifications. Depending on how the candidate answers, the interviewer may ask follow up questions to gain a more in-depth understanding.

For example, an employer hiring a senior public relations representative might identify the following characteristics as vital to success in that role within their organization:

- Proven track record of media placements
- An extensive set of media contacts at key outlets
- Success in landing new clients
- High-level skills with writing press releases
- Proficiency in developing content for online media
- Evidence of orchestrating successful events
- Strategic planning skills and strong supervisory skills

As a candidate, you would need to be prepared to expand on these themes, with anecdotes from your experiences that highlight these qualifications.

2. Unstructured interview:

An unstructured interview is an interview in which there is no specific set of predetermined questions, although the interviewers usually have certain topics in mind that they wish to cover during the interview. Unstructured interviews flow like an everyday conversation and tend to be more informal and open-ended. This is in contrast to a structured interview, when a list of predetermined questions is used.

Despite not having a list of predetermined questions, unstructured interviews are still purposeful and somewhat directive. If interviewers hope to gain insight and valuable information from the person that they are interviewing, they cannot conduct an unstructured interview without having detailed knowledge or proper preparation.

Interviewers must always be mindful of the purpose and scope of the topics that they are hoping to discuss. Though they want their control over the conversation to be minimal, interviewers still need to know how to steer the conversation so that the person being interviewed stays on topic and discusses things that are relevant. As you can imagine, individuals who are skilled at conducting unstructured interviews go through extensive training.

3. Participant observation

Participant observation is a qualitative research method in which the researcher studies a group not only by observing the group, but also by participating in the activities of the group.

Participant observation is a qualitative research method in which the researcher not only observes the research participants, but also actively engages in the activities of the research participants.

This requires the researcher to become integrated into the participants' environment while also taking objective notes about what is going on. Most researchers who conduct participant observations take on the role that they are interested in studying. In Jill's case, she might enroll in an actual foreign language course, complete all assigned homework and classwork, and attend field trips just as any regular student enrolled in the class would. Jill would also have informal conversations with other students in the class and the teacher. Jill would keep a detailed record of all assignments and take detailed notes about what she observes and what happened during her encounters with her classmates and teachers. Jill would also keep notes about technology usage, classroom norms and expectations, and any other information that she finds useful.

There are three important pieces of participant observation:

1. Gaining entry into the location you wish to study
2. Establishing rapport with the research participants under investigation
3. Making sure you spend enough time with the research participants in the environment to get a sufficient amount of data for your study

Why Use Participant Observation?

There are many reasons that researchers choose to use participant observation. Participant observation provides the researcher with access to different types of information that may not be easily accessible to outsiders. For example, students who are not enrolled in the foreign language class may not know

what the rules and expectations are like in the classrooms or the nature of the interactions between the students and the teacher.

Participant observers integrate themselves into the environment and are often considered part of the culture and group. It is not uncommon for research participants to forget that they are being observed, which reduces the likelihood that research participants will modify their behavior or try to 'act well' because they are being observed. They might consider Jill a part of the group and act as they normally would around her.

Participant observations help the researcher decide which questions are relevant, what language to use, and what the culture is like. By being a part of the group, Jill can get a better feel of what is important to the research participants. She can also pick up on the language that they use and what certain words mean. If Jill decided to conduct research interviews later, she could use her background knowledge of the participants to help her create research questions.

4. Focus group discussion

What is Focus Group Discussion (FGD)?

A focus group discussion involves gathering people from similar backgrounds or experiences together to discuss a specific topic of interest. It is a form of qualitative research where questions are asked about their perceptions attitudes, beliefs, opinion or ideas. In focus group discussion participants are free to talk with other group members; unlike other research methods it encourages discussions with other participants. It generally involves group interviewing in which a small group of usually 8 to 12 people. It is led by a moderator (interviewer) in a loosely structured discussion of various topics of interest.

A focus group discussion (FGD) is a good way to gather together people from similar backgrounds or experiences to discuss a specific topic of interest. The group of participants is guided by a moderator (or group facilitator) who introduces topics for discussion and helps the group to participate in a lively and natural discussion amongst themselves.

The strength of FGD relies on allowing the participants to agree or disagree with each other so that it provides an insight into how a group thinks about an issue, about the range of opinion and ideas, and the inconsistencies and variation that exists in a particular community in terms of beliefs and their experiences and practices.

3.4 Coding and thematic analysis

Coding:

Coding is the process (or operation by which the responses (data) are organized into class/ categories and numerals or other symbols are given to each item according to the class in which it falls. In other words, coding involves two important operations viz. deciding the categories to be used and allocating individual answer to them. In this method, coding frame is developed by listing all the possible answers to each question and assigning code numbers or symbols to each of them which are the indicators used for coding. The coding frame is an outline of what is coded and how it is to be coded it a coding frame is a set of explicit rules and convention that are used to base classifications of observation variables into values which are transformed into numbers. After preparing the sample frame the gradual process of fitting the answers to the question must begin. Finally, a large summary sheet which contains the answers/ codes of the respondents called transcription sheet is prepared for large samples. In case of simple tale and few samples, transcription sheet is not necessary.

