CHAPTER-ONE

Introduction

Meaning of Research

Research is the process of investigation of knowledge. It is a process of hunt for truth. Research can mean "re-search". Research mean 're-search' implying that the subject matter is already known, but for some reason needs to be studied again.

The research is conducted for two objectives first is to identify the problem and solve the problem, second is to explore the new theory or to add the knowledge in the existing knowledge.

Uma Sekaran “Research is an organized, systematic, data based, critical, scientific enquiry or investigation into a specific problem, undertaken with the objective of finding answers or solutions to it.”

“Research is the fact finding activity” **Dominowski**

F. N. Kerlinger, “Research is a systematic, controlled, empirical and critical investigation of hypothetical proposition about the presumed realtions among natural phenomena.”

Features of the research

- **Objective:** answers the research questions.
- **Systematic:** systematic and planned process
- **An enquiry:** Data based
- **Generalizability:** findings are generalized
- **Knowledge oriented:** to explore the knowledge
- **Communicable:** findings must be communicable
- **Empirical** : testable of the result and predict the future.
- **Replicable-**: We will place more faith and credence in these findings and conclusion if similar findings emerge on the basis of data collected by other organizations employing the same methods. The result of the test of the hypothesis should be supported again and yet again when the same type of research is repeated in the other similar circumstances.

Scientific Research

Science is defined as the systematic organization of knowledge. It has two purpose: improve quality of life and development of theory. Scientific research is a step by step, logical, organized and rigorous method to identify the problems, gather data, analyze and valid conclusion about the problem. It is not based on hunches, intuition and experience but purposive and objective. It must be based on empirical and measurable evidence subject to specific principles of reasoning.

- *"Scientific research is systematic, empirical and critical investigation of hypothetical propositions about the presumed relations among the phenomena"* **Kerlinger**

Features of Scientific Research

- **Rigorous**-: The use of good theoretical base and sound methodological design is considered as rigorous study in the research. It is theory based and carefully thought out methodology. Collect the right kind of information and data analysis method.
- **Purposive**-: It must be based on specific purpose which guides for the data collection and analysis of data.
- **Replicability-**: We will place more faith and credence in these findings and conclusion if similar findings emerge on the basis of data collected by other organizations employing the same methods. The result of the test of the hypothesis should be supported again and yet again when the same type of research is repeated in the other similar circumstances.

- **Generalizability-**: Generalization refers to the scope of applicability of the research findings in one organizational settings to others. We can apply the findings of scientific research. The findings are generalized.
- **Testability-**: Scientific research is testable. Formulated hypothesis is tested by using the different statistical techniques like F-test, T-test, Z-test etc.

- **Objectivity-**: The conclusion drawn by the interpretation of the results of the data analysis must be objective; it means they must be based on facts and unbiased not on own emotional values. The conclusion should not vary person to person.
- **Precision and confident-**: Precision refers to the closeness of findings to "reality" based on the sample or it reflects the accuracy of the results. Confidence refers to the probability that our estimations are correct. We can confidently claim that 95% of the time our result will be true and there is only 5% chance of wrong.

Types of research

As indicate above, research can be undertaken for two purposes; to solve the current existing problem in the work setting and generate new knowledge or theory building in a particular area.

Social science research can be divided broadly into two types relative to its purposes; fundamentals and applied.

A. Fundamental research:

It is also known as pure and basic research. It is undertaken for the sole purpose of adding to our knowledge that is generalizable. The research work of professors, scholars, and other researchers devoted to generate new knowledge in particular areas is called fundamental research. The purpose of fundamental research is not to apply findings to solve an immediate problems at hand. Fundamental research can contribute to theory formation. *It develops the theory and findings can be generalized.*

- **According to P. V. Young** "Gathering knowledge for knowledge sake is termed as fundamental research."

B. Applied research

Applied research is conducted in response to a specific problem which requires a solution. The main purpose of applied research is to answer practical solution about policies, programs, procedures, projects and organization. They often hire outside researchers and consultants to study problem in order to find solution that can be implemented to solve the problem. It is concerned with knowledge that has immediate applications, so it is also known as decisional research. For example, the attempt to get a cure for, *Corona, Bird Flu* is a case in a point. *It can be used for problem solving, findings can be immediately implemented.*

According to P. V. Young *" Gathering knowledge that could aid in the betterment of human benefit is termed as applied research"*

It is more concerned with knowledge that has immediate implication and would be useful in making decision and formulating policies.

Difference between Basic and Applied research

Bases for difference	Basic/fundamental research	Applied/action research
Objective	Development theory and expand the knowledge.	Find out the solution of immediate problem
Research Approach	Basic research is theoretical in nature	applied research is practical in nature
Generalization	Generalized in all similar types of organizations	Generalization is not necessary and possible
Analysis	Generally, it is based on technical analysis	It is based on individual and situational analysis
Assumption	It is assumed that variables used in this research is constant	Variables used in this research is changeable to some extent
Practical	Developed theory can not be immediately implemented	Finding is immediately implemented in real life practice
Focus	Focuses on interested issues of researcher	Focuses on immediate problem of organization

The scientific research process

From the inception of the research idea to the final reports of the results, the scientific research process has several crucial steps. A brief description of these steps are as follows.

1. **Realizing a problem:-** The researcher first sense the problem. You may not know exactly what is happening, but you can definitely sense that things are not going to smoothly as they should be. The researcher may sense the problem through the observation, study, experience
2. **Problem identification**:- In this stage the exact problem is identified, “well defined problem is the half solved of problem”. If research problem is unclear and poorly defined, the result could be a lot of time and resources wasted.

3. Review of literature:- It is the way to discover the what other research in the area of the problem is uncovered. literature review is the integral part of entire research process and makes valuable contribution to every step of operation. Literature review is step by step process that involves the identification of the published and unpublished work from secondary data source on interested topic, the evaluation of this work in relation to work and documentation of this work. By footing the literature review we can determined the research methods, process, research design and conclusion.

4. Theoretical framework:- In the fourth step researcher make an attempt to integrate the information logically so that the reasons of problem can be conceptualized. The critical variables are examined and association among them is identified.

5. Hypothesis formulation:- Hypotheses are logically conjectured(estimated) relationship between two or more variables expressed in the form of testable statement. Hypothesis is drawn from the theoretical framework . Hypothesis are particularly useful for quantitative research, where there is statistical analysis.

6. Research design:- Research design is the outline of the future research work. It is determined by the research objectives. It describes the general framework for collecting, analyzing and evaluating data. It is the conceptual structure within which research would be conducted.

7. Collection of data:- Every study includes the collection of some type of data. Data can be collected in the form of words on a survey, with a questionnaire, through observations, or from the literature. The procedures used to obtain the data is depends upon the research design chosen.

8. Data analysis:- After the collection of data, they must be analyzed so that the research question can be answered. Data analysis is in fact statistical analysis of data that have been edited, coded and tabulated. Statistical tools are used to analyze the data like mean, median, mode, standard deviation, correlation, regression, f-test, z-test etc.

9. Interpretation and generalization:- The result of the data analysis is interpreted and generalized.

Paradigm shifts- positivist Vs interpretivists philosophies

A paradigm is a way of looking at the world. A research paradigm is a "school of thought" or "framework of thinking" or "set of assumptions" about how research ought to be conducted to ascertain the truth. Context, paradigm, assumptions determine the types of research methodology to be used to the study of social phenomena.

During the 19th and 20th century positivism remained dominant philosophy of research. From the second half of 20th century social scientists refuted the claim that positivism could adequately provide real understanding of complex relationships in the society and between individuals.

A major paradigm shift was took place in research methodology with the emergence of interpretivism. Today two major philosophical thoughts are exist- positivism and interpretivism.

Positivists believe in quantitative approach to research. They seeks facts and causes of social phenomena. Such research is depends upon quantitative data which is in numerical form and can be presented using tables or chart, histogram, graph or statistics. They are about counting and measuring events or phenomena.

Thus quantitative paradigm is the research thought based on testable and verifiable data.

Interpretivists believe in qualitative approach to research. They reject on central belief of positivism. It is appropriate for social science research. Qualitative research tries to give perspective primarily employing qualitative data. It does not include the numerical measurements, rather uses the either of written or spoken words. Most exploratory and case studies are the qualitative research. This paradigm rely on qualitative information. Qualitative research paradigm analyzes the fact in qualitative form i.e. written in words or spoken word form.

Different new approaches have been developed in qualitative research as Ethnography, Phenomenology, Hermeneutics, Constructivism, Subjectivism, and Feminism.

Several new developments have taken place in the paradigm in the research over the years.

Difference between the qualitative and quantitative research

SN	Bases of difference	Qualitative research	Quantitative research
1.	Focus of research	Understand and analyze the issue	Explore and predict over any issue
2.	Purpose of research	In-depth understanding and develop theory	Prediction over any subject and develop theory and its testing
3.	Sample size	Small	Large
4.	Involvement of researcher	Researcher himself involves in the qualitative research	Involvement of researcher remain less in such quantitative research.
5.	Data collection	Data is collected through unstructured questionnaires	Data is collected through structured questionnaires
6.	Data analysis	Judgmental and description	Objective and discussion
7.	Results	Stories, narratives and description	Charts, tables and facts

Management research

Management refers to the control and making the decision in a business. Research is the one part of knowledge based on facts. If any problems are arises in the management process it has to be solved. Management research is the systematic activity directed towards investigation business or managerial problems. It can be detailed investigation of existing problems, practices in the management processes. Management research is the problem solving process in relation to the organizing, planning, co-ordination and controlling. It helps the managers to take the right decision and guiding decision making.

Management research is an essential tool of managerial decision making. Its main purpose is to facilitate to decision making process and reduce the uncertainty.

According to **Zikmund** *"Management research is the systematic and objective process of gathering, recording and analyzing data for aid in making business decision."*

Values of management research in decision making

Managers are involved in problem solving and decision making activities. They have to be continuously deciding as to what policies, strategies and programs need to be adopted for organizational competitiveness and effectiveness and how to execute them to get the desired results. They must also decide what feedback mechanism be established to get informed about ongoing programs.

- Management research, by *supplying with pertinent information*, plays an important role by *reducing managerial risk and uncertainty.*
- The knowledge of research methods help them to *identify the problems and opportunity.*
- *The problem situation in an organization may vary in nat*ure and *complexity, they can be studied, observed and analyzed by manager.*
- Management research helps in *identifying the factors affecting variables and make easy to make decision by detailed investigation.*
- *Identify the level of impact on decision making.*

DIFFICULTIES OF APPLYING SCIENTIFIC METHODS TO SOCIAL SCIENCE RESEARCH

Social science research is conducted in social settings, psychology, feelings, emotions, attitude and perceptions.

- **1. Complexity of subject matter :–** Extremely different and complex subject matter of feelings, activities, attitudes, motives, beliefs and values containing . We must try to measure the influence of one variable to another in such an uncontrollable environment.
- **2. Difficulty of getting accurate measurement**: Scientific methods demands accurate measurement. In management this type of measurement is often quite difficult. Human attitude, motives can not be accurately measured.

3. Influence of the measurement process on result :– Respondents provide the information just to please the researcher (Hawthorne Effect)

4. Difficulty of using Experiments to Test Hypothesis:– Testing hypothesis is the key components of the scientific research. Variables cannot be controlled as per requirement due to the uncontrolled environment in the management research.

5. Difficulty in making accurate Prediction:- Accurate prediction is the vital step in scientific research, but it is not possible in the management research. The prediction of voters, attitude is not nearly so exact.

6. Problematic Objectives of the Investigator :– Scientific research demands impartiality and objective reporting of data. Researchers may be biased in collecting and recording data consciously or unconsciously. The answer to this problem lies in better selection and training of data collectors.

Ethical Issues in Management Research

1. **Put pressure to participants to get information**:- Researcher should not put the physical and moral pressure to get the secret information, as well as the for the individual information. Sometime respondents do not like to disclose the some information.
2. **Replace the actual data by false data:-**
3. **Fabricate the entire set of data**:- Researcher should not modify the facts and information while developing the result as per the interest of the researcher.
4. **Claim credit for the work done by others:-** Researcher should respect the intellectual property of researcher. Researcher should not use the data, documents, materials without the permission of concerned person. If used, should mention in the reference.

Contd.

5. Alter the data to make them look better or to fit with theory.

6. **Deception of participation**: Researcher should give the correct information to participation and should show the courtesy but should not give wrong information, real phenomena and objective.

7. False reporting of data or event.

8. Report data without permission of organization.

10. Post-study sharing of results.

11. Publish the same paper in two different journals without telling the editors.

12. No discrimination on the basis of caste, religion, gender etc. equal importance must be given to respondents and in the analysis.

CHAPTER-2
Literature Review

- *Literature* means the works you consulted in order to understand and investigate your research problem.
- *Literature* is the previous research work consulted for getting insight for the ongoing research.
- Review (look again) is the process of systematic, careful, and critical summary of the published literature in the field of research. How others have dealt with topics in the research subject.
- 'Literature review' is the systematic, careful and critical analysis of the previous research work to get information, or knowledge regarding the finding of research work done in different settings previously done by different scholars.

A ‘Literature’ is a step-by-step process that involves the identification of published and unpublished work from secondary data sources on the topic of interest, the evaluation of this work in relation to the problem, and the documentation of this work. – Uma Sekaran & Roger Bougie

A ‘Literature review’ (overview) is a summary and analysis of current knowledge about a particular topic or area of enquiry.

- Nicholas Walliman

Thus, the review of literature is an essential part of all research studies. It is a way to discover what other research in the areas of the problem has uncovered? It is the way to avoid investigating problems that have already been answered.

A critical review of literature helps us to develop an understanding and insight into previous research works that relates to study. Books and journal, abstracts, reports, electronic medium are the sources of literature review.

Purposes of literature Review

The collective body of works done by earlier researchers is known as literature review. The previous studies cannot be ignored because they provide the foundation to the present study and guideline to a particular topic. The main objectives of the literature review are as follows.

- **To identify the variables for research**:- when researcher makes a careful review of literature then he/she becomes aware of the important and unimportant variables in the related research areas.
- **To identify the research gap:-** other purpose of the literature review is to find out what research studies have been conducted in the chosen field of the study and what remains to be done? It helps to avoid needless duplication of effort.

- **To identify the relationships among variables** :- it enables to the researcher in discovering the important variables relevant to the area of the present research and relationships among them.
- **To develop the research foundation:-** the literature survey provides the foundation for research work and developing the theoretical framework, from which the hypothesis is developed.
- **To develop the research design:**
- **To know the research methodology:**
- **To identify the research issues:**

Steps in the literature survey

literature review is the most important functions in the research work. It must be done step by step procedures. The following steps must be adopted for the literature review.

1. **Identification of materials and selection of related literature:-** the first step of the literature review is the identification of the various published and unpublished materials that are available on the topic of interest and gaining access to these. *Text books, journals, magazines, thesis, reports* etc. are the main sources of literature review.
2. **Obtaining literature**:- through the published journals, magazines, newspaper, research articles researcher can find the research procedures, research design, research gap. The references must be used for all those resources. Today, computer online has become the library to locate the information because that provides the numbers of advantages like; time saving, inexpensive and numerous resources.

3.Reading:- Reading involves, scanning the materials, identifying what the material about, identifying and making ideas, issues, and methods used. All the collected literatures must be related with the research topics. After the collection of related materials researcher must screen out the important and unimportant documents, this requires efficient reading skills. It makes sure to choose a topic.

4. **Evaluation of the content of literature**

The evaluation process of researcher may be differ individual to individual as well as the materials will often contradictory. But however the different criteria must be followed in the evaluation process like accuracy, dependability, suitability, scope, up-to-dateness, authors, styles, publisher etc.. Evaluation involves two steps(a) an initial appraisal (b) careful analysis of contents.