Rules for coding

- Give code numbers for each response for identification: generally different digits, numbers are used to identify the area, institution, department etc.
- Give code numbers for each response. In this context categorization assumes significance.
- Prepare the coding frame and instructions to coders.
- Carefully scrutinize every coded item in the initial stages of coding.
- Decide on any change in coding due to change in the nature or importance of data after collection.
- For open questions, clarify each response according to the basic content and code them accordingly.
- No opinion/ don't know response, generally indicates neutrality and code them by giving a number common for representation.

Thematic Analysis

Thematic analysis is another foundational method qualitative analysis. The method is applicable to analyze data in primary qualitative research. It is used for identifying, analyzing and reporting patterns or themes which in data. There are four stages of thematic analysis.

- Reviewing the relevant previous literature for themes.
- Coding of the text line by line.
- Development of descriptive themes
- Generation of analytical themes.

In general, thematic analysis is a search for themes that emerges as being important to the description of the phenomenon. The process involves the identification of themes through careful reading and re-reading of the data. It is a form of pattern recognition within the data, where emerging themes become the categories for analysis.

Thematic coding is a form of qualitative analysis which involves recording or identifying passages of text or images that are linked by a common theme or idea allowing you to index the text into categories and therefore establish a “framework of thematic ideas about it”

Thematic analysis is used in qualitative research and focuses on examining themes or patterns of meaning within data. Coding is the primary process for developing themes by identifying items of analytic interest in the data and tagging these with a coding label.

Thematic coding is a form of qualitative analysis which involves recording or identifying passages of text or images that are linked by a common theme or idea allowing you to index the text into categories and therefore establish a “framework of thematic ideas about it” (Gibbs 2007).

Whilst there are a variety of different approaches to thematic analysis each option is still a form of thematic coding. These include: Grounded theory; Interpretative phenomenological analysis; Template analysis; and Framework analysis.

It is essential to view the text in a theoretical or analytical way rather than merely approaching it with a descriptive focus. Intensive reading needs to take place during this process to ensure that you

are able to identify all of the relevant ideas in the text, including even the simplest. "Charmaz suggests some basic questions to ask as you undertake this intensive reading that will help you get started:

- What is going on?
- What are people doing? What is the person saying?
- What do these actions and statements take for granted?
- How do structure and context serve to support, maintain, impede or change these actions and statements?" (Charmaz, 2003, pp. 94–5, in Gibbs, 2007, p. 42)

(Extra knowledge for thematic analysis)

Brief Example

This example "is taken from a study of careers for people with dementia and is an interview with Barry, who is now looking after his wife, who has Alzheimer's disease. The interviewer has just asked Barry, 'Have you had to give anything up that you enjoyed doing that was important to you?', and he replies:

1. BARRY
2. Well, the only thing that we've really given up is – well we used to
3. Go dancing. Well, she can't do it now so I have to go on my own,
4. That's the only thing really. And then we used to go indoor bowling
5. At the sports center. But of course, that's gone by the board now. So
6. We don't go there. But I manage to get her down to works club, just
7. Down the road on the occasional Saturdays, to the dances. She'll sit
8. and listen to the music, like, stay a couple of hours and then she's
9. Had enough. And then, if it's a nice weekend I take her out in the 10 cars.

Description

At one level this is a very simple reply. In lines 2 to 6 Barry gives two examples of things that he and Beryl used to enjoy together, dancing and indoor bowling, then, without prompting, he lists two things that they still do together, visiting dances at the works club and going out for a drive. So, a first idea is to code lines 2 to 4 to the code 'Dancing', lines 4 to 6 to 'Indoor bowling', 6 to 9 to 'Dances at works club' and 9 to 10 to 'Drive together'. Such coding might be useful if you are analyzing interviews with lots of careers and you wanted to examine the actual activities given up and those still done together and compare them between couples. Then retrieving all the text coded at codes about such activities would enable you to list and compare what people said about them.

Categorization

However, such coding is simply descriptive; there are usually better ways to categorize the things mentioned and there are other things indicated by Barry's text. In analysis you need to move away from descriptions, especially using respondent's terms, to a more categorical, analytic and theoretical level of coding. For example, you can code the text about dancing and indoor bowling together at a code 'Joint activities ceased', and text on works club dances and driving together to the code 'Joint activities

continuing'. Assuming you have done the same in other interviews, you can now retrieve all the text about what couples have given up doing and see if they have things in common. In so doing you have begun to categorize the text.

Analytic codes

Thinking about this suggests another way to code the text. Both dancing and bowling are physical activities involving some degree of skilled movement? Clearly Beryl has lost that, so we could code lines 2 to 6 to the code 'Loss of physical co-ordination'. This code is now slightly more analytic than those we started with, which just repeated Barry's descriptions. Barry does not talk about loss of physical co-ordination, but it is implied in what he says. Of course you need to be careful. This is an interpretation, based, here, on very little evidence. You need to look for other examples in Barry's interview of the same thing and perhaps other evidence in what he says of Beryl's infirmity.

Another thing to notice about this text is the way Barry changes from using 'we' about what they used to do together; to saying 'I' when he turns to the things they do now. This suggests another pair of analytic codes, one about joint activity with a sense of being a couple, the other about activity where the carer is just doing things for his partner. You might code these as 'Togetherness' and 'Doing for'. Note that these codes do not simply code what happened, but rather suggest the way in which Barry thought about, or conceptualized, these things.