Initial appraisal involves evaluating the author, date of publication, edition or revision, publisher and title of the journals.

Evaluation of contents of the articles involves the carefully reading and analysis of different parts of the articles like evaluation of introduction, method, result, discussion.

5. Writing up literature:-

Sources of literature review

- Books
- Journal/research article
- Abstract
- Reports
- Thesis/Dissertation:
- Electronic medium
- Directories :

Literature search through the internet

Literature search through the internet is the development of post-electronic revolution. The internet is the worldwide network of computers that can provide access to vast range of literature. It was first introduced in the world in 1992. it has been gaining popularity within a short span of time. Going through the internet and websites gives instant access to the literature and data banks of large computers system. Thus internet is the vast sources of information cannot be ignored. WWW is the biggest sources of information in the world, it adds the thousands of pages everyday.

Most of the researchers involve in business research today by going online. Address of internet sites or home page can be the most quickest and direct method of accessing these resources. Search tools are more important method of internet searching for the literature review that enables to locate and up-to-date items. Searching procedure is more simple and easy only must be familiar with the computer use.

Several special sites have evolved to offer assistance of each type of search. Internet facility has significantly changed the way of business researchers think about distributing and accessing information.

The widely used searching engines are www.yahoo.com, www.google.com,

Format and guidelines for presenting the literature review.

Format for a literature review

A literature review follows an essay format (Introduction, Body, Conclusion), but if the literature itself is the topic of the essay, your essay will need to consider the literature in terms of the key topics/themes you are examining.

- **Introduction**: topic, variables, relationship
- **Body**: Divide up your text into sections/topics as indicated in the last sentence of your introduction.
- **Conclusion**: conclusion of research

Guidelines for the literature review.

Step 1: Review APA guidelines

Step 2: Decide on a topic

Step 3: Identify the literature that you will review

Step 4: Analyze the literature

Step 5: Summarize the literature in table

Step 6: Synthesize the literature prior to writing your review

Step 7: Writing the review

Rai (2020) did a research on the topic of factors affecting purchase intention in the buying of smartphone. He found that there is significant impact of price, quality, features of the smartphone to the smartphone buying.

Theoretical Framework

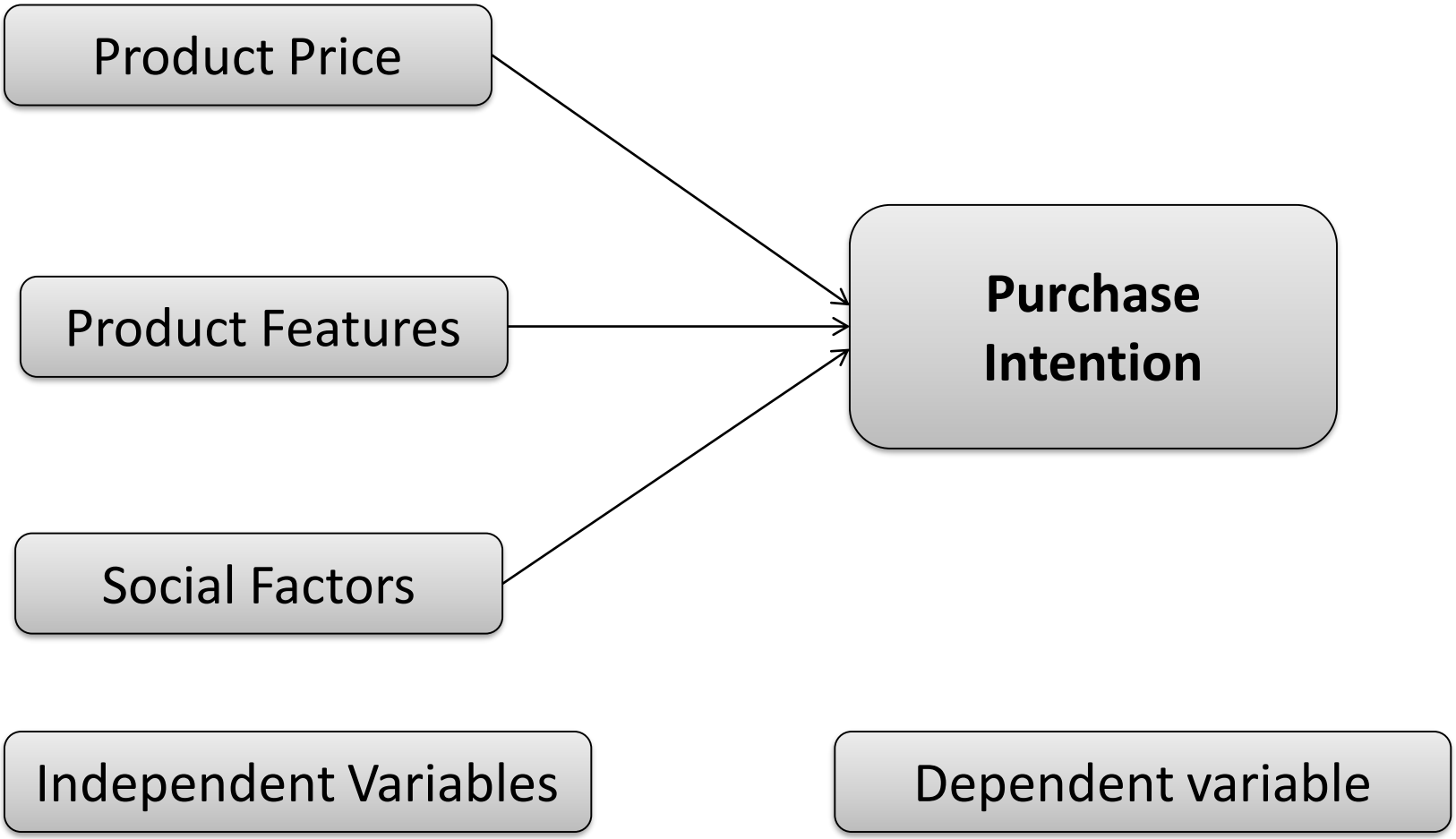
After completing the literature review and defining the problem we have to developed the theoretical framework. It represents your beliefs on how certain phenomena or variables are related to each other(model). Theoretical framework is the foundation upon which the study is established. Entire study proceeds within the theoretical framework. Theoretical framework can be presented in the graphic form, which reflects the variables selected for inclusion in the investigation.

Sekaran "the theoretical framework is the foundation on which the entire research is based. It is logically developed, described and elaborated network of association among variables that have been identified through such process as interviews, observation and literature survey. These variables are deemed relevant to the problem situation."

When we present the measurable variables in the diagram that defined the expected relationships between them and specifies the direction of such relationship that is called theoretical framework. It is a base for developing the testable hypothesis. It is collection of interrelated concepts.

The basic features of theoretical framework are :-variables should be clearly defined, model should give the relationship between the variables and clearly explanation why relationship exist.

Theoretical Framework



Research and theory

- Research is closely related to theory. Research and theory are inseparable supplementary components of scientific investigation.
- A theory provides the conceptual framework for research. Research, in turn, develops the theory. The findings of such research may lead to the formulation of the new theory or modification of the existing theory.
- “A theory is a statement of relations among the concepts within a set of boundary of assumptions and constraints.” **Nicholas Waliman**

Approaches-deduction and induction

Deduction(theory testing):- top down approach; it is a research approach used to test theory. It develops the theory. It involves the seven stages process:- identify broad problem era, define the problem statement, develop hypothesis, determine measures, data collection, data analysis and interpretation of data. It is an attempt made to verify the revised theory by going back to first step and repeating the whole cycle.

Theory-hypothesis-observation-confirmation.

Induction(theory building):-bottom-up approach; it is a process when we observe specific phenomen and arrive at general conclusion. in this research the researcher tries to understand the nature of problem gather the quantitative and qualitative data and analyze them to draw conclusion. Inductive research develops and understand about the problem and make proper analysis of its different dimensions. The result of this analysis would be the formulation of the theory.

Observation-pattern-tentative hypothesis-theory

Chapter-Three
Research problem

Problem identification is the most crucial step in the research process. The main function of problem identification is to decide what you want to find out about? It identifies the destination. It tells what you intended to research? If wrong problem is defined the rest of the research is completely useless. If practically organization facing some types of problem that is called research problem. What is the actual causes of problem, that is the research problem.

According to Uma Sekaran "Research problem is any situation where a gap exists between the actual and the desired ideal state."

According to Kerlinger "A good problem is defined as interrogative sentence statement that shows what relation exist between two or more variables."

For example:- Does training to aged people increase in efficiency in the performance?

Features of research problems :

- It should raise the question about relationship between variables,
- Relationship between variables should be clearly explained and
- It should suggests a method of researching the question.

Steps in identifying a research problem

1. Determining the field of research in which a researcher is keen to do the research work.
2. Develop the mastery on the area or in field of specialization.
3. Review the recent research conducted in the selected area.
4. On the basis of review, select the priority field of the study.
5. Draw an analogy and insight in identifying a problem or employ the personal experience of the field in locating the problem. In this process researcher can take help of supervisor or expertise of the field.
6. Pin-point specific aspect of the problem which is to be investigated

Setting objectives and research questions

In general, research objectives describe what we expect to achieve by a research. Research objectives describe concisely what the research is trying to achieve. Research objectives may be linked with a hypothesis or used as a statement of purpose in a study that does not have a hypothesis. Research objective is the declarative statement of proposed relationship of variables and it indicates the future results of the study. It is based on the research questions.

For example; To explore the relationship between price and sales.

Research question

- A **research question** is the fundamental core of a **research** project, study, or review of literature. It focuses the study, determines the methodology, and guides all stages of inquiry, analysis, and reporting.

- What you specially want to understand by doing this study? You should clearly spell out what you will attempt to understand? Hence your intention must be expressed in the form of research questions. A research question is defined as a statement that identifies the phenomena to be studied. *For example, what factors responsible for the growing rate of employees absenteeism*?

- Research questions, thus, indicate the purpose and motive of the research investigation. Research question is the mirror of the research objectives. It directly links to all others components of research investigation. It is said *“a question well-stated is a question half answered”.* You try to answer to these questions when you do research. Hypothesis can not go beyond research question because they are statements of relationships or propositions rather than merely questions to which answers are sought.

- Research questions describe the ideas contained in the research objectives.
- Research questions are the interrogative form of research objectives.
- Research questions are *such questions* that can help the researcher ***learn something new- fruitfully***
- Research question is intended to help us learn something new, and
- We often define our **research goals** in terms of *questions*.

There are three types of research questions.

Descriptive:- it describes what is going on or what exists?

Question: what is the current state of quality of work life in Nepalese commercial bank?

Relational:- it establishes the relationship between two or more variables.

question: what is the relationship between product quality and purchase intention of customers in buying television?

Causal:- it determines one or more variables causes or effect on one or more variables.

Question: how the demographic variables(income, age) influence on purchase intention of vehicle in Nepal?

Need of research questions

- Formulation of research questions is the *real starting point* in preparation of a research process.
- The *data required* (to be collected) for the study are determined by the help of the research questions.
- The *research design* is necessarily based on the research questions; the research method (to be adopted for the study of specific problem) is also set on these questions.
- The data analysis tools and methods, result interpretation procedures and the writing phases of the reports are also determined by the research questions.

Hypothesis

The crucial starting point of research is to have an issue to investigate. In the scientific research, this issue is normally expressed in the form of hypothesis. When the relationship/association among the variables are identified then certain testable hypothesis is formulated. By testing these associations among variables through statistical analysis we can obtain reliable information on what kind of information exists among the variables.

Hypothesis provides the direction for the research, the objective of the hypothesis is to organize the study.

A hypothesis proposes the relationship between two or more variables.

According to **John W. Creswel** “A hypothesis is a formal statement that presents the expected relationship between dependent and independent variables”

H1: There is significant positive impact of price on sales.

Functions of hypothesis

- Provide guideline for research
- Suggest for research design
- It identify facts that are relevant
- It specify the study
- Based of discussion

Types of hypothesis

1. **Descriptive hypothesis**:- Descriptive hypothesis are in the form of propositions that only state the existence, size, form or distribution of some variables. These descriptive statement contains only one variable, so the relationship between variables are not studied and explored. H1:*The average shareholders of Nepal Bank(case) favor returns in the form of bonus dividend (variable).*
2. **Relational hypothesis** describes the relationships between two or more variables. It is also categorized into two types: correlational and explanatory. When a statement describes the relationship between two or more variables, it is called *correlational hypothesis*. *H1: There is significant relationship between price and sales.* In the explanatory hypothesis one variable would cause or lead to change in the other variable. The increase in the income would lead to increase in purchase intention of luxuries goods.

   H1: There is significant impact of price on sales

3. Directional and non-directional hypothesis

The directional hypothesis indicates the particular direction of the expected relationship between two variables. These relationships could be stated in positive and negative, less than and more than form.

H1: *Older workers are less motivated than younger.*

The non-directional hypothesis do not indicate any direction of the relationship of the expected relationship. *H0: There is no significance difference across the gender in purchase intention of television*.

4. Null and Alternative hypothesis:

A null hypothesis is a statistical hypothesis that is tested for possible rejection under the assumption that it is true. Null hypothesis usually reflects the " no-difference" or "no-effect" situation. H0: There is no significant impact of price on sales.

A alternative hypothesis is the particular hypothesis that the researcher is seeking to examine. The hypothesis contrary to null hypothesis is known as alternative hypothesis. A hypothesis which expresses the tentative view of the researcher regarding the parameters or phenomena under study and considered to be true after testing is called the alternative hypothesis. H1: There is significant impact of price on sales.

Features of good hypothesis

- **Power of Prediction**: One of the valuable attribute of a good hypothesis is to predict for future.
- **Closest to observable things:** It does not believe on air castles but it is based on observation.
- **Simplicity:** sharp and simple no complex
- **Clarity**: conceptually clear, acceptable to everyone
- **Testability:** Empirically testable
- **Relevant to Problem:** guidance for the identification and solution of the problem
- **Specific**: It should not include generalization.
- **Relevant to available Techniques:** workable

CHAPTER-Four
Research Design

Research design is an overall framework for the activities to be undertaken during the course of research activities. A research design is the plan for attack. It explain about what methods will be used? What approach will be taken? It is the blue print for the collection, measurement and analysis of data.

According to C. R. Kothary "research design is the conceptual structure within which research is conducted. It constitutes the blue print for the collection, measurement and analysis of data"

According to Zikmund " research design is the master plan specifying the methods and procedures for collection and analyzing the needed information"

It is the roadmap to proceed the research work. It is a plan and structure to find out the solution of the problem. It helps to select the research methods. It is blueprint, specifies the methods to be adopted for gathering and analyzing data. **Features**: the subject for investigation, methodology, data gathering and analysis, reporting.

Classification of research design

Several typologies have been suggested for classifying a wide variety of research designs used for social science research. With a view to giving more detailed information about research design we can classify research study into five categories.

1. Exploratory research design

2. Descriptive research design

- Descriptive research
- Developmental research
- Historical research
- Survey research
- Case study research

3. Comparative research design

- Correlation research
- Causal-comparative research

4. Interventional/experimental research design

- True experimental research
- Quasi-experimental research

5. Qualitative research design

1. Exploratory research design

An exploratory research design is defined as a study undertaken in areas where very little prior knowledge or information is available on the subject under the investigation. An exploratory study is undertaken when we do not know much about the situation at hand. Extensive preliminary work needs to be done to get familiarity with the phenomenon in the situation.

The main purpose of the exploratory research is to explore the new insights or ideas. It is particular useful if you want to clarify your understanding of a problem.