Other things you might have noticed about the passage that might be candidates for codes include Barry's rhetorical use of 'Well' in lines 2 and 3. He says it three times. Is this an indication of a sense of resignation, loss or regret? Again, from such a short passage it is not clear. But you might code it 'Resignation' for now and later see if it is consistent with other text of Barry's you have coded to 'Resignation'. It is interesting to note that Barry says he still goes dancing, on his own. A different interpretation of this use of 'well' and the fact that it is the first thing that Barry mentions is that dancing was a key thing that he and Beryl did together as a couple. You might therefore think that it is a kind of core or central activity of the couple, something that was central to their life together as a couple. Again, it would be useful to examine other careers to see if there are similar defining activities and to see if this identifies any differences between careers. Perhaps careers where the defining activities have been less affected by Alzheimer's are different from those where it has."

3.5 Types of qualitative research

- Ethnography
- Narrative study

1. Ethnography

Ethnography is defined as an illuminative account of social life and culture in a particular social system based on multiple detailed observations of what people actually do in the social setting being observed. Ethnography can be described as both qualitative and quantitative research methods that are used by sociologists when studying specific groups, communities or institutions found being a part of a larger complex society. Ethnographic research is probably the most familiar and applicable type of qualitative method to professionals. These larger societies that sociologists could possibly observe in are entities such as gangs.

The use of ethnography is most commonly used by sociologists who take a more specific look into society as well as proposed research for studies involving participant observation. Within society it can be used for organizations, communities, cults, etc.

As we look at different types of ethnographies today, the research still focuses on social aspects such as digital or virtual ethnographies. Since generation social anthropology is derived within the ideas of ethnography, but the use of ethnography today is described in a less severe matter such as research, opinions and other forms of social studies.

In ethnography, you immerse yourself in the target participants' environment to understand the goals, cultures, challenges, motivations, and themes that emerge.

Some example of research problems for Ethnography research:

- How do teachers behave with the students of different religious, culture, language, caste and learning capabilities?
- How do low-achievers spend off-teaching hours in school?
- How do drug abusers change their attitude and behaviors in a drug abuse rehabilitation center?

Characteristics of Ethnography:

- Extended participant
- Long time at the site
- Collection of large volume of materials
- Openness

Step of Ethnography:

- Selection of research problem
- Preparation for fieldwork
- Entering the research site
- Obtaining data
- Data analysis

2. Narrative

Narrative research is a term that subsumes a group of approaches that in turn rely on the written or spoken words or visual representation of individuals. These approaches typically focus on the lives of individuals as told through their own stories. The narrative approach weaves together a sequence of events, usually from just one or two individuals to form a cohesive story. You conduct in-depth interviews, read documents, and look for themes; in other words, how does an individual story illustrate the larger life influences that created it. Often interviews are conducted over weeks, months, or even years, but the final narrative doesn't need to be in chronological order. Rather it can be presented as a story (or narrative) with themes, and can reconcile conflicting stories and highlight tensions and challenges which can be opportunities for innovation.

For example, a narrative approach can be an appropriate method for building a persona. While a persona should be built using a mix of methods—including segmentation analysis from surveys— in-depth interviews with individuals in an identified persona can provide the details that help describe the culture, whether it's a person living with Multiple Sclerosis, a prospective student applying for college, or a working mom.

Unit 4. Action Research

4.1 Meaning and characteristics of action research

4.2 Action research cycle

4.2.1 Planning

4.2.2 Acting

4.2.3 Observing

4.2.4 Reflecting

4.3 Preparing action research report

4.1 Action research:

To carry out large scale research for small classroom problem is not always possible and practical. For example, if students of class do not take part in the speaking activities, the teacher of class may be interested in finding out the solution of this problem. He or she may try out one of the various options, e.g. group work. If the group work becomes a solution, then the teacher may use this technique in his or her usual class of speaking skill. If the new treatment is not much effective, the teacher as a researcher may try a next option of solution. In this way, acting and reflecting on self may help teachers to reach a solution of their practical problems. This type of research which is concentrated on the practical problems of your workplace is known as action research. It is aimed at outlining the immediate solution to the identified process. It helps to improve one's existing practice. The practitioner, e.g. a teacher is himself or herself involved in the research which is action in itself. The basic procedure involves: planning, action\ intervention, observation and reflection.

Definition of action research:

Action research is defined in many different ways. The scholars are careful to cover its basic features within its definitions. Some of the definitions of action research are as follow:

Action research is a form of self-reflective inquiry carried out by practitioners, aimed at solving problems, improving practice, or enhancing understanding. It is often collaborative. (Nunan, 2010)
Action research is a small-scale intervention in the real world (for example, a classroom) and close observation of the results of this intervention. (Brown and Rodgers, 2014)

As the name suggests, action research comprises two components: action and research. Research is a means to action, either to improve your practice or to take action to deal with a problem or an issue. (Kumar, 2014)

The definitions stated by different scholars lead us to a precise generalization that:

Action research is a self-reflective and collaborative approach to research that is primarily focused on improving the existing practices within a given field.