Features: there is no set method for conducting exploratory research. It is less structured and more flexible. This studies are not characterized by formal research design, so they are not in very scientific in nature. It provides the direction for a more formal research work. Researcher can use the number of informal approaches in attempting to define the problem and gather the data.

2. Descriptive

Descriptive research describes phenomena as they exists. Such studies involve the systematic collection and presentation of data to give the clear picture of particular situation.

Descriptive research is conducted to assess the opinion, behaviors or characteristics of given population and to describe the situation and events occurring at present. It does not seek to explain relationship, test hypothesis, make prediction and implication of the study. Descriptive research can be either quantitative or qualitative. This research involves gathering data and describe the events and then organize, tabulates, depicts and describes the data. Multiple variables are not used in the descriptive research. Descriptive research report the percentage summary on a single variable.

Characteristics of descriptive research

- Descriptive research is used in the literal sense describing situation or events.
- It is accumulation of a data base that is solely descriptive.
- It does not necessarily seeks the relationship, test hypothesis, make prediction and implication.

The main **purposes** of descriptive research are: to collect detail information that describes the phenomena, to identify the problems or justify the current situation, to make comparison and evaluation, to determine what others are doing with similar problems and benefit from their experience in making future plans and decision.

(3) Developmental research

Developmental research is conducted for the purpose of predicting the future trend. It concentrates on the study of the variables, their rate of changes, direction and sequences. There are several methods for developmental research, which are as follows:

(i) Longitudinal(distance) study:- It is a study where phenomena is studied in the same unit over a time either continuously or repeatedly. This type of study measures the nature and rate of change in a sample at different stage of development. This occurs when the data are collected at two or more points in time from the same group of individual. Longitudinal study is mostly quantitative.

(ii) Trend study:- when data are collected at intervals spread over a period of time, it is called trend study. Trend study is used to predict the future event or position.

(iii) Cohort study:- cohort is a group of people who share a common characteristics or experience within a defined period. Cohort study is the study of a specific group such as burn on a day or in a particular period. There are many others kinds of cohorts including education, disease, employment, family formation etc.

(iv) Cross-sectional study:-

It involves the observation of some items of the population all at the same time. This study basically measures the rates of changes by drawing samples from the cross-section of society. It focuses on comparing and describing the groups. In this study data are gather just once over a period of time in order to answer the research questions. Such studies are also known as one-shot studies.

The fundamental difference between a cross-sectional study and longitudinal study is that a cross-sectional study take place at a single point of time and a longitudinal study involves a series of measurements taken over a period of time.

Characteristics of developmental research

- Focuses on the study of variables and their development over a period of months or year. What are the pattern of growth rate, direction and sequence.
- The sampling problem in the longitudinal method is complicated. There may be the chances of biases.
- Cross-sectional studies usually include more subjects, but describes fewer growth factors than longitudinal study.
- Sampling at cross sectional method is more complicated because same children are not involved at each level and may not be comparable.
- Trend studies are only the guess for long range prediction short range prediction more reliable.

(b) Historical Research

- Historical research is concerned with past phenomena. It can be defined as systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusion abut past events. Thus, the historical research if the process of collecting, evaluating, verifying and synthesizing the past evidence systematically and objectively to reach a conclusion. The main **purpose** of conducting the historical research is to show the relevance of past events to the presents.
- There are two main sources from where past evidence can be found: first, is primary source, where you were direct observer of the recorded events and other is secondary source where you are reporting the observations of others. In most cases, you have to depend upon the data observed by others rather than by yourself.
- Historical research is not based on purely scientific method. There is difficulty in the matters of objectivity of interpretation because researcher must depends upon the reported observation of others.

Characteristics of historical research

- It must be rigorous, systematic and exhaustive.
- It depends upon two types of data like direct observation and reporting of others.
- Historical research is similar to the “reviews of literature” which precede other forms of research.

(c) survey research

- A survey means the gathering the information about the characteristics, actions or opinions of a large groups of people, referred to as a population. Survey research involves interviewing or questionnaires to large numbers of people in the field. The investigator analyze the data obtained from surveys to learn about similarities, differences and trends and make predictions about the population being studied.
- According to **Tull and Hawkins** "a survey research is the systematic gathering the information from the respondents for the purpose of understanding and prediction of some aspects of behavior of the population of interest."
- A survey is done to understand the attitude of employees towards new compensation policy.

The survey research can be categorized into three types.

1. **Exploratory survey research**:- exploratory survey research is conducted during the early stage of research. It provides the basis for more in-depth surveys.
2. **Confirmatory(theory testing or explanatory)survey research:**- in this research data is collected with specific aim of testing the theory or hypothesis.
3. **Descriptive survey research:-** this research describes the distribution of the phenomena in a population. Through facts describe, it provided the useful hints both for theory building and theory refinement.

The aim of survey research is to measure the attitude, behavior of a population or sample. It may come in a wide range of forms and can be distributed using a variety of medias are used for asking the questions to the respondents like; written survey, oral survey, electronic surveys.

(4) Case study research

Case studies are written summaries or synthesis of real life cases based upon data and research. A case study is defined as a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within a real life context using multiple sources of evidence. Rather than using samples to examine a limited number of variables, case study methods involve in in-depth, longitudinal, examination of a single instance or events(case).

The study phenomenon could be a person, a family, a social unit, an institution, a community or a even a entire culture. The investigator gathers pertinent data about the present status, past experience, and environmental forces that contribute to the behavior of the unit. After analyzing the sequence and interrelationships of these facts he/she conducts the comprehensive study of a social unit. The specific event or phenomena is observed or studied and based on this analyzed the situation.

The social study of endanger Route tribe.

Characteristics of case study.

- A case study is more expensive because of its exploratory nature.
- A generalization drawn from a single case can not be applied to all cases in a given population.
- Personal biases may influence in the interpretation.
- Case studies are depth study of given social unit.
- Case study tends to examine a small number of units across a large number of variables and conditions.

5. Causal-comparative research

This research investigates the possible causes affecting a particular situation by observing consequence and searching for possible factors leading to these results. This focus on studying a problem in order to explain the relationship between two variables. In this research investigator takes one or more dependent variables and examines the data by going back through time, seeks causes, relationship and their meaning. It attempts to determine reasons or causes for existing condition. This research is also known as ‘ex post facto’(after the fact) research. This is because both the effect and the alleged causes have already occurred and must be studied in retrospect.

This research requires two groups which are selected for comparison. The main aim of this research is to assess causes of difference in two groups.

For example, to study the effect of income on purchasing behavior, we may identify two groups of customers. One is high purchaser and other is low purchaser.
Then we could study the differences of two groups are related income variable that already occurred as the reason for the difference in the purchasing behavior between the groups.

Characteristics

- There is a control or comparison groups.
- There is an intact group.
- Treatment is not manipulated, it has already occurred.
- Investigator takes one or more effects(I.V.) and examine the data by going back, seeks causes, relationship.

6. Experimental research

Researcher controls all other variables and conduct research by considering the few variables through observation and experiment is known the experimental research. The variables under study are free and valid, and all a others are controlled and kept constant.

An experiment is a test of a causal proposition. How changes in the value of one variable(I.V.) affect the another variable(D.V)

The main aim of this study is to see the relationship of between the variables and formulating the hypothesis. The effect in the dependent variable may have been caused by many other factors or alternatives hypothesis. So, the purpose of experimental design is to eliminate all alternative hypotheses. It can be used in laboratory and field work.

Characteristics of experimental research.

- All variables are kept constant except variables under the study.
- Requires rigorous management of experimental variables.
- Uses control groups.
- It examine the effect of I.V. in the D.V.

Errors in research design

Research design must attempt to reduce the different types of potential errors. Research design must reduce total error, not just one or two aspects of total error.

1. Surrogate(proxy) Information Error: Surrogate information error is caused by a variation between the information
required to solve the problem and the information sought by the researcher. The so-called price-quality relationship, where a consumer uses the price of a brand to represent its quality level, is a common example of a measure that is subject to surrogate information error (because price level does not always reflect quality level)

2. Measurement error*:* Measurement error is caused by a difference between the information desired by the researcher and the information provided by the measurement process. In other words, wrong type of information but it is also possible to gather information that is different from what is being sought. For example, respondents may exaggerate their income in order to impress an interviewer; the reported income will then reflect an unknown amount of measurement error.

3. Frame Error: The sampling frame is the list of population members from which the sample units are selected. An ideal frame identifies each member of the population once and only once. Frame error is caused by using an inaccurate or incomplete sampling frame.

4. Population Specification Error*:* Population specification error is caused by selecting an inappropriate universe or population from which to collect data. This is a potentially serious problem in both industrial and consumer research.

5. Sampling: A sampling error is a statistical error that occurs when an analyst does not select a sample that represents the entire population of data. As a result, the results found in the sample do not represent the results that would be obtained from the entire population.

6. Selection error: There is natural tendency for investigator to select those respondents who are more accessible and agreeable. A selection error occurs when respondents self-select their participation in the study.

7. Non-response error: Non-response errors occur when the survey fails to get a response of the questions. Non-response errors result from a failure to collect complete information on all units in the selected sample. A non-response **error** occurs when potential respondents are not successfully contacted or refuse to respond.

7. Qualitative research

Qualitative research was one of the first forms of social study. It is used in organizational behavior, human resource management, marketing research, strategic management etc. It provides powerful tool for areas of management. The application of qualitative research methods are on understanding the complex situation, interrelated and changing phenomena. In the literature of social science research, such terms as interpretive, naturalistic, ethnographic.

According to Uwe Flick "Qualitative research is an investigation of the subjective meaning or the social production of issues, events or practices by collecting non-standardized data and analyzing texts and image rather than numbers and statistics."

This approach to research involves the in-depth exploration and interpretation of the perceptions, opinion, aspirations, behavior, motivation, attitude, lifestyle, culture of the people. So it is all about exploring issues, understanding phenomena and answering the questions.

Basic assumption of qualitative research

- **Research is descriptive**: the focus is describing and understanding a phenomenon. Detail description of context, activities, process.
- **Research involves fieldwork**: the researcher has direct and personal contact with the people involved in phenomenon.
- **Inductive process**: this research is exploratory and focuses on discovery. It does not considered in hypothesis testing.
- **Subjective in nature**: it leaves much of the measurement process to the discretion of the researcher. This approach does not use rigorous mathematical analysis.
- **Research incorporates emergent design**: the research design can not be completely specified in advance of the fieldwork. The researcher pursues his/her own direction and discretion in data collection.
- **Holistic approach**: qualitative research explains to any events or issues considering to all causes of occurrence, process, activities and relationship amongst the variables. It does not explain the events based on single facts. It considers to every related facts while explaining the events.

Features of qualitative research

- **Interpretive:** it analyzes and interprets the events, functions or problems and tries to find out the reasons of occurring events.
- **Change in research design**: whole part of the research design can be changed when and where required.
- **Holistic assumption**: it assumes there is not single facts for occurrence of events. There will be multiple facts. The perception of people over facts changes.
- **Self collection of data**: to get in-depth knowledge, it is better to collect the data by the researcher himself because he/she gets the opportunities to get information from the gesture of respondents.
- **Based on qualitative facts:** qualitative research uses subjective information rather than quantitative information. It analyzes the subjective information and explain the situation to explore the real cause.

Qualitative research design

Qualitative research design varies depending upon the method used; participant observations, in-depth interviews (face-to-face or on the telephone), and focus groups are all examples of methodologies which may be considered during qualitative research design. A qualitative research design is concerned with establishing answers to the ***why*** and ***how*** of the phenomenon in question. Qualitative research design is a research method used extensively by researchers studying human behavior, opinions, themes and motivations. Content analysis, narrative analysis and thematic analysis are the methods of data analysis in qualitative research.

CHAPTER-Five

Measurement, Scaling, and Sampling

Concept of Variables

The researcher must separate out the different dimensions of the concepts and constructs and identify which of them are relevant to the study. These dimensions are called variables that will be used in the research.

Variables are the characteristics of persons, things, events, groups, objects, ideas, feelings and any other types of category that you are trying to measure. A variable is a symbol to which number and values are given. Gender, income, age, job satisfaction, productivity, absenteeism etc. are the example of the variables.

According to Kerlinger "A variable is a symbol to which numerals or values are assigned."

According to P. V. Young " A variable is any quantity or characteristics which may poses different numerical values or categories."

When the values of all these variables are expresses in numbers, we call them numerical variables. Numerical variables are continuous or discrete. Continuous numerical variables are those which can be expressed as fractions or in decimals(10-20,21-30). Discrete numerical variables are those which can take values as whole number(3 people score 56, 2 people 100etc.)

Variables are also can be quantitative and qualitative.

Quantitative variables are also called categorical variables. For example, the study of age, average spending, length of stay of hotel guest are the quantitative variables, because the each data generates numerical values like 30 years, 1,500 dollar and 7 days respectively.

On the other hand, qualitative variables generates non-numerical or qualitative data. For example, the nationality of students is the qualitative variable, because the nationality can be Nepali, Indian, Chinese, American etc. Qualitative variables are measured on a nominal scale.

Types of Variables

There are main four types of variables:- (a) independent (b) dependent (c) moderating and (d) intervening.

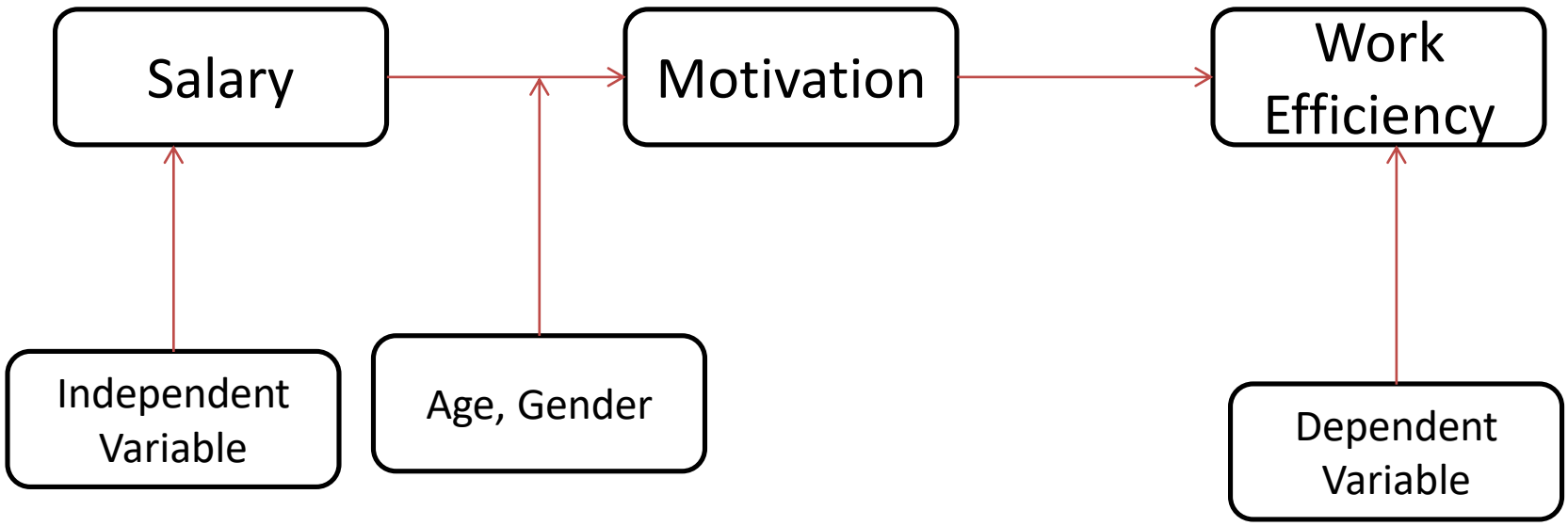
Independent: A variable which influences the dependent variable in negative way and positive way is known as independent variables. Such variables do not change due to change of others variables. If independent variable is changed by one unit then dependent variable will be changed in some degree.