Characteristics of action research

Action research is a unique type of research. It avoids controlled environment for research. It involves action and research within the same process. Action research is problem-oriented. finding out an effective solution to an identified problem is its basic goal. It is small scale research conducted within

the workplace such as classroom. The actual practitioner is involved as a researcher to improve the existing situation and to bring about changes in his or her practice. The

process of action research is cyclical. It is also regular and continuous. Since the innovations brought about by action research are shared by several related practitioners it is collaborative process. Not only in the sharing phase, but also in the 'acting' phase researchers can collaborate with each other. Action research is reflective practice too. The researcher needs to reflect his or her actions, plans, experiences and strategies at each step of research.

Cohen, Manion and Morrison have presented important characteristics of action research. These include:

- Action research is aimed at practical problem-solving.
- It is collaborative and participatory.
- It enhances the competences of participants.
- It is undertaken directly in the workplace, e.g. classroom.
- It follows cyclical process with planning, acting, observing and reflecting.
- It is a reflective practice aimed at changes and innovations.
- It seeks to improve the quality of existing action.
- It is one of the most effective strategies for professional development of practitioners.
- It focuses on these problems that are of immediate concern to practitioners.
- It is methodologically eclectic, that is, it involves a variety.

4.2 Action research cycle

1. Planning
2. Acting
3. Observing
4. Reflecting

Since action research is focused on the practical problems of the workplace, e.g. classroom, its design and methodology are also typically unique. Usually, the subjects are classroom participants such as students and teacher. Sampling is not much common. If students are to be selected in some cases, the teacher/researcher will do it purposively. Data collection tools can be any of interview, intervention, observation, questionnaire, tests and interaction.

The uniqueness in action research is that research methodology involves action itself. Basically, data collection, analysis and reporting procedures are involved in the cyclic process of action research. This process is the research methodology used in the action research.

Nunan (2010) presents the process as:

Step 1: Initiation

Step 2: Preliminary investigation

Step 3: Hypothesis

Step 4: Intervention

Step 5: Evaluation

Step 6: Dissemination

Step 7: Follow – up

These seven steps can be reorganized into four broader phases: Plan, act, observe and reflect. It can be shown as:

Phase I: Plan

Step 1: Initiation

Step 2: Preliminary investigation

Step 3: Hypothesis

Phase II: Act

Step 4: Intervention

Phase III: Observe

Step 5: Evaluation

Phase IV: Reflect

Step 6: Dissemination

Step 7: Follow – up

1. Planning

The first phase of action research is planning. It refers to the process of identifying the research problem and making different logics or hypotheses about the solution to identified problem. This phase includes three specific steps:

- a) Initiation: This involves determining the topic or problem of research.
- b) Preliminary investigation: This involves finding out the existing situation of the problem. Before the researcher introduces new action (i.e. intervention), he or she needs to record the existing condition of the observation. It is called preliminary investigation. It is like pretest or before observation. It helps to show the changes brought by the actions or intervention of the research.
- c) Hypothesis: After reviewing the existing condition, the researcher makes a hypothesis about the solution to the identified problem. It is one of the logics prepared for getting tested.

2. Acting

To act means to introduce an effective action. According to the hypothesis made, the researcher develops specific activities and materials to improve the situation. He or she carefully uses these activities and materials aiming at solving the identified problems. This attempt is also known as 'intervention'. The researcher breaks down the usual practices, and introduces a new one in the classroom. So, it is a kind

of intervention or treatment to the class. For example, teaching speaking by using the group work techniques is an action or treatment.

3. Observing

The next phase to intervention/action is to observe the effectiveness of the action. After certain period of time, e.g. three weeks, two months, or so, the researcher observes the effectiveness of the intervention. This process is also called evaluation. It is similar to 'post-test' or 'after observation'. The researcher may record the classroom interaction, or if necessary, he/she may administer tests for students. In this phase, observation and interview may also be used. A comparison is made between this evaluation and preliminary investigation. If changes are effective solution to the identified problem, they are shared with other practitioners. They are implemented in the actual classroom situations. But if the changes are not effective solution to the identified problem, the researcher needs to revise the 'plan' and 'act' phase.

4. Reflecting

Reflection is very important in action research. The research needs to reflect whole process of investigation from planning to evaluation. It helps to bring effective changes in the existing practice. New actions can be more effectively implemented in the actual workplaces such as classrooms. For reflection the two steps may be crucial.

Dissemination: It refers to process of sharing the findings of action research. These are the new action or strategies used for the improvement of existing situation. The researcher organizes a meeting, workshop or program, and disseminates his/her findings. He /she reflects the processes, problems, actions; behaviors etc. of students and teachers and then narrate how the findings were made. The application mode is also discussed in this step.

Follow-up: The researcher makes effective follow – up of the new actions suggested by the research. According to their usefulness further changes are regularly made. If needed, the action research is done once again in the same issue by starting from the 'planning' phase. Thus, action research is a cyclic process, but not merely linear.

4.3 Sample of action research:

Research topic: Encouraging students to avoid not speaking tendency

Phases steps research activities:

Planning

1. **Initiation** - A teacher identifies a problem: the current group of students does not speak anything at all even in the speaking lesson.