Dependent variables: variables, that are affected by the change in the independent variables are known as dependent variable. Dependent variable is the primary interest of variable to the researcher. It depends upon other variables. The result of dependent variable will be affected by the changes of independent variables.

Moderating Variable:

A moderating variable is defined as one that has strong contingent effect on the relationship of dependent and independent variables. A moderating variable is the second independent variable because it is believed to have significant effect on the originally expected relationship. Presence of the moderating variable(third variable) modifies the originally expected relationship between dependent and independent variables.

Intervening (mediating) variable: There are many social problems where one major variable of interest may depend upon the independent variables, provided the third variable (intervening) does not come into picture, but the presence of this variable influences in the expected relationship between dependent and independent variables. If a variable influences the nature and degree of relationship between dependent and independent variables then such variable is called intervening variable.


Salary
Motivation
Work Efficiency
Independent Variable
Age, Gender
Dependent Variable

Concept of Measurement

Assigning the numbers or others symbols to any product or event or issues or characteristics as per the pre-specified rule is known as measurement. Number is a symbol that can be provided in different ways like 1, 2, 3,. The measurement of qualitative data is very difficult, it is necessary to provide numbers or symbols to characteristics of qualitative facts is known as measurement. Measurement is very important in the social science research, because such research considers motivation, satisfaction, perception, attitude, behavior. These factors qualitative in nature.

According to Goode and Hatt "Measurement is the method of turning the series of qualitative facts into quantitative series"

According to S. Steven "Measurement is the equipment of providing the numbers to objects or events according to rule."

Examples of the measurement

Strongly Disagree=1

Disagree=2

Neutral=3

Agree=4

Strongly Agree=5

Or Preference of

Brand A=1

Brand B=2

Brand c=3

Nature of good Measurement

The main criteria for testing the goodness of measures are as follows:

- **Validity**: Validity refers to the extent that you are measuring what you hope to measure. This indicates the accuracy of a measure. Validity refers to the truthfulness of findings. It determines whether the research truly measures that what it was intended to measure or how truthful the research results are. A valid measure should satisfy three criteria: *content validity*, *criterion-related validity* and *construct validity*.

(**a) Content validity**: It refers to the adequate coverage of the concept. Content validity ensures that the measuring tools include an adequate and representative set of items that would tap the concept.

For example, consider a series of questions that serve as indicators of employee dissatisfaction (don't feel like to going to office, lost interest of work, etc.). If there were other kinds of behaviors that make a person as dissatisfied that were not included in the questionnaire, then the questionnaire would have low content validity since it did not adequately represents all facets of concepts. If the instrument contains a representative sample of universe then the content validity is high.

Its determination is intuitive, logical and judgmental, it is a qualitative measure, it can not be quantified.

(b) Criterion-related validity: It refers to the success of measures used for prediction or estimation (actual behavior and predicted behavior).

Criterion-related validity has to do with how well the scores from the instrument predict a known outcome they are expected to predict. Statistical analyses, such as correlations, are used to determine if criterion-related validity exists. It helps to establish correlation between actual and standard work. If correlation is high then validity of such instruments is high and if correlation is low then validity of instruments is also low. This validity is used when measure the differentiates individual on a criterion(dependent variable) it is expected to predict. If a correlation of > .60 exists, criterion related validity exists as well.

(c) Construct validity: Above two validities are external validities but construct is the internal validity. It seeks the agreement between theoretical concept and a specific measuring device or procedures.

Construct validity indicates the extent to which a measurement method accurately represents a construct (e.g., a latent variable or phenomena that can't be measured directly) and produces an observation, distinct from that which is produced by a measure of another construct. Common methods to assess construct validity include, but are not limited to, *factor analysis, correlation tests, and item response theory models*.

❑ Reliability:

Reliability is related to results of the research. Reliability refers to the act of generating consistent results when the instruments are used in different samples and situations. Various instruments are used to collect and analyze the data for drawing the results in the social science. Consistent and stable result is depends upon the reliability of data. Highly reliable data provides more accurate result. The major duty of researcher is to find out the correct result. Measurement should have the following qualities to be reliable.

1. **Stability: I**f the stable and consistent result is obtained with the use of same instrument in the sample is known as stability.
2. **Equivalence:** A way to test the equivalence of measurement is the study of difference in the results developed by different observers or in the different samples by the same researcher. If the results are more equivalent then the measuring instrument is more reliable.

3. Internal consistency:

If the similar instruments are used and the responses are highly correlated then such measuring instruments are considered as internally consistency instruments.

Reliability can be measured using the following methods:

a) **Test-retest method:** Test-retest is a method that administers the same instrument to the same sample at two different points in time, perhaps one year intervals. If the scores at both time periods are highly correlated, > .60, they can be considered reliable. **I**f same instruments are used to measure the attitude of the people in the same sample, the result is same or tentatively similar, then the measuring instruments used by researcher is more reliable. Researcher can use correlation to see the relationship between two results. If the correlation high then the measuring instruments used by researcher is highly reliable and vice versa.

b) Alternative or parallel form method: like test-retest methods, it requires two testing with same sample. The alternative form method requires two different instruments consisting of similar content. A researcher develops two measuring tools covering the same concept and administers both forms in the same sample. If the result is highly correlated then measuring instruments are reliable vice versa. In this methods, both forms have similar items and the same response format with only the wording and ordering of questions are changed. These two forms are administered in the same time to the same sample.

c) Split-half method: It shows the correlation between two halves of an instrument. Under this method, instrument is divided into two equal halves. Division of instruments is based on odd and even number or on the random sampling. These two instruments are distributed to two different groups of samples and the result of such instruments are correlated to each other.

d) Internal Consistency: other kind of reliability is Internal consistency. It is the consistency of people's responses across the items on a multiple-item measure. In general, all the items on such measures are supposed to reflect the same underlying construct, so people's scores on those items should be correlated with each other. *Cronbach's alpha* is used to measure the internal consistency, the value of alpha must be grater than 0.7 ($\delta \geq 0.7$).

Scale construction for attitude measurement

Attitude is the qualitative subject. Attitude is the differ from person to person, so scale can be used to measure the attitude. Thus, number or symbol must be given for the measurement of such qualitative subject.

Followings are the important methods for scaling of attitude.

1. **Summated rating scale(Likert scale):** It is developed by Rensis Likert. It is used to measure the degree of agreement or disagreement. This scale presents various statements to measure the attitude of the respondents. Researcher asked the questions to know their agreement and disagreement over the statements presented to them. The attitude of all respondents are measured by adding all the values provided to each statements. So, it is called summated rating scale. Like five point likert scale, strongly agree, agree, neutral, disagree and strongly disagree.

2. Thurstone scale or differential scale

This scale was developed by L.L Thurstone. Under this approach the selection of items is made by a panel of judges who evaluates the items in terms of relevancy to the topic area.

Thurstone scales consists of number of items which a subject responds to by either indicating his or her agreement or disagreement. The main characteristics of Thurstone scales are that all the items on the objective test are equal importance, actually some items are given higher values than others. Thus, both respondents and attitudes can be scaled by this model. **For example**

I am satisfied with my job for the time being (7.2)

If I leave the job, I face problem (5.7)

My job is like a hobby to me (6.8)

Rules and regulation of this organization is good (7.5)

3. Guttman scales (cumulative scales)

- Cumulative scales consists of a set of items with which the respondents indicates agreement or disagreement. If a person can answer the first item he or she probably will be able to answer the second. If a person cannot answer the last items then he or she probably was not able to answer any of the items. It is one of the most difficult scales to construct and therefore is rarely used.
- 3) 28/7=?
- 2) 8x4=?
- 1) 3+4=?

Scales commonly used in business research

We discussed three major techniques, based on the basic principles used in this scaling techniques, researchers in social science have developed several different types of scaling. The different types of scale is used to conduct the research on the basis of nature and objectives of business research, which are as follows.

1. **Likert scale**: likert scale is most commonly used scale in social science research to measure the respondent's attitude. Respondents are asked to give their opinion limiting with given scales and respondents show their agreement and disagreement and degree of agreement and disagreement on the statement provided on questionnaire.
2. **Semantic differential scale:** Semantic differential scale is a type of survey question where respondents are asked to rate their opinion on a linear scale between two points.

Rating is done on bipolar scales defined with contrasting adjectives at each end. This scale can be used to measure the respondent's attitudes and reaction towards objects.

A series of seven point bipolar rating scales are constructed.

For example, *please rate the working condition of your organization on the following dimensions.*

Excellent 1 2 3 4 5 6 7 worst

3. Rank order rating scale: in this scale respondents are asked to rank the given items on the basis of their priority. They arrange them ranging from top most priority to lowest priority. It is a comparative method. It forces the respondents to discriminant among the relevant objects. No two brands have same ranking.

For example, based upon what you have seen, heard and experience please the rank the following brands of car.

Brands	rank
Honda	----1---
Ford	----3----
Maruti	----2---
Toyota	----4----

4. Graphic rating scale:- in this scale respondents are asked to indicate the response to the particular question by placing a mark at the appropriate point to express their opinion.
For example, on scale of 0 to 10 how do you rate your supervisor on the following dimensions. 0=very bad, 5=all right and 10=excellent. On the basis of the opinion of the employees the researcher finds out whether the employees take positively or negatively to the supervisor.

5. Itemized rating scale:- In this scale researcher provides the category of responses out of which the respondents select one that is most relevant for answering the questions under study.

For example, how much are you interested in the games?

Not all interested(1), some what interested(2), moderately interested(3) and very much interested(4)

6. Other simple scales:- Different researcher have developed the different scales in the different time period by considering the nature of the research. Which are as follows:

a) **Simple category questions**: It is also known as dichotomous scale. A simple category question is generally a "Yes/No" questions. It provides two mutually exclusive choices like yes/no.

For example, have you been to Pokhara?

(a) Yes (b) No

(b) Multiple choice questions:- A scale where multiple choices are given to the respondents but asked the respondents to select one or few alternatives. This scale is used to know the priority and interest of the consumers in the business research.

For example, which biscuits you most like? (a) Nebico (b) Hulash (c) Glucose (d) Thin Arrarot

(c) open-ended questions: in this scale respondents are asked to give their own opinion in their subjective form. No options are provided to them. It is used by researcher to get depth knowledge about any subjects or events.

For example, what is your opinion regarding this fiscal year budget of 2072/73?

Sources of measurement problems

There are several factors which lead to problems in measurement. Theses errors are as follows:

1. **Respondents related errors:** Respondents may not understand the questions. May understand the question, may wish, but may not remember the necessary information. Respondents may have the information but may reluctant to give it. Another aspect of problem is that respondents may provide incorrect information. Respondents may unable to express.
2. **Instrument related errors:** Instrument related errors are caused by faults in questionnaire rather than respondents. Excessive length or monotony that bores and tires respondents. Ambiguous instructions on what is wanted to respond. Wording of answer categories may be inadequate, confusing and biasing. Poor choice of wording. Erratic or tactless sequence of questions.

The sampling process

A population is the entire collection of all observation of the interest for the research. It is very costly and time consuming for the study of universe. So, to make the study easier representative portion of the population is selected for the study that is known as sample. The process of selection of sample is called sampling. Sample is some elements of population which helps to draw conclusions about the entire population.

If a researcher studies entire group then it is known as census study and if study is conducted by selecting few representative sample from population it is called sample study. If the sample is representative of population then the findings of the study can be generalized.

According to U. Sekaran "Sampling is a process of selecting sub-set of the population by the study of which a researcher would be able to draw conclusions that would be generalized to the population."

The sampling process has six stages which are as follows.

1. Define the population:- The population is the collection of whole units that researcher are interested in working about them. Population must be correctly defined, if population is incorrectly defined it may render meaningless result and misleading to the decision.

2. Specify the sampling frame: Sampling frame is the list of elements from which sample is drawn. After defining the problem researcher should get the accurate and update list (called frame) of all units of population. A sampling frame can be the telephone directory, employee roaster, voter list, list of all students attending a college. A perfect sampling frame is one in which every element of the population is represented.

3. Specify the sampling unit: Before selecting the sample, researcher should take the decision regarding the sampling unit. Sampling unit is a unit that represents the every characters of population. Sampling unit may be the state, village, family, club etc.

4. Determination of sample size: Sample size refers to the number of items which are to be selected as a sample from population. The sample size should be determined in such way so that it can capture all elements of population and able to attain the research goals. The sample size should neither too large nor too small.

5. Preparation of plan for sampling: The sampling plan involves the specification on how each of the decisions made thus far is to be implemented. Sampling plan provides the guideline for the operationalize the sampling design and size.

6. Select the sample: The final step of sampling process is the actual selection of the sample elements. Selection of sample requires substantial amount of office and field work.

Types of sample

1. **Probability sampling:** A sampling technique where every element in the population has the equal chance of being selecting as sample unit is known as probability sampling. Researcher also cannot estimate which element will be selected in the sampling. There are various techniques of selecting the sample based on probability, which are as follows;

(a) Simple random sampling: sampling where every element has equal chance of being selecting as a sample is known as simple random sampling. It is the purest form of probability of sampling and is commonly used in research. This method is used only in those studies where the entire population can be listed and sampling frame can be developed. The findings of research can be generalized to population.

(b) Systematic Sampling (quasi-random) sampling

Systematic sampling involves the random selection of the first item from the systematically ordered population and selection of a sample items at every K*th* interval. To select the sample items we need to calculate the sampling interval in the following ways.

$$\text{Sampling interval (K)} = \frac{\text{size of population(N)}}{\text{size of sample(n)}}$$

For example, if researcher has framed 400 employees as population and intends to take 10%(40) persons as sample then researcher select one item that is 1-400. Suppose the first number selected is 5 then K-value is 400/40=10. Thus sampling units are 5+10=15, 15+10=25, 25+10=35 and so on.

The procedures of applying this methods are as follows.

List the total number of units in population, decide the sample size, calculate sampling interval, identify the random start, draw a sample by using the sampling interval

(C) Stratified Sampling

This method is used when we have to select sample from heterogeneous population like male and female, educated and non-educated, seniors and juniors etc. In this method population is divided into sub-groups or strata and simple random method is used for to take sample from each sub-groups.

The process that has to be followed while applying the stratified sampling.

- Determine the variables (juniors and seniors) to use stratification.
- Determine the proportionate of the stratification variables in the population.
- Select proportionate or disproportionate stratification based on information needs and risk.
- Divide the sampling frame into separate frames for each groups.
- Follow random procedures to draw samples from each groups.

(d) Cluster Sampling

Cluster is the heterogeneous group that is in the population. Cluster sampling identifies the cluster that are internally heterogeneous. Every cluster contains many elements into the single element, so it is considered as small population. Employees grouped in branch office, customers at each supermarket are examples of clusters. When a group is selected as a sample having all elements of the population is known as cluster sampling. Random sampling method is used while selecting the clusters as sample. This method is also known as multistage cluster sampling technique. Multiple sampling occurs when the final sample is selected from pre-selected large samples.

2. Non-Probability Sampling

Non-probability sampling is those samples which have no equal chances of selecting as sample and sampling is made based on pre-plan. The findings of such sampling can not be generalized. This method is appropriate if researcher needs to collect data with low cost and time and need not generalized the findings.

Types of non-probability sampling;

1. Purposive or judgmental sampling: A sampling method where samples are selected by the researcher based on his judgment is known as judgmental sampling. Researcher selects the samples from population through researcher's intuition or on some other subjective basis. It is purposive not in random. It involves the target particular group. Researcher considers that the judgment interested target group (Professors) may much superior in the issue of corruption.