Investigation

2. **Preliminary** - The teacher collects preliminary data, gives pictures to describe, none speaks at all, gives a speaking test, and records first the result.
3. **Hypothesis** - Students may start speaking if they are allowed to write something and speak.

Acting

4. **Intervention** - Teacher plans the speaking lessons by integrating of speaking and writing, e.g. writing a paragraph about self and reading it loudly in the class. Teacher/ researcher focuses the integration of speaking and writing in at least ten classes regularly.

Observing

5. **Evaluation** - After a couple of weeks, the teacher/researcher records the class: asks students to describe the pictures without looking at written scripts; also gives a speaking test. At the end, the teacher compares this interaction and test result with those of preliminary investigation. He finds a lot of changes and improvement in students' speaking performance.

Reflecting

6. **Dissemination** (workshop) - The teacher organizes a workshop for all the teachers in his department. He or she reflects all the process and events of action research, and shares the innovative ideas to encourage students to speak. Research, finding is disseminated.
7. **Follow up** (practice) - The teacher makes follow-up of the activities in his/her own lessons.

Unit 5. Writing research proposal and research report

5.1 Purpose of writing research proposal

5.2 Components of research proposal

5.2.1 Introduction: background, research problem, objectives, delimitation

5.2.2 Literature review

5.2.3 Methodology: design, sampling, data collection tools and data analysis

5.3 Components of research report

5.3.1 Introduction

5.3.2 Literature review

5.3.3 Methodology

5.3.4 Analysis and findings

5.3.5 Summary, conclusion and implications

5.3.6 References

5.3.7 Appendices

5.4 Citation and referencing using APA style

5.1 Research Proposal

A research proposal is a document proposing a research project, generally in the sciences or academia, and generally constitutes a request for sponsorship of that research. Proposals are evaluated on the cost and potential impact of the proposed research, and on the soundness of the proposed plan for carrying it out.

The purpose of research proposal:

The purpose of research proposal is to give a basic idea to your instructor about your research paper. But a proposal is not merely a mini research paper. It should have a specific and narrow topic. The topic should be interesting and original. Generally, the thesis statement is in one or two sentences. The one-sentence thesis statement should state the topic and the stance that you will take on that topic. It has to be argumentative. The part of the introduction of your research explains the purpose for your study. It describes the goals and objectives in your research proposal. Usually, it is defined in terms of a goal(s), the expected final product, result, or application of the investigation process. It defines specific tasks through listing objectives necessary to achieve that goal.

1. See the overall structure

A research proposal sample will show you the parts that should be included. What's more, you will understand how each part must be organized and what information is necessary. Proper organization is necessary, and you can study it in this research proposal sample.

2. Examine the most important parts.

There are several parts in every research proposal that are of great significance. These are the literature review and pay special attention to these parts when you are studying the research proposal sample you found.

3. Avoid some common mistakes.

A research proposal sample is the best way to find out the most common mistakes that are made in research proposals. Among these mistakes are not focusing on the main problem of the research, being unable to provide necessary arguments to support the project, not following the requirements of a particular format, and many others. No one wants to make these kinds of mistakes. That is why you should study the research proposal samples you found attentively.

The purpose of research proposal is to clearly communicate the following to the sponsor:

- Need of the particular research
- Benefits of the research
- Type of the analysis that will be done
- Need of help from other organizations
- Duration, facilities and funds required to carry out the research
- credentials of the proposers

5.2 Components of research proposal:

1. Introduction: background, research problem, objectives, delimitation
2. Literature review
3. Methodology: design, sampling, data collection tools and data analysis

5.2.1 Introduction: background, research problem, objectives, delimitation

The proposal writer must define all the important variables included in study in operational terms. These definitions provide a good background with which the researcher approaches the problem. Assumptions implied in the proposal study also clearly mentioned.

The problem of research is expressed in a declarative statement but it may be in question form. The problem must be stated in such a form that is clearly tells about the major goal of the research. Besides, its formulation, the researcher must mention why it is worth the time, effort and expense required to conduct the proposed research. In other words, the proposal written should not only mention the problem clearly but must also demonstrate its significance. The problem may be stated as follows:

- Co-education improves the mortality level of studies
- Active participation by students in politics may have damaging effect upon their creativity.

The objectives of a research project summaries what is to be achieved by the study.

Objectives should be closely related to the statement of the problem. For e.g.; if the problem identified is low utilization of child welfare clinics, the general objectives of the study could be to identify the reasons for this low utilization, in order to find solutions.

A limitation identifies potential weaknesses of the study. Think about your analysis, the nature of self-report, your instruments, the sample. Think about threats to internal validity that may have been impossible to avoid or minimize—explain.

A delimitation addresses how a study will be narrowed in scope, that is, how it is bounded. This is the place to explain the things that you are not doing and why you have chosen not to do them—the literature you will not review (and why not), the population you are not studying (and why not), the methodological procedures you will not use (and why you will not use them). Limit your delimitations to the things that a reader might reasonably expect you to do but that you, for clearly explained reasons, have decided not to do.

5.2.2 Review of related literature

The research proposal should include a more extensive review of relevant literature. An effective relevant literature includes those studies which have been competently executed and clearly reported and are closely related to the present problems. This step ensures that the researcher is familiar with what is already known, what is still unknown that is to be verified and tested. Moreover, it also helps to eliminate the duplication of what has already been done and provides background for useful suggestions for further investigations. In search of related literature, the researcher, among others, should concentrate upon similar but competently executed studies, design of the study, sampling methods, population sample, variable defined, extraneous variables controlled, recommendations etc. for further research.

Statement of hypothesis/ Objectives

The research proposal should include the major hypothesis to be tested. Some minor hypothesis if tentative answer to a question, it is important that the hypothesis should be formulated before data are gathered. In fact, formulation of hypothesis is such a step which clarifies the nature of the problem and also underlying logic of the research investigation. Hypothesis should be reasonable, unambiguous, consistent with known facts in the concerned area, testable and be able to be stated in simplest possible terms. Also, for exploratory or descriptive study should be presented, generally, the analysis of research is based upon the objectives.

5.2.3 Methodology: design, sampling, data collection tools and data analysis

The methodology part of the research proposed is very important. It includes three subsections- subject, procedures and data analysis. The total number of subjects desired from the population from which subjects are to be selected. The total number of subjects desired from the population and how they will be selected are generally indicated in this subsection. The procedure subsection outlines the details of the research plan. In other words, it outlines in detail about what will be done, how it will be done, what data will be needed and what data gathering devices will satisfactorily be used. The data analysis subsection outlines the details of method of analyzing data by different statistical techniques.

1. Time schedule

An effective proposal must have a clear time schedule in which the entire project should be divided into manageable parts and probable budgeting. Such steps help the investigator in budgeting the time and energy effectively, systematizing the study and minimizing the tendency to delay the competition.

2. Expected result

A good research proposal should also include the possible or expected results as far as possible. Although in some cases it may prove to be a herculean task for the researcher to spell out the expected results. The expected result section should include a brief discussion of the anticipated results of the research. In this section, reasonable alternative to the expected result should also be mentioned as well as those likely problems which may originate if the results show deviation from the research hypothesis.

“The methods or procedures section is really the heart of the research proposal. The activities should be described with as much detail as possible, and the continuity between them should be apparent” (Wiersma, 1995, p. 409).

Indicate the methodological steps you will take to answer every question or to test every hypothesis illustrated in the Questions/Hypotheses section.

All research is plagued by the presence of confounding variables (the noise that covers up the information you would like to have). Confounding variables should be minimized by various kinds of controls or be estimated and taken into account by randomization processes (Guba, 1961). In the design section, indicate

3. Sampling

The key reason for being concerned with sampling is that of validity—the extent to which the interpretations of the results of the study follow from the study itself and the extent to which results may be generalized to other situations with other people (Shavelson, 1988).

Sampling is critical to external validity—the extent to which findings of a study can be generalized to people or situations other than those observed in the study. To generalize validly the findings from a sample to some defined population requires that the sample has been drawn from that population according to one of several probability sampling plans. By a probability sample is meant that the probability of inclusion in the sample of any element in the population must be given a priori. All probability samples involve the idea of random sampling at some stage (Shavelson, 1988). In experimentation, two distinct steps are involved.

Random selection—participants to be included in the sample have been chosen at random from the same population. Define the population and indicate the sampling plan in detail.

4. Data collection tools

Outline the instruments you propose to use (surveys, scales, interview protocols, observation grids). If instruments have previously been used, identify previous studies and findings related to reliability and validity. If instruments have not previously been used, outline procedures you will follow to develop and test their reliability and validity. In the latter case, a pilot study is nearly essential.

Because selection of instruments in most cases provides the operational definition of constructs, this is a crucial step in the proposal.

Outline the general plan for collecting the data. This may include survey administration procedures, interview or observation procedures. Include an explicit statement covering the field controls to be employed. If appropriate, discuss how you obtained entrée.

Provide a general outline of the time schedule you expect to follow.

5. Data Analysis

Specify the procedures you will use, and label them accurately (e.g., ANOVA, MANCOVA, HLM, ethnography, case study, grounded theory). If coding procedures are to be used, describe in reasonable detail. If you triangulated, carefully explain how you went about it. Communicate your precise intentions and reasons for these intentions to the reader. This helps you and the reader evaluate the choices you made and procedures you followed.

Indicate briefly any analytic tools you will have available and expect to use (e.g., Ethnography, NUDIST, AQUAD, SAS, SPSS, SYSTAT).

Provide a well-thought-out rationale for your decision to use the design, methodology, and analyses you have selected.

A brief content of proposal mostly adopted by Nepalese universities is given as follows

Title of the Proposed Study

Chapter One: Introduction

- 1.1 Background of the Study
- 1.2 Statement of the Problem (Research Questions)
- 1.3 Objectives of the Study
- 1.4 Conceptual Framework
- 1.5 Rationale of the Study

Chapter Two: Review of the Literature

- 2.1 Theoretical Reviews
- 2.2 Reviews of Previous Studies

Chapter Three: Research Methods

- 3.1 Rationale of the Selection of the Study Area
- 3.2 Research Design
- 3.3 Nature and Sources of Data
- 3.4 Universe and Sampling
- 3.5 Data Collection Techniques
- 3.6 Reliability and Validity of the Data
- 3.7 Operational Definition and Measurement of Selected Concepts/Variables
- 3.8 Data Processing and Analysis
- 3.9 Limitations of the Study

References

List of Used Materials in Alphabetic Order

Note: The proposal must be submitted with questionnaires and a checklist.