2. Quota Sampling

A sampling method where population is divided into different groups based on demographic factors or their nature determine the number of sample and sample is selected from each group in the certain rate is known is quota sampling. It is non-probability sampling, it does not ensure the selection of the representative sample, so it's findings cannot be generalized. It is a method of stratified sampling in which the selection within strata is non-random.

3. Convenience sampling: Researcher selects the sample units on the basis of their convenience is known as convenient sampling. Researcher selects those units on the basis of availability, willingness to participate, nearby, relationship etc. These samples are called accidental, man-in-the-street or haphazard sample. When both time and money is limited this method is suitable.

4. Snowball sampling

This is also known as reference or network sampling. This sampling is used where respondents are difficult to identify. If population is not fixed then researcher selects the one or few sample whose profile is fit to get information and on the basis of reference of those sample groups, other samples are selected. It is usually used by police to find out criminals, to study about prostitution of female, to study of drug culture, teenage gang activities etc.

Firstly, researcher find out first person from the population, ask to refer to other persons who can give information, if further sample is not found then close the sampling work.

Sampling Errors

The error that arises as a result of taking a sample from a population rather than using the whole population is known as sampling errors. A sampling error is the error, which is made in selecting samples that are not representative of the population. The difference between the sample value and population value is called as sampling error.

The sampling errors commonly taken place are as follows:

1. **Population specification error**: This error occurs when the researcher does not understand who should be surveyed. *For example*, breakfast cereal consumption, who should be surveyed? Mother or children?
2. **Sample frame error**: A sample frame error occurs when the wrong sub-population is used to select the a sample. If we use the telephone directory for sampling frame of those people who do not use the telephone then sapling frame is wrong and the prediction of research will be the wrong.

3. Selection error

This occurs when respondents self-select their participation for the study only those who are interested to respond.

4. Non response: Non response errors occur when respondents do not respond. This may occurs either the potential respondents are not contacted or they refused to respond.

5. Errors in taking sample: These errors occur because of variation in the number or representatives of the sample that respond. It can be controlled by careful sample design, multiple contacts to assure representatives of response and by taking large samples.

Non-Sampling error

Errors which are incurred from other sources than selection of sample are known as non-sampling errors. Non-sampling errors take place due to wrong selection of questions, wrong understanding and response of respondents, wrong analyzing tool, wrong research method. Following errors are the major non-sampling errors.

1. **Measurement error:** Due to the weakness in the measuring instruments like lack of awareness of respondents, unclear understanding of questionnaire, unskilled and untrained surveyor are the measurement error.
2. **Errors of researcher**: This may occurs due to weak definition of variables, selection of wrong methods and preparation of weak questionnaires.

3. Over coverage error: Sometimes researcher may select more elements while selecting the sample. Inclusion of data from outside of the population is the over coverage error.

4. Under coverage error: sometimes researcher may leave the essential elements of the population. Sampling frame does not include elements in the population.

5. Misinterpretation of questions error: If researcher uses the difficult words, respondents may misinterpret the question so responses do not represent the concept. The questionnaires must be developed by considering the level of respondents.

6. Processing error: There may be the error in the coding, decoding, editing and analyzing of data and interpretation of results.

7. Respondents related error: when respondents do not give response or give bias response or not able give response.

CHAPTER-6

Data Collection and Analysis

Concepts of Data

Data is the building block of any research. Data can be defined as *the values collected through record-keeping or polling, observing or measuring*. Data is facts, texts or numbers that can be collected. Data may in many forms like photograph, videotapes, maps, transcripts of interview etc. we can classify the data in different ways like subjective vs. objective, quantitative vs. qualitative and primary vs. secondary. Whatever the category of data it is collected and express in two forms facts and opinion.

Facts data can measures any thing that actually exists. Facts are the accurate picture of thing. It is actual occurrence.

Opinion is the view, judgment formed in the mind about particular matter. It is differ individual to individual.

Types of Data

Mainly data are classified as primary and secondary and quantitative and qualitative.

1. **Primary and secondary data:** The data which are collected by the researcher by himself/herself as per objective of research is known as primary data. Such data are first time collected and original, not previously used by other organization for other purpose. Primary data is generated by administration of questionnaire, interview, telephone contact, observation, group discussion, experience etc.

If researcher uses the data developed by others in the past for their own purpose is known as secondary data. Secondary data can be obtained from the published and unpublished sources. The report of Government, FNNCI, NCC, TPC, NGOs and INGOs.

The same data can be the primary data for one and same data is secondary data for others.

2. Qualitative and Quantitative

The data collected on the basis of quality or characteristics as known as qualitative data. Those data they can be observed but not measured.

For example, the kindness of human beings is the qualitative data.

Quantitative data deals with numbers. They can be measured. length, height, weight, age, time etc. are the examples of the quantitative data.

Sources of Data

The sources of data are classified based on its types. So it is categorized into two parts.

Sources of primary data: If data is developed by researcher himself/herself for the purpose of research is known as primary data. Primary data can be collected by using various methods which are described as bellows:

1. **Interview:** interview is the one major method for data collection, in this method data can be collected by asking question orally to the respondents. This may be structured and unstructured. The interviewer may ask the question and then suggest a list of possible answer is known as structured interview. The interviewer may ask the open questions by letting them chances to give their views is known as unstructured interview.

2. Questionnaire:

A questionnaire is a formal list of questions designed to gather response from respondents on a given topic, event. A questionnaire is used to collect the different types of primary data related to perception, attitude, opinion, behavior etc. Questionnaires are delivered to respondents personally or by mail. Questionnaire may be open-ended or close-ended.

3. Observation: A method of collecting of data where researcher observes, analyses and interpret the events or works personally is known as observation. Researcher does not ask the question but observes the events and keeps the record of information and facts. Besides, visually collection of data, observation involves the listening, reading, smelling, touching etc.

Sources of secondary data.

In every research primary data are not used. Primary data collection is more time consuming and more resources is needed. So, secondary data are use for the research. Researcher can obtain the secondary data from the different sources which are as bellows;

1. **Published sources:** Various agencies like government, non-government, private organization may published the data and those data can be used by other organization. Those resources are as follows:

(a) **Government report and publications:** government offices like ministries, department, Rastra Bank, CBS, planning commission may publish the progress report, research report.

(b) **Publication of semi-government organization**: NOC, NTC, Nepal food corporation may publish the report.

C. Publication of international organization.

WB, IMF, ADB, WHO, ILO etc. are the international organization and they may publish the report and research report.

d. Private publications: Individual and business houses like FNCCI, NCC, Bhatbhateni store etc. are the private organization. As well as NGO, INGO.

2. Unpublished sources: Some data and information are not published after the completion of the work. Report of private office and organization, some secret information of government, record of hospitals, government and non-government, schools etc.

3. Computerized database: Computerized data base consists of information that has been made available in computer for electronic distribution. Online data base consists of central data bank which is accessed with the computer.

Advantages of secondary data

1. **Easy to generalize:** It is developed by numbers of organizations and individuals then we can get of those data. So, it is easy to generalize the findings which are drawn from the use of those data.
2. **Economy:** It is readymade data. Additional effort and time is not needed to collect the data as primary data. It is economic to use.
3. **Quick:** Secondary data is already developed by other organization. Such data can be easily found without more effort and wasting time. So, the collection of secondary data is quicker than primary data.
4. **Reliability:** Secondary data are many time tested data and they are based on reality. The findings drawn from the secondary data is highly reliable.

5. Helps to cross check: The findings of primary data may not be reliable. So, they must be checked with the reference of secondary data. Secondary data is used to check the reliability of primary data.

Disadvantages of secondary data.

1. **Inappropriateness:** Secondary data may not be appropriate in solving the particular problem because data may be out of date due to the rapidly changing the situation. So, it may not be reliable for all situation.
2. **Chances of manipulation:** Sometimes data may be manipulated by the previous researcher to achieve the research objectives. Manipulated data can not give proper result.
3. **Significant difference in unit measurement**: Different projects use different criteria of measurement. So, these are often not comparable and usable for the present research work.

Methods of Primary Data Collection

A. Questionnaire: A questionnaire is a formal list of questions design to gather responses from respondents on a given topics. Questionnaire translates the research objectives into specific questions. The answers to those questions provide the data for testing research hypothesis.

According to **Wallace and Wallace,** *" A questionnaire is a means of gathering information by having the respondents full in answers to printed questions."*

Questionnaire is sent to the respondents personally, by post office and by mail to those who are literate. Respondents give the answers of the questions, it is used to study of attitude of people and researcher does not directly involves in the data collection.

Questionnaire Design

Questionnaire can be designed to collect the different types of data from the respondents related to perceptions, attitude, opinion, behavior etc. Researcher should pay the attention to what information would like to seek from the respondents. The keys to successful questionnaire are order, wording, layout, length and appearance of the questionnaire. Good research is about asking the right people the right questions, not much more and not much less.

Components of Questionnaire Writing.

Questionnaires are divided into three groups.

1. Explanation information: The researcher provides explanation information to the respondents to explain the purpose the study, objective of collection of information and reasons of filling the questionnaire. It remove the confusion. This information is given at the beginning of the questionnaire. It is a form of instructions. Researcher should includes the introduction of the researcher, main objective of the research, guidelines to fill up the questionnaire, assurance of the secrecy of information, return address, provide contact number, thanks them.

2. Basic Information

This is also called main part. Basic information refers to that information which is needed to solve the problem. Basic part consists of number of questions and probable answers of questions. This part of the questionnaire covers all necessary subjects under investigation adequately.

3. Classification information: At the end of questionnaire a section on personal information can be designed. Demographic items should be presented first on the questionnaire. This part incorporates age, gender, education, income, marital status etc. Such information is needed to prepare the profile of the respondents and determining the significant difference between groups of respondents.

Principles of Questionnaire Writing

Researcher should considered to certain guidelines while designing and administering the questions, which are as follows:

1. **Clear and precise:** The questions must be easily understood rather than stressful and long. Appropriate, simple words and short sentences must be used in the questionnaire.
2. **Use of familiar language:** Researcher should use the simple and common language, not jargon words.
3. **Unbiased words:** The researcher should not use of those words which shows biasness. Use of words like more, less, better, good shows biasness of researcher.

For example; Pay is more valuable than other factors for employees satisfaction. In this researcher is trying to focuses on pay not on other non-financial factors.

4. Avoid double-barreled questions: A double barreled question combines two or more issues in a single question which creates confusion to the respondents. *For example, does your company have pension and health insurance benefits?* If company has only one benefit, it is unclear to the respondents whether "yes" or "no".

5. Match the objectives: Questionnaire should be design in such way so that the researcher can obtain objectives of the research through analysis of responses.

6. Length of questionnaire: Respondents do not give more time, so unnecessary questions must be avoided and only essential questions must be included. It should neither too long nor too short.

7. Consider about respondents: Researcher should decide about quality and education of respondents before developing the questionnaire. Language and structure of questionnaire is depends upon the quality of the respondents.

8. Ask for only one piece of information at a time: The questions asks for two pieces of information creates the confusion. *For example, please rate the bank in terms of location and services.* Such question must be divided into parts, otherwise it creates confusion to the respondents.

Pilot testing

A pilot study can be defined as a ‘small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study. This is a preliminary, small-scale “rehearsal” in which you test the methods you plan to use for your research project. You will use the results to guide the methodology of your large-scale investigation. Pilot testing is a rehearsal of your research study, allowing you to test your research approach with a small number of test participants *before* you conduct your main study. Pilot studies should be performed for both qualitative and quantitative studies.

Process of pilot testing

- Developing a defined research approach (Methodology, Tools, Participant Target Profile)
- Pilot testing of research design
- Recruiting qualified research participants
- Execution of research
- Analyzing the outputs
- Reporting on research findings

The research interview

Interview is the most important method of collection of primary data. In this method interviewer personally ask the questions to the respondents. It is more reliable, practicable, popular and widely used method.

*According to **N. H. Gopal**, " The interview is conversation with a purpose and therefore is more than oral exchange of information."*

Interview must be purposive, it is face to face conversation, interviewer should not give direction to the respondents, interviewee should be given adequate time, questions must be asked according to capacity of respondents.

Types of Research Interview

Research interview is differ as per the structure of interview and research objectives. The types of research interview are as follows:

1. Face to face interviews: The most common method of obtaining survey data is the face to face interview. Interviewer talks to the respondents directly. Personal interview is taken in the home of respondents, office, college, street and other suitable places. Interviewer can also collects the data from non-verbal communication like gestures and facial expression. The researcher use either structured or unstructured interview. There may be the problem of biasness of interviewer in the unstructured interview.

Benefits of face to face interview

1. **Clear answer:** Surveyor puts the questions until and unless the clear answer of the question is obtained.
2. **Information for non communication means:** Researcher can collect the information from non verbal cues by watching the gestures and facial expression. It is more than spelled out.
3. **Identify the attitude of the respondents:** researcher can understand the attitude of the respondents and it helps to use such data for further study.
4. **Detail information**: researcher puts the sub-questions to clarify the answers of the questions, so helps to collect the detail information from the respondents.

Disadvantages of personal interview

1. **costly:** It is the more time consuming and costly for the personal interview.
2. **Inaccurate information**: Respondents may not give the interview to the unknown person. If ready, do not provide the real information .
3. **More respondents can be taken for the data.**

2. Telephone interview

When researcher use the telephone to collect the primary data, it is known as telephone interview. Today, it become well-established technique of data collection . The interviewer contacts respondents through the telephone rather than by mail. This technique is suitable when many respondents are to be asked questions over wide geographical area and time is not available, questions can be easily asked over the telephone in the structured way.

Advantages of telephone interview

1. **Flexible**: The scope of interview can be changed in the time of interview, so it is more flexible.
2. **Easy**: No more time and effort is needed to contact with the respondents through the telephone, so it is very easy to collect the information.
3. **Cheaper**: It is cheaper than personal interview because interviewer can contact through the telephone with the respondents.

Disadvantages of telephone interview

1. **Limited access:** Researcher can not contact with those wanted respondents who have not telephone facilities. Most of the respondents may out of scope.
2. **Not suitable for comprehensive survey:** It is not suitable for comprehensive survey because more questions asking is not possible in the telephone.
3. **Incomplete information:** The complete information collection is not possible through the telephone.
4. **No chances of non-verbal information**: Researcher can understand many things from gesture and non-verbal cues but it is not possible in this method.

3. Computer assisted interview

If the computer is used to collect the data rather than questionnaire is known as computer assisted interview. Rather than using a paper questionnaire, interviewer questions are read out through computer and responses to the survey questions are entered through the computer.

There are different types of CAI

1. **CAPI(computer assisted personal interview):** The interviewer reads the questions from the screen and responses are typed into designated fields. It is face-to-face question.
2. **CATI(computer assisted telephone interviewing):** It is similar set up to CAPI and used in telephone interview.
3. **CASI(computer assisted self-interview):** It is used particularly when questions are of a sensitive nature such as crime. Respondents are given the computer and asked to enter responses. Interviewer cannot see what they are doing, respondents are more likely to give truthful responses.

Observation

Above techniques for data collection are relatively indirect technique and researcher depends upon other people for the information. A more direct way of gathering information is to observe events as they occur. There is no questions and communication with the people in the observation. Researcher directly watch the people, events, situation and record the observed data. Besides, collecting the data visually, observation involves listening, reading, smelling and touching. It provides insight information about product, events, subject etc.

According to **Creswel** ,"*Observation is the careful watching and recording of somebody or something in a systematic way to establish knowledge.*"

Methods of observation

1. **Structured and unstructured observation:** Structured observation is a systematic and predetermined method of data collection. It is used, If researcher do not know every thing but will observe which is previously decided to watch. Structured observation take place in the natural setting or in laboratory setting. It produces the highly reliable results. Original data is collected.

when observation is done without any thought before observation is called unstructured observation.

2. Participation and non-participation observation: Participation observation is research strategy which aims to gain close and intimate familiarity with a given group of individuals and their practices through a intensive involvement with the people. The observer becomes a part of the environment.

- The researcher collects the data by participating in the daily life of those he or she is studying. Observer is a member of the group which he/she is observing is known participation observation.
- When observer observe the people without giving any information to them then it is known non-participating observation. Researcher watches the activities of those people without involving their activities.

3. Controlled and uncontrolled observation

When the observation is takes place according to pre-determined plan and experimental procedures then it is known as controlled observation. Observer develops the plan for observation the events.

When observation takes place in natural condition then it is known as uncontrolled observation

Focus groups

A focus group is a group of deliberately selected people who participate in a facilitated discussion to obtain consumer perceptions about a particular topic or area of interest. A focus group is a research technique used to collect data through group interaction. The group comprises a small number of carefully selected people who discuss a given topic. Focus groups are used to identify and explore how people think and behave, and they throw light on why, what and how questions. A focus group is best defined as a small group of carefully selected participants who contribute to open discussions for research.

Features

- You use a focus group in qualitative research. A group of 6-10 people, usually 8, meet to explore and discuss a topic, such as a new product. The group shares their feedback, opinions, knowledge, and insights about the topic at hand.
- Participants openly share opinions and are free to convince other participants of their ideas.
- The mediator takes notes on the discussion and opinions of group members.
- The right group members affect the results of your research, so it’s vital to be picky when selecting members.

E-research using internet and websites to collect data from individuals

Online research methods are ways in which researchers can collect data via the internet. Researchers collect data from respondents using various online research techniques. They are often called internet research or web-based research methods. The online data collected through by sending emails, texts is known as online data collection.

Considerations in online data collection

- **Select right sources of data:** who are the respondents
- **Establish a sufficient revert time:** return time
- **Customize your survey or questionnaire:** not too long and confusing
- **Be careful when requesting sensitive data:** disclaimer should be avoided before collecting data
- **Displaying data online**: privacy must be kept

Unit-7
Analyzing Data

When the data collection is completed then it is necessary to arrange the data so that it makes some sense to you and it can later be presented for the research report. The collected data must be evaluated and interpreted so as to achieve the result. The main purpose of analyzing the data is to obtain usable and useful information. Data analysis is the process of analyzing and interpretation of collected data through the statistical tools to generate the information.

- According to **Wikipedia,** "*Data analysis is the process of gathering, modeling, transforming data with the goal of highlighting useful information, suggestions, conclusions and supporting decision making.*"

Getting data ready for analysis

Process of data preparation

1. Gather data: The data preparation process begins with finding the right data. This can come from an existing data catalog or can be added ad-hoc.

2. Discover and assess data: After collecting the data, it is important to discover each dataset. This step is about getting to know the data and understanding what has to be done before the data becomes useful in a particular context.

3. Cleanse and validate data

Cleaning up the data is traditionally the most time consuming part of the data preparation process, but it's crucial for removing faulty data and filling in gaps. Important tasks here include:

- Removing extraneous data and outliers.
- Filling in missing values.
- Conforming data to a standardized pattern.
- Masking private or sensitive data entries.

4. Transform and enrich data

Transforming data is the process of updating the format or value entries in order to reach a well-defined outcome, or to make the data more easily understood by a wider audience. *Enriching* data refers to adding and connecting data with other related information to provide deeper insights.

5. Store data

Once prepared, the data can be stored or channeled into a third party application, such as a business intelligence tool and clearing the way for processing and analysis to take place.

Data Processing

There is a definite sequence for analyzing the data. The overall process of analyzing data can be viewed as involving the number of sequential steps.

The activities in data processing include: editing, coding, classification and tabulation of data.

1. Editing: Editing is the first step in data processing. It refers to the checking and correcting the error of data to ensure their accuracy. This is the step whereby you try to eliminate errors or point of confusion in the raw data. The main purpose of editing the data is to detect omissions, errors and inconsistencies in responses. It ensures accuracy, consistency, uniformity, completeness and simplify.

- Sometimes respondents may hide the real information and complete the questionnaire without understanding them then it must be edited. **Like,** respondent may response as unmarried in one questions but many responses having two children in the another questions. Editing data is made in the field and in the office. If surveyor edit the data in the field on the basis of their experience and observation it is field editing and if the data is edited in the office it is central editing.

2. Coding: The act of assigning numerical value or symbols to each responses of questions is known as coding. Simply the data coding is the replacing the data word into a code word. It makes easier to enter the data into the software for further analysis. To use statistical analysis package, all the data must be put in numerical form through a process of coding.

Computer is used for coding the data. Instead of entering the word male or female in responses to a questions that asks for the identification one's gender, we would use numeric codes as 1 for male and 2 for female.

3. Classification: Classification refers to dividing the data into different groups, classes and categories. When the data are collected they can not be analyzed until and unless systematically arranged so they must be classified into different groups. Through the classification the complex and scattered data are organized into concise and logical forms. The data can be categorized into different parts on the basis different bases like age, gender, geography, year etc.

4. Tabulation

Tabulation is simply the counting of number of responses in data categories. If data are arranged systematically into rows and columns it is called tabulation. It is a process of transferring the classified data into tabular form. Tabulation summarizes raw data and displays them in compact form for further analysis. It converts data into frequency distribution. Tabulation helps to make data easily understandable, facilitates in comparison, saves time, avoids repetition.

Presenting data in graphs and tables

Data can be presented in a table when the data is either parametric or non-parametric. It is possible to make a table from just one variable. Arrangement of data in logical order is known as a table. The arrangement of data in rows and columns in systematic order is known as table. Data can be classified into different groups which are as follows:

1. **Simple table:** A table that presents the data based on single characteristics is known as simple table.

Salary Amount	Number of Employees
Up to 10,000	50
10,001 to 20,000	40
20,001 to 30,000	20

2. Complex table: If more than one features are presented in the table it is known as complex table. Full information can be presented of all related facts in the complex table.

Complex table also can be categorized into different parts which are as follows.

a) Two way table: If the table presents the two characteristics of the data is known as two way table. It is formed by dividing the captions or row head into two parts.

Salary	Numbers of employees			
	male	female	Total	
Up to 10,000	70	30	100	
10,001-20,000	40	30	70	
20,001-30,000	20	10	30	
Total	130	70	200	

b) Three way table

A table that presents three characteristics of the data is known as three way table. It is needed to present the three characteristics of data at a time.

A table that presents three characteristics of the data is known as three way table. It is needed to present the three characteristics of data at a time.

Salary	Male			Female			Total		
	Lower class	middle	upper	lower	middle	upper	lower	middle	upper
Up to 10,000	50	30	-	20	10	-	70	40	-
10,001-20,000	40	25	10	30	20	10	70	45	20
20,001-30,000	10	20	30	10	15	25	20	35	65

c) Manifold table

If a table shows more than three characteristics of the data is known as manifold table.

Salary	Male						Female					
	Lower class		Middle class		Upper class		Lower class		Middle class		Upper class	
	literate	Illiterate	literate	Illiterate	literate	Illiterate	literate	Illiterate	literate	Illiterate	literate	Illiterate
Up to 10,000	30	20	20	10	-	-	20	10	12	8	-	-
10,001-20,000	-	-	-	-	-	-	-	-	-	-	-	-
20,001-30,000	-	-	-	-	-	-	-	-	-	-	-	-

Graph and charts

The study of data in the table is more difficult, so data are presented in the graph and chart so as to presented data in the attractive and appealing pictures and charts. Data presentation in the form of chart and graph can provide a quick and concise insight into the subject under investigation. It attract the people. The types of figures depends upon the research objectives and research questions.

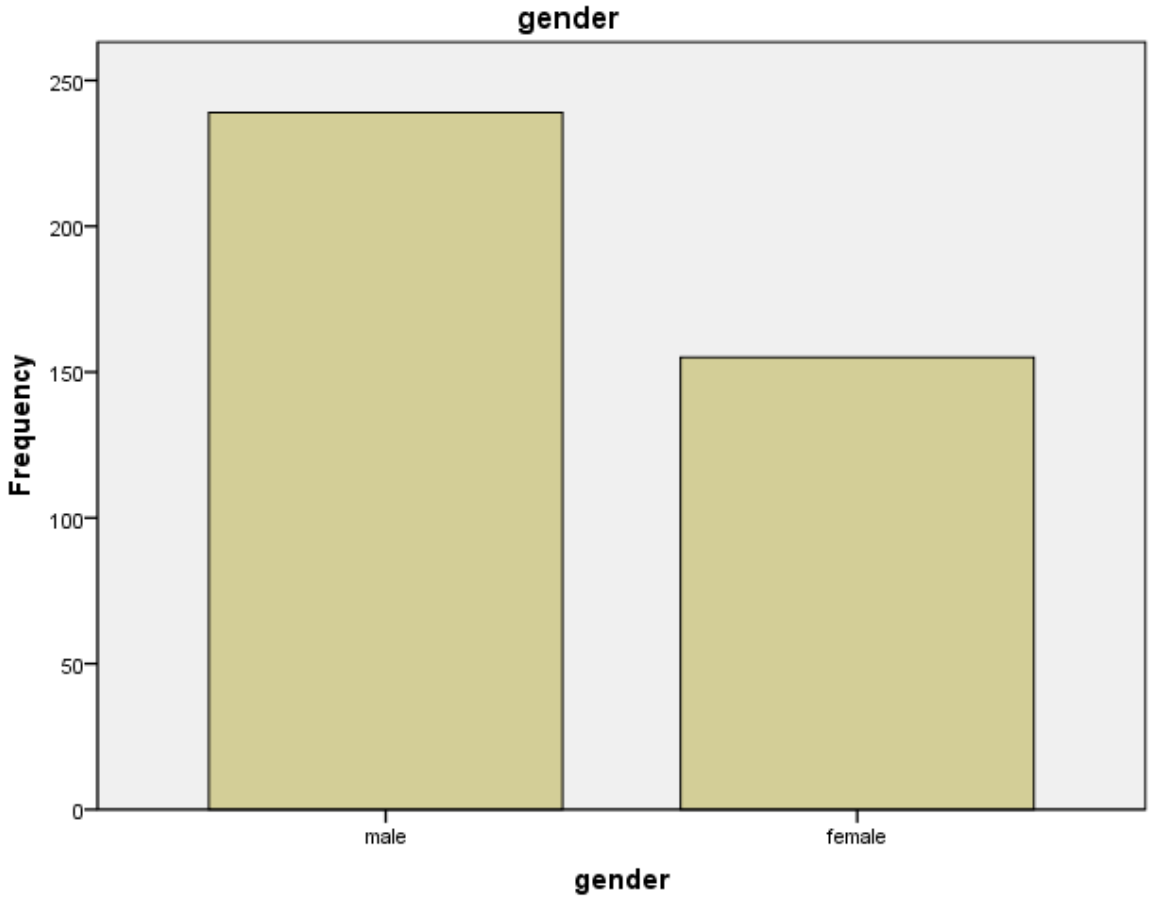
Diagram and chart creates impression to the mind of observer, easy to understand of facts, it saves the time and labor, attractive, easy to comparison of data and helps to remember for long period.

Types of diagram

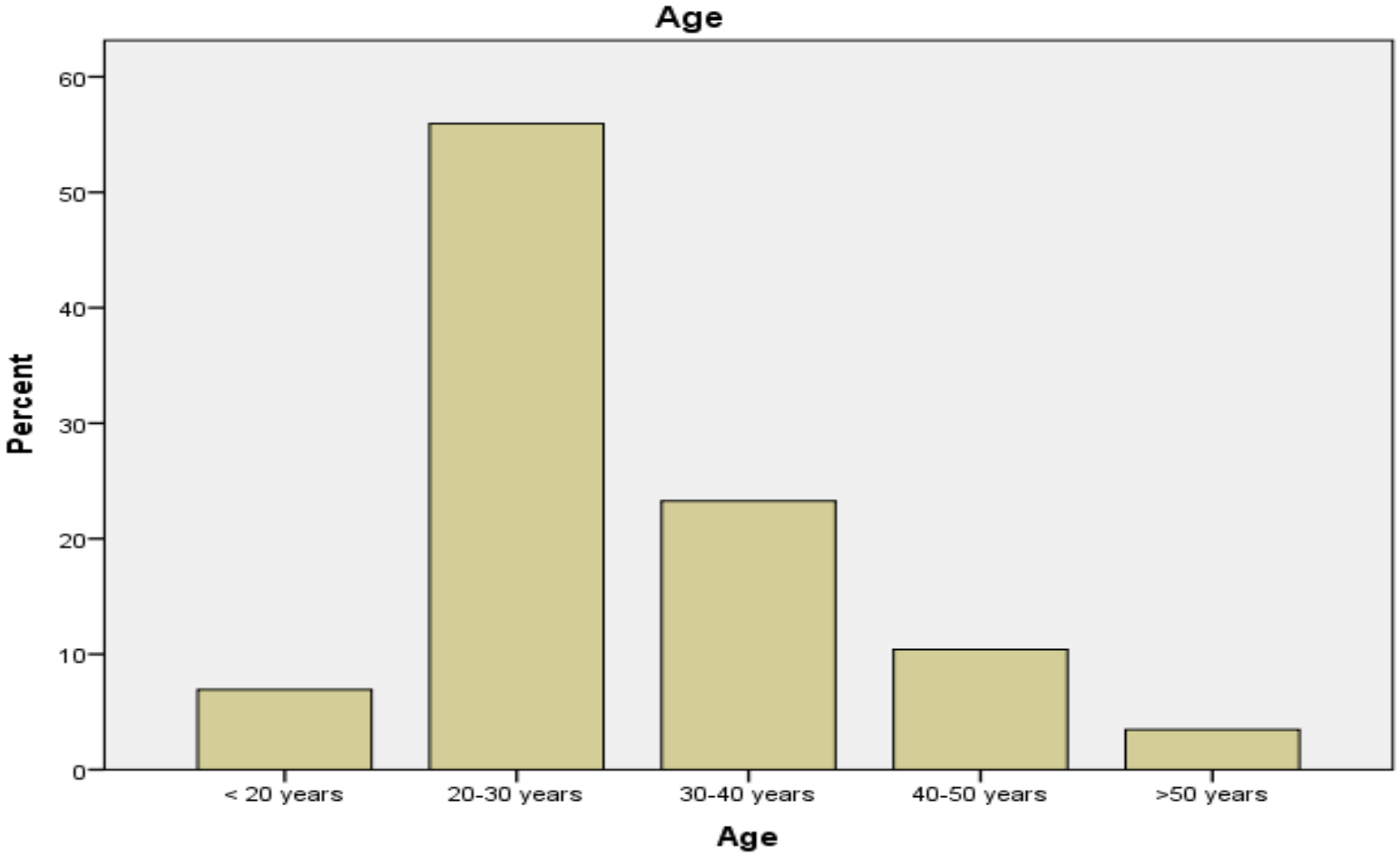
There are various types of diagram to present the data in practice which are as follows;

1. **Bar diagram:** Bar chart is a very popular way in which research findings are presented is through the use of bar chart. There different types of bar diagrams which are as follows:

a) Simple bar diagram: simple bar diagram presents the single dimension of the data. It is used to comparative study of two or more items of a single variable. Separate bar is prepared in the simple bar diagram.