Research Report

Introduction

Presentation of research finding in the form of report is a necessary part of the research process. The main purpose of report is to convey to the interested individuals, the empiricists or the theoreticians the whole result of the study in sufficient details, so that new findings or new methods of analysis can be incorporated into the general store of knowledge available in the area. Any research inquiry begins with an idea and ends with a report. A report is a detailed description of what has been done and how it has

been done with respect to a particular area or topic or research. A report may be addressed to the experts in the field for a critical examination of the achievement made. A research report may be helpful to throw some new light in the selected theory or field of inquiry. In other words, the main objective or report is to convey to interested persons the whole result of the study, in sufficient detail and so arranged as to enable each reader to comprehend the data and to determine for him/herself the validity of the conclusions.

While writing the research report it is very essential to keep in mind the level of knowledge of the readers. A report written for expert evaluators or scientists or specialized institution must be more rigorous and more detailed than what is written for the general readers. There may be various types of research reports e.g. thesis, monograph, journal article and so on. Because of the spatial limitations and selectivity, a journal article cannot discuss every aspect of the research in details as in a thesis. Task, as its *prima facie* appears. A report

Writer is to ensure that both the layman, the social scientists and the large group is not only satisfied but also tempted to read the report. The researcher satisfies him/herself that the report has not been burdened with tedious technical terms and that the scope of the study has been amply clarified and justified by its coverage so as to draw conclusion.

Meaning and definition

The word 'report' is derived from the Latin word 'report are' which means to carry back. A report, therefore, is a description of an event carried back to someone who was not present on the scene. It is a formal communication written for a specific purpose, it includes a description of procedures followed for collection and analysis of data, their significance, the conclusions drawn from them and recommendation if required.

In other word, research report is a written integrated and systematic representation or communication of the investigation, facts or evidences, finding conclusions and suggestions / recommendations of the research works. The objective of research report is to communicate the exact detailed result of the research study to the audience (readers or evaluators). Communicability demands clarify about the audiences for whom the given researches report is intended.

5.3 Components of research report:

1. Introduction
2. Literature Review
3. Methodology
4. Analysis and Findings
5. Summary, Conclusion, and Implications
6. References
7. Appendices

5.3.1 Introduction

The introductory chapter normally includes the following

Introduce the subject by highlighting its special features in about two to four paragraphs/ pages. The introduction should interest the reader in the subject matter of research. It must not be dull, confused, aimless and lacking in precision.

1. **Statement of the problem:** A clear statement of the nature and importance of the problem with specific questions to be answered or hypothesis to be tested. Consideration of significance of the

problem and its historical background is also appropriate. The key questions and the location of problem in the theoretical context of the concerned subject / discipline should be specified.

2. A breakdown of the problem into constituent elements, major subdivisions or questions.
3. The objective/ purpose of the research study into are listed in clear and distinct form. The purpose of this study was.... Is to be stated. A brief elucidation of the purpose may then follow, particularly for multipurpose study.
4. Organization of the study: A brief textual outline of each of the five or more chapters should be included.

5.3.2 Review of Literature

Review of literature chapter summarizes the current status of research works already done. A review of the pertinent past work and contradictions, pitfalls and other failings of the earlier work, mainly to substantiate the need for another research study. Previous research studies are abstracted and significant writings of authorities in the area under study are reviewed. Such a review provides a background for the development of the present study and brings the reader upto date.

A brief summary, indicating is of agreement or disagreement in findings or gaps in existing knowledge should be included.

Significance and justification for the present study: The significance of the problem, the contribution which the study is expected to be made to the theory its particle importance and the national relevance should be specifically indicated

The scope of the study: The scopes of the study point out the exact coverage reported upon and position the research within its larger context.

Conceptual Framework: In this heading, various concepts or demans proposed to be used in research requires to be stated, definitions or special meanings of all important terms so as to enable the reader to understand the concepts underlying the un development of the investigation.

5.3.3 Methodology

In this section, an operating paragraph linking the purpose, hypothesis or research question and format is to be included. The methodology describes the research design used, the method of data

/ Collection, variables and control employed, reliability of instruments selected or constructed and the statistical tools and procedures used in the analysis.

1. **The research design:** It describes the design used in the research activity such as exploratory, ex-post factor; pseudo experimental etc. with a graphic model.
2. **Sampling procedure:** It describes the sampling procedure of data collection such as simple random, stratified, multistage, purposive etc.
3. **The data gathering procedure:** It indicates the sources of data and how they were gathered. It includes interview techniques, questionnaire procedure extraction of data from files, content analysis and use and description of measuring instruments. The format of interview schedules or questionnaires are presented in appendices.
4. **The variables and measures:** The variables set in first chapter are defined operationally in terms of quantitative measurement. In this chapter, subsections may be used for independent, control and dependent variables.
5. **Statistical procedure:** The first position of this section delineates the basic descriptive statistics used such as percentage, means, frequencies, standard deviations, correlation etc. and the section portion relates to the use of inferential test of hypothesis like t-test, F-test,

Chi-square test, non- parametric tests etc.