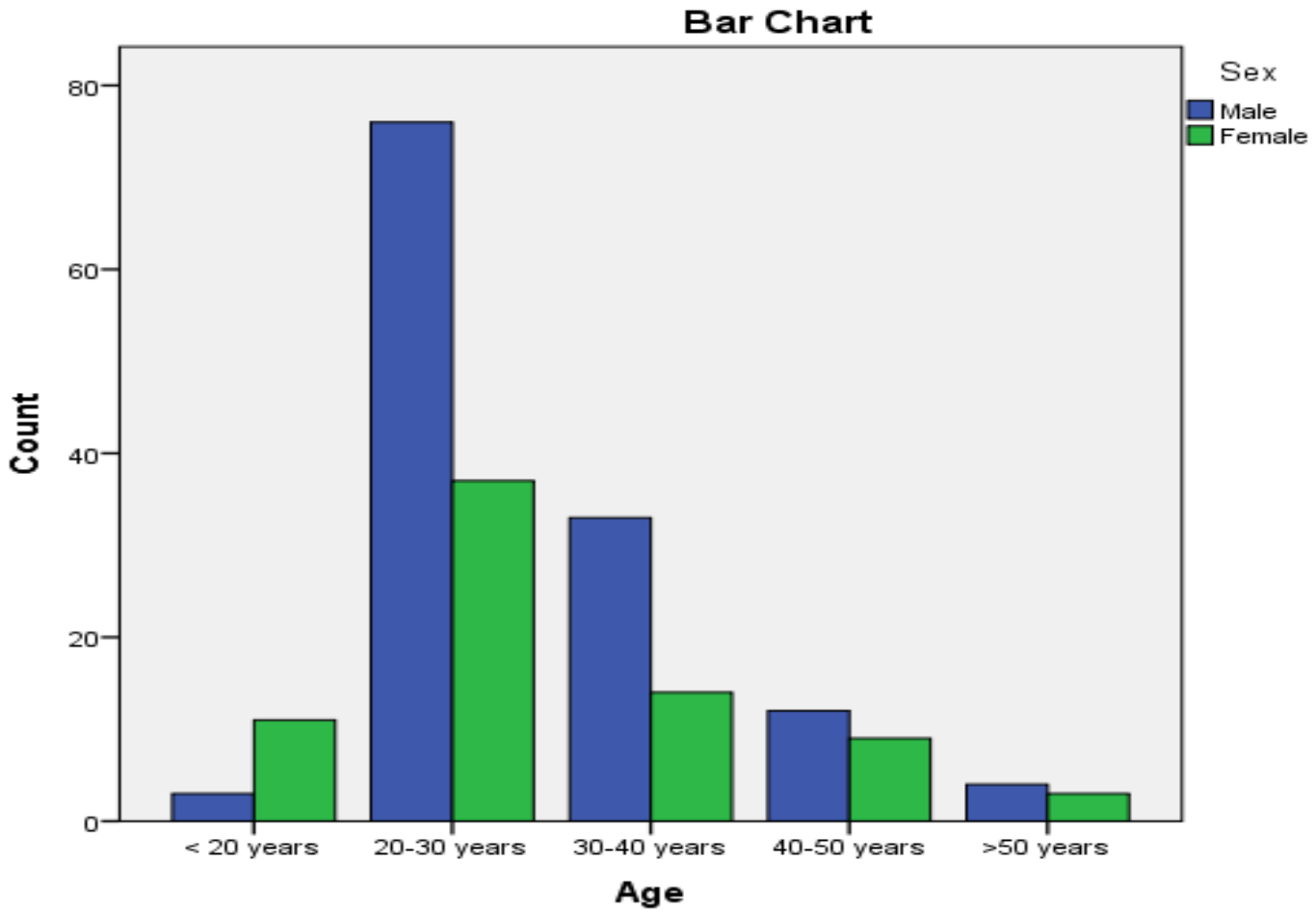

gender
250
200
150
100
50
0
Frequency
male
female
gender

b. Percentage bar diagram

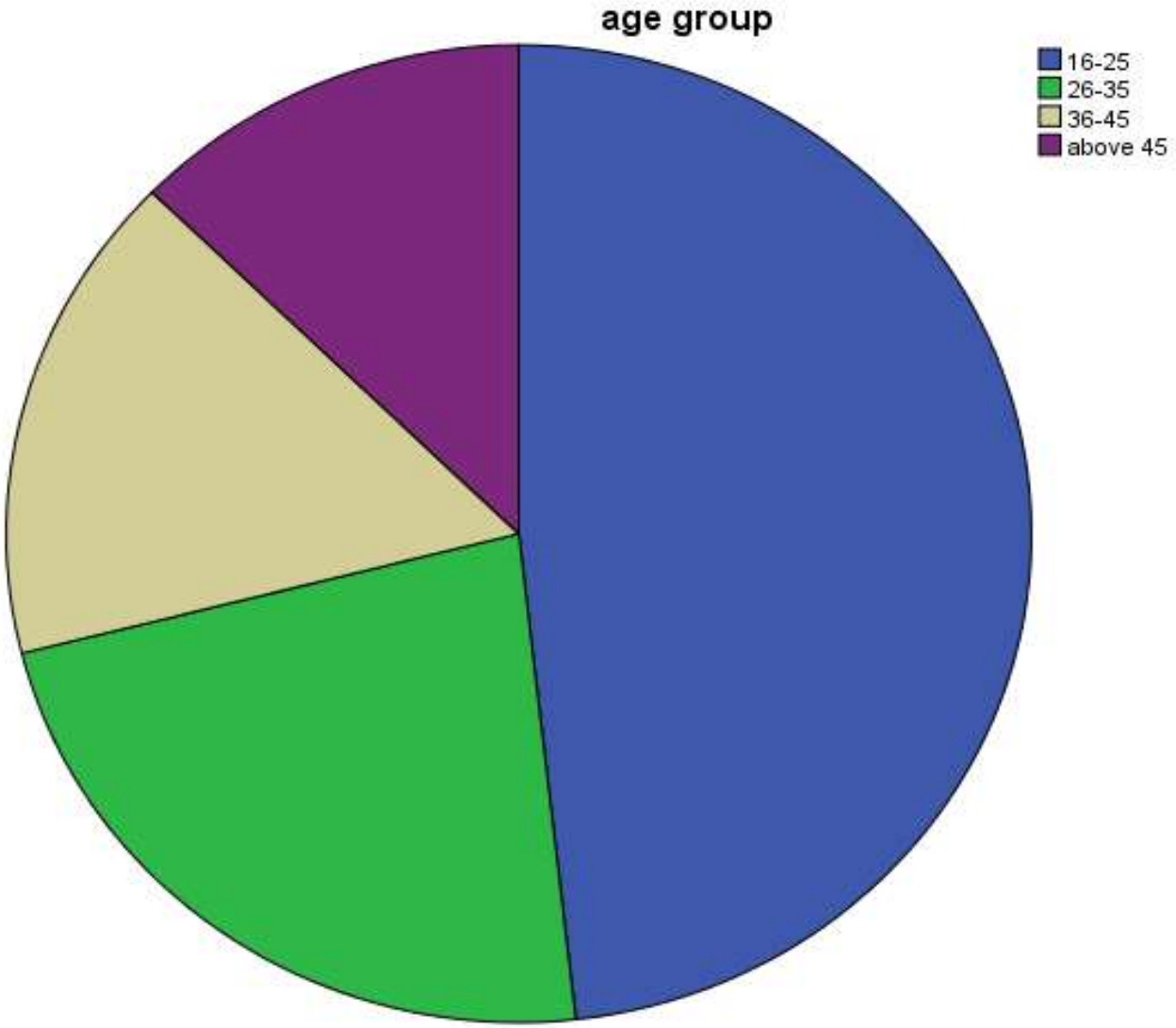


c. Multiple Bar Diagram

it is prepared to present the two or more than two sets of data .
It is used to present interrelated data set of two or more groups.



c. Pie chart



Statistical analysis of data: descriptive and inferential statistics

Descriptive statistics :Those statistical tools which are used to explain the activities, fundamental characteristics or behavior of group or data is known descriptive statistics. Frequency, mean, median, mode, s.d. are used in the descriptive statistics. Descriptive statistics describe a sample.

Inferential statistics

Inferential statistics takes data from a sample and makes inferences about the larger population from the sample was drawn. Because the goal of inferential statistics is to draw conclusions from a sample and generalize them to a population, we need to have confidence that our sample accurately reflects the population. Inferential statistics arise out of the fact that sampling naturally incurs sampling error and thus a sample is not expected to perfectly represent the population. The methods of inferential statistics are (1) the estimation of parameter(s) and (2) testing of statistical hypotheses.

Inferential statistics helps to estimate the characteristics of the population from the sample and estimate the relationship between dependent and independent variables.

a) **Estimation statistic**s: A statistics that is used to estimate the population parameter from the analysis of sample is known as estimation sample. Estimation is made by using following two methods in statistics;

ii) Confidence interval or estimates: It helps to establish difference between two points. For example, campus estimates the admission of 300-400 students and admission falls within two figures then it is estimation of confidence interval.

ii) Parameter estimation: it helps to estimate the relationship of variables that are in the population is known as parameter estimation. For example, Correlation and regression.

b) Hypothesis testing: in large population it is not possible to enumerate all the population, in this situation researcher has to take the help of certain assumptions about characteristics of the population which are known as hypothesis. Such hypotheses are tested using various statistical tools for analyzing the sample. It helps to estimate the population parameters from the analysis of sample.

Analyzing data using SPSS

SPSS *(Statistical Package for the Social Sciences)* software has been developed by IBM and it is widely used to analyze data and make predictions based on specific collections of data. SPSS is easy to learn and enables teachers as well as students to easily derive results with the help of a few commands. The implications of the results are fairly evident and are statistically valid. Using the software, one can conduct a series of studies quickly and effectively.

Hypothesis testing

The purpose of statistical inference is to draw conclusions about a population on the basis of data obtained from a sample of that population. Hypothesis testing is the process used to evaluate the strength of evidence from the sample and provides a framework for making determinations related to the population. It provides a method for understanding how reliably one can extrapolate observed findings in a sample under study to the larger population from which the sample was drawn. The investigator formulates a specific hypothesis, evaluates data from the sample, and uses these data to decide whether they support the specific hypothesis.

Steps of Hypothesis Testing

1. The first step is for the analyst to state the two hypotheses so that only one can be right.
2. The next step is to formulate an analysis plan, which outlines how the data will be evaluated.
3. The third step is to carry out the plan and physically analyze the sample data.
4. The fourth and final step is to analyze the results and either reject the null hypothesis, or state that the null hypothesis is credible, given the data.

Errors in hypothesis testing – Type I and Type II errors

In statistical hypothesis testing, a **type I error** is the rejection of a true null hypothesis (also known as a "false positive" finding or conclusion; example: "an innocent person is convicted"), while a **type II error** is the non-rejection of a false null hypothesis (also known as a "false negative" finding or conclusion; example: "a guilty person is not convicted").

In statistics, a **Type I error** is a false positive conclusion, while a **Type II error** is a false negative conclusion.

Making a statistical decision always involves uncertainties, so the risks of making these errors are unavoidable in hypothesis testing.

Example: Type I vs Type II error

You decide to get tested for COVID-19 based on mild symptoms. There are two errors that could potentially occur:

- **Type I error (false positive):** the test result says you have coronavirus, but you actually don't.
- **Type II error (false negative):** the test result says you don't have coronavirus, but you actually do.

Methods of analyzing qualitative data.

The data which is expressed in subjective form or in language or word is known as qualitative data. Qualitative data is collected from open-ended questions and observation. These data must be analyzed by the various technique. The methods of analyzing the qualitative data are as follows:

1. Content analysis: Content analysis is the major tool of analyzing the qualitative data. Content analysis is the analysis of the text documents. It synthesize the scattered information and data so that they can be analyzed and draw conclusion. Content analysis is a type of secondary data analysis which is used to analyze text, newspaper, books, manuscripts and website.

Limitations of content analysis

- It is limited to the types of information available in the text form.
- Results can be skewed if words are misinterpreted.
- Different researcher may have different interpretation of the materials so inconsistent result.
- May not include all the values present in the data.

Strength of content analysis

- Provides objective analysis of written materials and can identify the meaning from text data.
- Can quantify qualitative data.
- Allows manager to go through large amount of text quickly.

2. Narrative Analysis

A technique of recording and analyzing the information based on story of respondents to the related event is called narrative analysis. Researcher request to the respondents to provide the detail information related to the subject on the basis of observation. There is no pre-determined questions. Narrative can be obtained from responses to open ended questions, feedback of focus groups, notes from field observation and published reports. The role of researcher is to interpret the stories.

Obtaining the data, coding the data and identify the relationship among the various classes are the stages of narrative analysis.

Elements of narrative analysis

- **Understanding level:** people tells the stories and such stories widen the understanding of the people on such events.
- **Data analysis:** data can be analyzed by writing memo of the stories. Case wise compare is made.
- **Data collection:** people exchange their stories in discussion, interview.

3. Thematic analysis

Theme refers to the main point of the subject. It is a technique of analyzing the qualitative data. In this method researcher identify the major points of data, analyze them and prepare the report. In this method researcher might read and re-read of data, note down, codes interesting features, relates into theme, generates the map, refine on-going analysis and prepares the report.

Steps of thematic analysis

1. **Review of previous literatures:** translate, read re-read the data and develops the note.
2. **Generating initial codes**: Researcher should high light the essential data to collect found in the literature prepare note. Unnecessary data is avoided.
3. **Searching for theme**: researcher should identify the probable information and collects the essential data based on potential theme.
4. **Reviewing the theme:** after collecting the theme researcher should review the theme to find out whether such theme is real or not.
5. **Defining the theme**: theme must be clearly defined and should be given the name to clearly identify.
6. **Preparing the report:** establish the relationship of concept and their analysis with the literature review and find out the theme and prepare the report.

CHAPTER-8

Research proposal and report writing

Topic selection

The first step of research is to identify to topic selection. Topic is the main theme of the research. It is difficult task to select the topic in the research. Selection of the topic is depends upon the following factors:

1. Interest: The most important thing in the selection of the topic is the interested area of the researcher. Researcher should select the topic on their interested areas. Interest makes the research more interesting and helps to complete the work.

2. Time: The second important factor to be considered in the selection of the topic is the availability of time to complete the research because the work must be completed within the time frame. It is risky to do ambitious research. Familiar topic should be selected to complete the work in time frame.

3. Availability of data: Other important factor to be considered in the selection of the topic selection is the availability of data. Researcher should considered whether it is feasible to get data or not. If it is difficult to get the data for research work it is not selected. In Nepal the data availability from the unlisted private organization is impossible.

4. Level of expertise: It will be more risky to take and handle a topic beyond the level of expertise of the researcher. If students select the unfamiliar topic he/she should read enough literature and analysis tools and technique for the selection of the topic. It is better to take simple issues and handle it within the researcher's level of expertise.

5. Ethical issues: Ethical issues must be considered in the selection of the topic. Research topic should not violate of privacy of respondents or companies. Researcher should be careful while taking information from the children.

Research proposal

A research proposal is the formal suggestions or blueprint of the research work. It is a detail plan of research to be conducted. It is written document of the researcher that provides the detail description of the proposed study. It is a outline of the entire research process that gives the summary of the study. It is a roadmap of the study, it provides the idea about the works to be done, how to do work, when to do and guesses of the result of research in advance.

Purpose of the research proposal

1. **To provide information:** Researcher prepares the proposal to provide the information to the research committee which evaluates and approves the proposal. It is prepared to provide the information to the sponsor organization.
2. **To prepare plan**: Proposal is a plan which explains about the objectives, methodology, framework, area, process and expected result of the research.
3. **To give assurance**: Research proposal is prepared to assure that the proposed research is achievable within the required time and with the available resources.
4. **To demonstration**: Proposal is prepared to demonstrate that the researcher has adequate expertise and experience to undertake the project.
5. **To form base for contract:** Researcher should make contract with supervisor/college/funding agencies before conducting the research. It is the base for such contract.

Types of research proposal

Some of the common type of research proposals are as follows:

1. **Academic proposals:** These proposals are prepared to complete any academic degree. In preparing academic proposals researcher often get the support of the supervisor. Such proposals are prepared by the students of Masters, M.Phil, Ph.D. The followings are the elements of academic proposals; title, objectives, background, research problem, possible outcome, selected reference etc. It is differ according to study and organization to whom it to be submitted.

2. Solicited proposals: Solicited proposal is prepared on the request of individual and organization. It is submitted in response to a specific solicitation issued by sponsor. It is concentrated on the identifying the problem and solution of the problem. Solicited proposal requires the researcher to work also on the financial aspects of the proposed research work. It concentrates on the known problems.

3. Unsolicited proposals: If research proposal is prepared by researcher in his/her own interest is known as unsolicited proposal. Researcher prepares the proposal and presents to the concerned organization. Proposal of the research Centre is unsolicited proposal. It particularly focuses on then statement of the problems and research objectives. The qualification of the researcher, time schedule, budget and required resources are mentioned.

Structure of the research proposal

Various information must be included in the time of preparing the research proposal. The design of the research proposal is differ according to the objective and nature of the research. Followings contents must be included in the research proposal;

1. Title page: Researcher should prepare the title for the research. It should not be too long and too short. It should reflects the entire subject matter of the research. Its main purpose is to reflect the essentials and intentions of the proposed study. It must be concise, descriptive and as short as possible.

2. Abstract/Executive summary

In case of proposal invited for research funding the proposal should include a abstract. The funding agency use the abstract to make preliminary decision. The abstract should state the problem addressed, objectives and methods of research work.

3. Table of contents: Brief proposal(up to 5 pages) do not need of table of contents. Long and detailed proposal may require table of contents, list of figures, list of table. The table of contents should list all major parts.

4. Background of the study: It is the part of the research proposal that provides general information, reference about research. The background should be written to introduce the research area and issue. At the end of the background the major focus of the study must be included.

5. Statement of the problem

This section describes about the environment of the problem and then describes various possible factors that may affect the problem and end with specific research questions. Problem of any area must be clearly identified, relationships of variables under study must be shown and problems whose answers is possible should only be included.

6. Research objectives: The proposal should stated the both general and specific objectives. The general objective must be consistent with the major focus of the study and specific objectives with the research questions.

7. Theoretical framework

The proposal should include the descriptions of the key variables and put them in diagrammatical framework to establish their relationship to be investigated. At the end of the section, the researcher should provide the operational definition of the variables. The operational definition states how the variables are to be measured by the research instruments.

8. Statement of hypothesis: It is the declarative statement of the relationships of the variables. Theoretical framework provides the guideline for the hypothesis. It depends upon the research objectives.

9. Research methodology

This section is the main part of the research proposal. It describes the research design to be adopted, the population and sample size, sampling method, data collection method and analysis tools to be used.

10. Reference: The proposal should provide the references used by researcher. This list shows that the researcher has consulted adequate reference materials before writing the proposal.

11. Personnel: This section is put only in case of solicited proposal. It explains the biographical data sheets for each of the main contributors to the work.

12. Budget: In the case of solicited proposal it is needed to prepare the budget to be submitted to the funding agency. Budget depicts the costs to be met by funding sources including personnel, non-personnel, administrative and overhead expenses.

WRITTING A RESEARCH REPORT

The research report is the final outcome of the research. The quality of the research is depends upon the quality of the reports. Many weaknesses of the research process is covered by a good research report. The research report is differ according to the types of research. Research report provides information to the concerned parties regarding analysis of the data and findings of the research work. It incorporates research objectives, methodology, findings and suggestions. A research report prepared by students to complete certain degree is called thesis and a document prepared by non-academic sector is known as report.

The reporting process

1. **Analysis of subject matter:** There are two ways to analysis of subject matter; logical and chronological. The logical development is made on the basis mental connections and association between the one thing and another. Chronological development is based on a connection or sequences of time.
2. **Preparation of the final outline:** Outline refers to the framework upon which long written works are constructed. They are the tools to the logical presentation of the materials and reminder of the points to be included in the report.

3. Preparation of the rough draft: In this stage the researcher writes down every thing whatever he/she found during the research work. Researcher will write down the procedures, research methodology, limitations, findings and suggestions.

4. Rewrite the rough draft: Researcher tries to find out the weakness of the rough report. Researcher has to check the consistency and unity of the materials and layout of the rough draft. As well as language, spelling, grammar etc. also must be checked in this stage.

5. Preparation of the final bibliography: It is a list of books, thesis, articles. The bibliography should be arranged alphabetically.

6. Writing the final draft: Finally, researcher should prepare the report and it must be concise, simple, objective, etc. Research should solve the problem of the researcher.

Procedures of writing report

1. **Preparation of outline:** Before starting the report writing it is better to prepare outline of the work. It directs the researcher to manage the materials in a proper way. It clarifies the matters to be presented in the report.
2. **Time planning:** Researcher has to complete the work within prescribed time frame. So, researcher has to plan time for every work like literature review, data collection, data processing, report writing etc. which helps to the researcher to complete work in time.
3. **Management of data:** When data are collected, they may in unmanaged and raw form. Researcher should managed and analyze the collected data.

4. Start of writing report: Researcher should starts report writing from introduction of the topic and reaches to the conclusion. Report must be classified as preliminary section, main part and subsidiary part.

5. Prepare the first draft: It is very difficult to prepare the excellent report even for the professional writer in the first attempt itself. So, researcher should firstly prepare a rough sketch of a report. Researcher improve the first draft report by reviewing the data.

6. Put the report for some time: It suggested that the researcher should forget the research report for some time. After some time researcher should review it.

7. Review and rewrite: At last, researcher should review the report. Such review is just like a fresh review by a new person. Researcher can find out errors and weaknesses in the report after reviewing it and prepare improved report. Such report is final report, it is presented to concerned persons or institutions.

Style of research report writing

Basically the report writing is based on art rather than the specified rules. So, we can not say exact style of report writing but however the following suggestions must be followed in the preparing the report writing.

1. **Clear:** The sentence must be as clear as possible. It is better to use short paragraph containing only one issue in one paragraph. The words used must express preciously what you want to say.
2. **Be careful in grammar, terminologies and spelling:** Words are the fundamental means of transferring the findings of research. So, the researcher should carefully check about the grammar, spelling and terminologies. To make the research meaningful, the researcher should give the adequate attention to correct use of grammar, spelling and terminologies. So, concerned parties may easily understand.

3. Adhere to the study objectives: You should focus on the research problem. The main purpose of the research investigation is to answer the research questions. The report will be worthless if it is not able to give the answers of research questions. It is meaningless to report without reference to the objective.

4. Be selective: Researcher should not include every thing what he/she knows. If unnecessary materials are incorporated then important material will be lost. So, you have to judge what materials are to be included and what are to be excluded.

5. Be objective: Objectivity should be maintained in the research methods and interpretation. You must at all time retain your objectives.

6. Draw conclusions: It is the decision taken by the researcher on the basis of findings. Findings are threads, it is needed to covert to final product, is called conclusion. So, drawing conclusion is the process of theorization.

Typing of research report

The following guidelines must be followed for typing the research report.

1. **Paper**: White A4 size paper is used. Only one side must be used. The size of paper should be 8.6 by 11 inches.
2. **Chapter number:** The chapter number is to be kept in the center of the page. Following to spaces below should be the title of the chapter in capital letter. The first line of text should be written four spaces below the title.
3. **Margins:** It indicates the boundary of the text. APA specifies one inch all around like top, bottom, left and right or 3.5 cm left, 2.5 cm top and 2 cm for bottom and right.

4. Spacing: The report must be 1.5 spaced. Single spacing is used for table of contents, footnote, endnotes, graphs, charts, tables, appendices, references. Text of the report must be double spaced.

5. Page number: Page number should come at the bottom right hand corner of the page.

6. Pagination: Page should be numbered consecutively in Arabic numbers from first page to end of the page. The page in the preliminary section (declaration, preface, table of content, list of tables and figures) should be numbered with small Roman number like i, ii, iii etc.

7. Font and size: Times New Roman font, 12 font size.

8. Proof-reading: The manuscript should carefully read to find out the inaccurate statements, wrong entries, omissions, inconsistencies.

Layout of Research Report

The research report is vary as per need and nature of research. So, there is no fixed format of the research report. Generally, followings format is used while writing the research report.

A. Preliminary section:

Prior to body part of research several pages of preliminary items are presented which are as follows.

1. Title page: It is the first page. The title of the research report, full name of the candidates, name of the institutions, degree for which report is presented, name of the place, when the report is submitted are mentioned in the title page of the report.

2. Recommendation sheet: This sheet is to be attached to the thesis report. It is prepared in the letter pad of the institution. This page contains signature of thesis supervisor, campus chief and head of research department.

3. Viva-voce sheet: In this sheet the name of the viva committee are mentioned in the letter pad of campus. All the members put their signature after taking viva after the acceptance the research report.

4. Acknowledgement: Researcher should thank to all those who are involve in directly or indirectly to complete the research work.

5. Executive Summary: Executive summary is a report in miniature form. It covers all the aspects in the body of the report in summarized form.

6. Table of contents: It provides the information about the layout of the report and provides the information about various heads and sub-heads and helps to locate materials within the report. Chapter heading should be typed in the capital letter.

7. List of tables and figures: It occupy the separate page. It is kept just after the table of contents. All table's and figure's name and corresponding page numbers are written as in the table of contents.

B. Body of the report

In this part all the issues are presented systematically and serially. All subjects are classified as head and sub head. This part of the research comprises five major chapters which are as follows.

1. Introduction: In this first section, background of the research is written. It begins with introduction of the problem and its rationality. This part contains the statement of problem, objectives of the study, theoretical framework, variables, research hypothesis, limitation of the study and organization of the study (introduction, literature review, research methodology, presentation, analysis of data and summary and conclusion).

2. Review of literature: It helps to obtain depth knowledge about the research subject. All the related information are included and non-related information are excluded.

3. Research methodology: The purpose of research methodology is to describe the nature of research design, population and sample, sampling procedures, data collection procedures, variables and measures, data processing procedures, data analysis methods.

4. Data presentation and analysis: First of all, the data must be presented on the understandable way in the chart, diagram, graph and table, it is called presentation of data. When data are managed then it must be analyzed by using the different statistical tools. Data can be analyzed by the descriptive, correlation and inferential techniques.

5. Summary, conclusions and recommendations:

C. Supplementary section:

1. **Reference materials**: At the end of the report the list of the materials are presented. It provides the information to the researcher about the sources of materials that are used to prepare the research report.
2. **Appendix:** This part includes the questionnaires, charts, figures, data etc. It is kept after the reference. It does not contain the page number.

Citation and references by using APA format.

Reference is the standard of acknowledging the sources of information that is used in research. Citation is the style of managing the information in the research report. Various methods are used for the citation and references of the materials in the research report like American Psychological Association style, Havard Style, Modern Language Association, American Chemistry Society Style etc. But in the academic research APA format is used. The citation style under APA is explained as bellows:

1. Short citation: Under this method, researcher includes the saying of others that is limiting to three lines. In the citing such information researcher should use inverted comma("……") but separate paragraph is not needed for short citation. Writer surname, year of publication, information within the inverted comma are used in short citation.

2. Long citation: If the citation has more than forty words then such citation is known as long citation. Long citation is needed separate paragraph. Inverted comma is not used to long citation. In the long citation researcher should write surname of writer, year of publication and page number at the end of inside the bracket.

3. Use of ellipses: To avoid long citation that are not completely relevant, it is possible to omit part of a citation. Like "… South Asian countries have initiated for reaching reforms like opening up their economies". These ellipses is indicated by three full stop with the space before and after each full stop.

4. Indirect citation: To avoid the possibility of long citation, it is sometime necessary to paraphrase the writer's words. The exact words are not used in the quotation mark, but nevertheless acknowledged.

5. Foot note: sometime researcher uses the footnote in research report. It is used to clarify the information written in the main text of report. Researcher states this footnote at the end of the page with superscript numbers.

6. Abbreviation: Full form of such abbreviations are to be given in report so as to make easier to reader.

7. Citation style:

i) If single writer: Surname of writer and date of publication. Like, Pant (2015) found that…

ii) If two writers: Pant & Wolf (2015) found that…

iii) If more than two: Pant et. al. (2015) found that…

iv) If writer is unknown: Anonymous (2013)found that …

v) If date is not mentioned: Pant (n.d.) found that ….

Use of References or Bibliography

There are several styles of referencing to the materials but however APA style is used in the field of social science research. In the applying the APA the following must be considered.

- Reference should be managed in the alphabetical order.
- First surname and first alphabet of first and middle name, the date of publication inside the bracket and other information like Pant, P. R. (2015).
- Capital letter only for first alphabet of name and the title of the reference materials.
- You must arrange in order of dates if single writer has two works and they are used in the report, like Pant (2005), Pant (2006), Pant (2007) etc.

Reference style for books

Generally books are used for the literature review.

If there is single writer: Pant, P. R. (2012). Social science research and thesis writing. Buddha academic enterprises Pvt. Ltd. Kathmandu.

If two or more writers: Adhikary, D. R. & Pandey, D.l. (2001). Business research methods. Asmita publication, kathmandu.

If the books is edited by others: Rai, B. & Rai, C. (Eds)(2009). Essential of management. Sukunda books, Bhotahity, kathmandu.

If the books with later edition: Pant, P. R. (2012). Social science research and thesis writing(2nd edition). Buddha academic enterprises Pvt. Ltd. Kathmandu.

If book has corporate author: Central Bureau Statistics(2012). Census of Nepal. Kathmandu.

Reference of Journal Articles

Researcher mostly used empirical research articles published in various journals for review. Researcher should write the surname, first alphabet of first and middle name, date of publication, name of article, name of journal, volume, issue, page number. Name of journal should be in italic font.

If article is monthly: Rai, B. (2009, July). Managing a business at the time of recession. Boss. (Pp. 22-24)

If newspaper articles: the Kathmandu post (2010, feb.10) p.6.

Essentials of good research report

Report provides the factual information and decision is made on the basis of information. So, researcher should ensure that a report has all the essential qualities. The good report must have the following qualities.

1. **Precision:** The research report must be clear about the purpose of report writing. All the investigation, analysis, recommendation and other activities must be directed by this purpose.
2. **Accuracy of facts:** The information obtained from the report must be based of facts and accurate because the decisions are taken on the basis of information. Inaccurate information leads to the wrong decision and it will hamper for achieving the organizational goals.

3. Relevancy: The facts presented in the report must also be relevant. Irrelevant facts makes a report confusing and misleading to make proper decision.

4. Reader oriented: In the time of preparing the report writing, it necessary to considered about the person who is going to read the report. Reader's knowledge should not be influenced by the writer's emotions.

5. Simple language: A good research report must be written in a simple language. It should express exact things as found by analysis. Vague and unclear words must be avoided.

6. Grammatical accuracy: Report must be free from errors. Grammatical errors in the sentence may makes its meaning different, makes confusing and ambiguous.

7. Attractive presentation: A good research report must be catchy and smart look that draws attention of the readers. Structures, language, typing, presentation style should be attractive which makes a clear impression in the mind of its readers.

8. Unbiased recommendations: Recommendation of report influences in the mind of readers. So, it must be impartial, unbiased and objective. Report must be based on the logical conclusion drawn from the investigation and analysis.