6. **Limitation of the study:** Science all research designs have limitations and so do all research implementations. The limitations regarding the coverage of the frame are to be illustrated.

5.3.4 Analysis and findings

This is the heart of the research report in which an organized presentation of results and each major division of the problem should be presented in a separate chapter. The chapter generally covers presentation of the arguments, documentation, ideas or concepts, interpretations and findings. The chapter should include a discussion of the issue or part of the problem investigated and the evidence used in its solution. Through textual situation tabular and graphic devices, the data are critically analyzed and interpreted in detail. The general guidelines of presentation of the data are;

1. Presentation the demographic (qualitative) data such as age, sex, income, education level etc. in tables using categories of frequencies and percentages of range, means and standard deviations.
2. Do not present the percentage without frequencies, and do not present means without standard deviations/ standard errors.
3. For two quantitative establish the cause effect relationship.
4. Select the proper statistical test for inference.
5. Hypothesis should be examined and relationship reported more or less objectively and the interrelation of the result in the relation, statistical way.

5.3.5 Summery, conclusion and implications

Conclusion is the last part of the context of the report and consists of the summary, conclusions/ generalizations, suggestions and recommendations. The summary may be more or less a restatement of the topical sentences of the various findings. Summaries of findings may be subordinated under the conclusion statement. All these statements may be numbered or coded in some way so they refer to pages or tables in the finding section.

Findings are the statements of factual information based up on the data analysis. Conclusions are answers to the questions raised or the statements of acceptance or rejection of the hypothesis. Proposed conclusions do not need to repeat the evidence on which they are based, but extreme case should be exercised to present them.

Suggestions for further research

The research report should aim to give leads to future research scholars because no research in an end itself. The researcher should be able to give directions to the future researchers from the insights the researcher has gained during the investigation. Hence, it may be appropriate in concluding this part of report to indicate topic which need further research that is the promising side problems that have been uncovered and to suggest area or problems for further investigations.

5.3.6 References

Bibliography

The bibliography must include all published or unpublished source mentioned in text or footnotes. By listing each reference in the correct form avoids the extra time involved in finding the references. The general entries in bibliography should be made in the following order:

For books

1. Name of author last name first or issuing body.
2. Title of the publication/ book (underlined to indicate italics)
3. Place, publisher and date of publication.
4. Number of volumes (in roman letter)
5. Page number

Example

Ker liner, F.N, Foundation of behavioral Research, New Delhi, Surjeet Publications, 1983. For Magazines and Newspaper or serial publications.

1. Name of the author, (Sur name first)
2. Title of article (in quotation marks)
3. Name of periodicals (underlined to indicate italics)
4. The volume or volume and Number
5. Date of the issue
6. The pagination

Example:

Robert v. Roosa, "Coping with short-term international Money Flows", The Banker, London, September, 1971 P, 995

For Thesis

1. Author (Surname first)
2. Full title or the Thesis (in quotation marks)
3. The course of degree
4. The name of the university.

Example:

M.Singh "Population Dynamics of Nepal"- An analytic study TU, Kathmandu 1979.

5.3.7 Appendices

An appendix or appendices is used for additional or supplementary materials, which has not been found place in the main text. The complex table, original data schedule questionnaire, interview form, copies of cover letters, statistical tests and any other material used are placed in appendix. Appendix may be placed between the final chapter and the bibliography or immediately after the bibliography. If more than one appendix is necessary, each part should be designed by a capital letter e.g. Appendix – A, Appendix-B etc. rather than a number. Pages of appendix are numbered serially using Arabic numerals.

Index: Index may be either subject index or author index. It is not included in the report. If the report is being prepared for publication and is a technical manuscript or is intended as a work or reference an index is desirable.

Vita: The author of a research report is sometimes required to include a brief account of his training, experience, professional memberships and previous contributions.

5.4 Citation and referencing using APA style

The American Psychological Association (APA) publishes a manual of formatting standards for research papers. Used most often within the social sciences, APA style guidelines establish a consistent model for presenting research and citing sources.

APA RESEARCH PROPOSAL

The APA format itself can help you understand how to write a proposal for a research paper. The APA guidelines require writing an abstract, an introduction, and a bibliography as part of the paper, not only in the proposal. Here is a short breakdown of the APA proposal format:

- 12-point font Times New Roman
- Double-spaced
- 1-inch margins
- An APA running head (limited to 50 characters)
- A title page with the paper's title (no more than 12 words in length), your name, and the name of your institution
- An abstract (150-200 words)
- In-text citations (formatted accordingly to APA guidelines)
- References page (formatted accordingly to APA guidelines)

In T. U.

- Left side 1.5 inch, other three sides 1 inch margin Line space 1.5
- Font size: Times New Roman / Calibri (for title 16 and for content 14), Preeti (for title 18 and for content 16)
- Paper A4
- Line space: 1.5